Docket	:	A.24-04-001
Exhibit Number	:	CA-01
Commissioner	:	John Reynolds
Admin. Law Judge	:	Jeffrey Lee
Public Advocates Office	:	Stanley Kuan
Project Mgr.	:	
Witnesses	:	S. Kuan, M. Halperin M. Yeo, M. Ammermuller B. Lui, C. Jenquin

PUBLIC ADVOCATES OFFICE
CALIFORNIA PUBLIC UTILITIES COMMISSION

TESTIMONY
ON
APPLICATION OF SOUTHERN CALIFORNIA EDISON COMPANY FOR A COMMISSION FINDING THAT ITS PROCUREMENT-RELATED AND OTHER OPERATIONS FOR THE RECORD PERIOD JANUARY 1 THROUGH DECEMBER 31, 2023 COMPLIED WITH ITS ADOPTED PROCUREMENT PLAN; FOR VERIFICATION OF ITS ENTRIES IN THE ENERGY RESOURCE RECOVERY ACCOUNT AND OTHER REGULATORY ACCOUNTS; AND FOR A DECREASE OF $63.195 MILLION IN REVENUE REQUIREMENT DUE TO A NET OVERCOLLECTION RECORDED IN SEVEN ACCOUNTS

(PUBLIC VERSION)

San Francisco, California
December 6, 2024

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CHAPTER 1: EXECUTIVE SUMMARY

(Witness: Stanley Kuan)

I. EXECUTIVE SUMMARY

This testimony presents the results of the Public Advocates Office at the California Public Utilities Commission's (Cal Advocates) review of Southern California Edison Company's (SCE) Energy Resource Recovery Account (ERRA) Compliance Application (A.) 24-04-001 (Application) for the Record Period from January 1, 2023 through December 31, 2023 (2023 Record Period).[1] SCE filed its Application pursuant to Decision (D.) 02-10-062. In that Decision, the California Public Utilities Commission (Commission) required the annual review of certain utility procurement activities in the ERRA proceeding.

Pursuant to D.02-10-062, D.02-12-074, and California Public Utilities Code (PU Code) § 454.5(d)(3), the purpose of the ERRA is to allow certain electric investor-owned utilities (IOUs) to record and recover their power costs and to provide for the timely recovery of each IOU's incurred procurement costs consistent with the IOU's approved procurement plan.[2] PU Code § 454.5(d)(3) authorizes the Commission to establish balancing accounts to track the differences between recorded revenues and costs incurred related to the approved procurement plan.[3]

SCE filed its Application on April 2, 2024, requesting Commission approval for costs associated with activities that occurred during the 2023 Record Period. The scope

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[1] Application (A.) 24-04-001, *Application of Southern California Edison Company (U 338-E) for a Commission Finding that its Procurement-Related and Other Operations for the Record Period January 1 Through December 31, 2023 Complied with its Adopted Procurement Plan; for Verification of its Entries in the Energy Resource Recovery Account and Other Regulatory Accounts; and for a decrease of $63.195 million in revenue requirement due to a net overcollection recorded in seven accounts.*

[2] Decision (D.) 02-10-062, *Interim Opinion*, October 24, 2002, Finding of Fact 23 and 26, at 71 – 72, issued in Rulemaking (R.) 01-10-024 (D.02-10-062).

[3] Public Utilities Code §454.5(d)(3) states: "The commission shall establish power procurement balancing accounts to track the differences between recorded revenues and costs incurred pursuant to an approved procurement plan. The commission shall review the power procurement balancing accounts, not less than semiannually, and shall adjust rates or order refunds, as necessary, to promptly amortize a balancing account, according to a schedule determined by the commission."

of Cal Advocates' review of SCE's Application includes a review of utility-owned generation operations, fuel expenses and procurement, contract administration, least-cost dispatch, demand response, and an audit of balancing account entries. In addition, Cal Advocates also considered other ERRA issues summarized below.

In this testimony, Cal Advocates presents its analyses and recommendations associated with SCE's request. This testimony focuses exclusively on the 2023 Record Period and is based on Cal Advocates' analysis of information submitted by SCE that includes, but is not limited to, SCE's testimony and workpapers submitted with its Application, responses to data requests, and information provided in meetings.

The issues that Cal Advocates reviewed for the 2023 Record Period are listed in the table below and summarized in this chapter. For those issues or topic areas for which no testimony is filed, Cal Advocates does not have any recommendations or disallowances. The qualifications of Cal Advocates witnesses and their testimony declarations are contained in Appendix A of this report.

List of Cal Advocates Witnesses and Respective Chapters

Chapter #	Description	Witness
1	Executive Summary	Stanley Kuan
2	Least-Cost Dispatch and Demand Response Programs	Mea Halperin
3	Utility-Owned Generation – Natural Gas	Michael Yeo
4	Contract Administration	Michael Ammermuller
5	Compliance Audit of the Energy Resource Recovery Account (ERRA) and Other Balancing and Memorandum Accounts	Brian Lui, Craig Jenquin, and Michael Ammermuller
6	Greenhouse Gas Compliance Instruments	Tom Gariffo

II. SUMMARY OF FINDINGS & RECOMMENDATIONS

The following summary provides an overview of each chapter presented in the testimony and identifies the sponsoring witnesses for the 2023 Record Period.

1. Executive Summary (Stanley Kuan)

2. Least-Cost Dispatch and Demand Response Programs (Mea Halperin)

Cal Advocates does not object to SCE's least-cost dispatch (LCD) and demand response program activities for the 2023 Record Period. Cal Advocates recommends that the Commission hold a workshop with the IOUs and other interested parties to develop revised LCD filing rules that account for the electricity market changes since the rules were first developed in 2015, such as rules pertaining to the bidding and scheduling for energy storage resources.

3. Utility Owned Generation – Natural Gas (Michael Yeo)

Cal Advocates recommends the Commission a) disallow [redacted] in replacement power costs stated in SCE's ERRA balancing account for the 2023 Record Period because SCE failed to explain why it chose May 9, 2023 for its elective forced outage of Unit 4, and why it did not choose any other dates, such as during the Unit's maintenance shutdown period; and b) order SCE to change its operation and maintenance procedure on its inspection practices to include checking for loose conductor connections in the feeder cabinet, when practicable, during planned unit maintenance outages.

4. Contract Administration (Michael Ammermuller)

To determine the reasonableness of SCE's actions as a contract manager, Cal Advocates analyzed SCE's testimony, issued data requests, and gathered information about specific contracts in SCE's portfolio that were modified or terminated, or involved in contract disputes. Cal Advocates also reviewed SCE's general contract administration activities. Following this analysis, based on the information provided to Cal Advocates, and under the standards of review described in Chapter 4, Section III, Cal Advocates recommends a disallowance of [redacted] from the [redacted] due to SCE's continued imprudent contract management practices resulting in unfavorable ratepayer outcomes.

5. Compliance Audit of the Energy Resource Recovery Account (ERRA) and Other Balancing and Memorandum Accounts (Brian Lui, Craig Jenquin, and Michael Ammermuller)

First, Cal Advocates identified issues with entries in the California Solar Initiative Program Balancing Account (CSIPBA). Due to insufficient invoice support, Cal Advocates recommends a disallowance of [redacted] in the CSIPBA. Cal Advocates finds that all other accounting entries recorded in the balancing and memorandum accounts listed in Table 5-1 are correctly stated and in compliance with applicable Commission decisions. Second, Cal Advocates recommends that the Commission require SCE to a) submit an advice letter seeking Commission approval of SCE's proposed modifications to the Affiliate Transfer Fee Memorandum Account (ATFMA) preliminary statement specified in SCE Appendix II-A, and b) include the ATFMA in ERRA proceedings only after the Commission approves the advice letter wherein SCE will seek modifications to the ATFMA preliminary statement. Third, Cal Advocates recommends that SCE improve its accounting entry labels by reducing redundancies and typographical errors, as these issues complicate compliance reviews and hinder transparency.

6. Greenhouse Gas Compliance Instruments (Tom Gariffo)

As an emitter of greenhouse gas (GHG) in California, SCE is obligated to comply with the requirements of the California Air Resources Board's (CARB) Cap-and-Trade program. During the 2023 Record Period, SCE recorded [redacted] worth of greenhouse gas (GHG) compliance costs from utility-owned generation (UOG) and [redacted] worth of GHG compliance costs from tolling contracts for a total of [redacted].[4] SCE provided workpapers that report these costs and demonstrate its calculations in compliance with the methodologies detailed in D.21-05-004.

[4] SCE-02C Testimony, Table VII-74, at 247.

SCE appears to have accurately recorded and demonstrated its 2023 Record Period GHG compliance costs in accordance with Commission requirements.[5]

[5] The Executive Summary includes Cal Advocates' conclusion on SCE's compliance with its reported GHG costs. Cal Advocates did not include a separate chapter on this issue in its testimony.

CHAPTER 2: LEAST-COST DISPATCH AND DEMAND RESPONSE PROGRAMS

(**Witness**: Mea Halperin)

I. INTRODUCTION AND SUMMARY

This chapter reviews SCE's energy bidding and demand response activities for the 2023 Record Period, and determines whether SCE met the Commission's least-cost dispatch standard. Cal Advocates reviewed SCE's 2023 Record Period Application and testimony. Cal Advocates also analyzed data requests and reviewed current and past ERRA testimony and relevant Commission decisions. Finally, Cal Advocates compared SCE's performance and conduct against the Commission's least-cost dispatch standard to determine if operations were in accordance with the Commission's Standard of Conduct (SOC) 4.

II. RECOMMENDATIONS

Cal Advocates does not object to SCE's least-cost dispatch and demand response program activities for the 2023 Record Period. Cal Advocates recommends that the Commission hold a workshop with the IOUs and other interested parties to set out revised LCD filing rules that account for the electricity market changes since the rules were first developed in 2015, such as rules relating to the billing and scheduling for energy storage resources.

III. REGULATORY BACKGROUND

The procurement and dispatch of electricity by California's IOUs are guided by past Commission decisions. D.02-10-062 set minimum standards of behavior and established SOC 4, which states, "The utilities shall prudently administer all contracts and generation resources and dispatch the energy in a least-cost manner."[6] D.02-12-074 elaborated on SOC 4 and least-cost dispatch principles, stating, "[l]east-cost dispatch

[6] D.02-10-062, *Interim Opinion,* October 24, 2002 at 52; issued in R.01-10-024, *Order Instituting Rulemaking to Establish Policies and Cost Recovery Mechanisms for Generation Procurement and Renewable Resource Development* (D.02-10-062).

refers to a situation in which the most cost-effective mix of total resources is used, thereby minimizing the cost of delivering electric services…."[7]

Cal Advocates and the IOUs developed least-cost dispatch reporting standards in 2015, which the Commission adopted in D.15-05-007.[8] D.15-05-007, in conjunction with D.02-10-062 and D.02-12-074, direct SCE to demonstrate that it achieved least-cost dispatch in the ERRA Compliance process. D.15-05-007 also recognized that the dispatch of demand response programs should be reviewed as a part of least-cost dispatch compliance.[9]

IV. DISCUSSION AND ANALYSIS

A. Forecast Accuracy: Price and Demand

1. SCE's Forecast and Bid Strategy

SCE submits bids to the California Independent System Operator (CAISO) for the volume of hourly demand it expects to serve its bundled customers.[10] SCE forecasts its hourly demand for the next day and purchases most of that hourly volume from the CAISO's day-ahead market (DAM). That demand will be delivered using resources selected by CAISO, which may or may not include SCE-owned resources that SCE separately bids into the market as supply. The real-time market (RTM) will adjust supply to ensure the actual bundled demand in SCE's territory is met. SCE [redacted].[11]

[7] D.02-12-074, *Interim Opinion,* December 19, 2002 at 54; issued in R.01-10-024.

[8] D.15-05-007, *Decision Adopting Methodology and Closing Proceeding,* May 7, 2015 at 17-18; issued in Application (A.) 11-04-001, *Application of Southern California Edison Company for a Commission Finding that its Procurement-Related and Other Operations for the Record Period January 1 Through December 31, 2010 Complied with its Adopted Procurement Plan; for Verification of its Entries in the Energy Resource Recovery Account and Other Regulatory Accounts; and for Recovery of $25.613 Million Recorded in Three Memorandum Accounts* (D.15-05-007).

[9] D.15-05-007, Ordering Paragraph 3.

[10] SCE-03 Testimony at 6.

[11] SCE-03 Testimony at 9.

SCE also calculates a bid price for each resource that SCE operates or otherwise schedules into the market to generate energy for the market, reduce load (such as for demand response), or to charge energy storage.[12] The majority of resource price bids reflect the cost of fuel and generation but may also consider the [redacted].[13] Accurate price forecasts allow SCE to create bids that minimize ratepayer costs by offering resources at prudent prices that recover the costs of generation or opportunity cost at optimal hours of operation.

2. Analysis of SCE Load and Price Forecasting

SCE must maintain accurate load forecasts to avoid the purchase of excessive load. Over-forecasted load can lead SCE to purchase more energy than is needed on the CAISO DAM. Any excess load purchased on the DAM is credited back to SCE by the CAISO at RTM prices. DAM and RTM prices typically converge with one another, but it is possible for the RTM to experience price volatility or even sustained price divergence from DAM prices.

SCE must also strive to accurately forecast the price of energy on the DAM. This is critical for accurately pricing SCE's use-limited resources which have opportunity costs depending on values that shift over time due to market conditions. For example, SCE is only allocated a certain volume of generation from the Hoover Dam and should optimize the energy bid prices for that resource so that it is only dispatched when energy prices maximize potential revenue. If the bid price is too low, generation will be dispatched at a lower price and may not be available later for dispatch at a higher energy price.

Cal Advocates used SCE data to measure the mean absolute percentage error (MAPE) and variance of SCE's demand and Default Load Aggregation Point (DLAP; the average locational marginal price [LMP] across SCE's service area) price forecasts in the

[12] Self-scheduled resources are an exception since they are offered to the market at any price. SCE-03 Testimony at 6.

[13] SCE-03 Testimony at 7-8.

2023 Record Period. The MAPE measures the difference between SCE's forecasted price/demand and the actual price/demand cleared in the market.[14] The variance[15] reported in Tables 2-1 and 2-2 demonstrate the actual market price (or load delivered) minus the forecasted price (or load awarded); it is not an absolute value. A negative variance would indicate that SCE tended to over-estimate the price/load, i.e., that the actual price (or load) experienced was less than the forecasted price (or load). Calculations for price forecast accuracy use daily data and are presented below for both the top 100 highest-LMP days of the 2023 Record Period as well as for all days of the 2023 Record Period. Demand forecast accuracy summarized here was measured only for the top 100 highest-LMP days using both daily and hourly data.[16] Negative values are shown in parentheses.

Table 2-1: Price Forecast Comparison between 2014-2023 Record Periods[17]

		MAPE		Variance	
Year	**Data Range**	**Median**	**Average**	**Median**	**Average**
2023	Top 100 Days	[redacted]			
2022	Top 100 Days				
2021	Top 100 Days				
2020	Top 100 Days				
2019	Top 100 Days				
2018	Top 100 Days				
2017	Top 100 Days				
2016	Top 100 Days				
2015	Top 100 Days				
2014	Top 100 Days				
2023	All 365 Days				
2022	All 365 Days				
2021	All 365 Days				
2020	All 366 Days				

[14] The mean absolute percentage error equation is the absolute value of [(Actual Price or Demand) – (Forecast Price or Demand)] / (Actual Price or Demand).

[15] Variance in this context is a measurement of forecast error magnitude.

[16] Cal Advocates and the IOUs jointly agreed previously to such forecast reporting metrics. D.15-05-007, Appendix A.

[17] Cal Advocates' analysis based on SCE workpaper, "2023 SCE-03 Ch I. Section D. Price Forecast_CONFIDENTIAL."

		MAPE		Variance	
Year	Data Range	Median	Average	Median	Average
2019	All 365 Days	[redacted]			
2018	All 365 Days				
2017	All 365 Days				
2016	All 366 Days				
2015	All 365 Days				
2014	All 365 Days				

Table 2-1 shows that the median and average MAPEs for the top 100 LMP days in the 2023 Record Period [redacted]. A positive variance indicates that SCE tended to forecast prices lower than actual DAM prices, while a negative variance means that SCE forecasted prices higher than actual DAM prices. [redacted] For all 365 days of the 2023 Record Period, the median and average price MAPEs [redacted], and the median and average variance [redacted]. Broadly, deviations from forecast accuracy have a higher potential cost impact during the highest energy value days, so [redacted].

Table 2-2: Demand Forecast Comparison between 2014-2023 Record Periods[18]

		MAPE		Variance (MW)	
Year	Data Range	Median	Average	Median	Average
2023	Top 100 Days	[redacted]			
2022	Top 100 Days				
2021	Top 100 Days				
2020	Top 100 Days				
2019	Top 100 Days				
2018	Top 100 Days				
2017	Top 100 Days				
2016	Top 100 Days				

[18] Cal Advocates' analysis based on SCE workpapers, "2023 SCE-03 Ch I. Section D.1_DLAP Awards and Prices_CONFIDENTIAL," and "Confidential ERRA-2023-SCE-Compliance_CalAdvocates-DR32_response." The data for previous years was calculated in the same manner and is recorded in Cal Advocates' previous ERRA Compliance testimonies.

		MAPE		Variance (MW)	
Year	Data Range	Median	Average	Median	Average
2015	Top 100 Days	[redacted]	[redacted]	[redacted]	[redacted]
2014	Top 100 Days	[redacted]	[redacted]	[redacted]	[redacted]
2023	All Hours of 100	[redacted]	[redacted]	[redacted]	[redacted]
2022	All Hours of 100	[redacted]	[redacted]	[redacted]	[redacted]
2021	All Hours of 100	[redacted]	[redacted]	[redacted]	[redacted]
2020	All Hours of 100	[redacted]	[redacted]	[redacted]	[redacted]
2019	All Hours of 100	[redacted]	[redacted]	[redacted]	[redacted]
2018	All Hours of 100	[redacted]	[redacted]	[redacted]	[redacted]
2017	All Hours of 100	[redacted]	[redacted]	[redacted]	[redacted]
2016	All Hours of 100	[redacted]	[redacted]	[redacted]	[redacted]
2015	All Hours of 100	[redacted]	[redacted]	[redacted]	[redacted]
2014	All Hours of 100	[redacted]	[redacted]	[redacted]	[redacted]

Table 2-2 shows SCE's demand forecast accuracy. For the top 100 energy value days of the 2023 Record Period, SCE's median and average MAPE values [redacted], indicating [redacted] in SCE's forecast accuracy. Additionally, the variances for the top 100 energy value days of the 2023 Record Period [redacted], indicating that SCE [redacted] the demand it would need to serve the next day's load in the top 100 highest priced days, causing SCE to [redacted] day-ahead resources than was necessary to provide service.

However, when looking at all hours of the 100 top energy value days, the variances are [redacted], indicating SCE's [redacted]. The variances are [redacted] than for the top 100 energy value days in aggregate, though they are [redacted] than in the previous Record Period. The median and mean MAPE values for all hours of the top 100 energy

value days are also [redacted] for the top 100 energy value days in aggregate, indicating [redacted].

3. Conclusion on Demand and Price Forecasting in the 2023 Record Period

Tables 2-1 and 2-2 show that SCE's demand and price forecasting was [redacted] in the 2023 Record Period than in the previous year. However, Cal Advocates determined that SCE's price forecasting was reasonable and, thus, does not object to SCE's price and load forecasting in the 2023 Record Period.

B. SCE's Supply Bidding Strategy

SCE offers its resources for dispatch in the CAISO markets by [redacted].[19] Self-schedules are also known as "price-taker" bids since the resource will be paid at the price of energy at the time of dispatch. Self-scheduling is inherently at odds with least-cost dispatch principles but is appropriate for must-run resources, such as run-of-the-river hydro, or resources with minimal costs of operation and/or fuel, such as solar power plants. Dispatchable thermal units may also be appropriately self-scheduled when the unit must generate energy during certain testing or maintenance periods.

Most dispatchable resources, like natural gas-fired power plants, have fuel and operational costs whenever they generate. Appropriate economic bids consider those costs and any other costs of generation as inputs to the final bid price. Economic bidding and least-cost dispatch principles ensure that the resource only runs when its market payment is at or above the cost of operation, ensuring full market cost recovery of generation costs.

1. Review of Economic Bids for Thermal Resources

Cal Advocates reviewed the economic bids of resources for which SCE held schedule coordinator duties during the 2023 Record Period. Thermal dispatchable resources are appropriately dispatched when the cost of energy (the LMP at the

[19] SCE-03 Testimony at 6.

resource's price node) exceeds the costs of resource generation. While the CAISO ultimately makes resource dispatch decisions, SCE must construct economic bids for its resources to accurately state the cost of generation and offer them to the market for dispatch. A properly constructed economic bid does not guarantee dispatch, as the CAISO considers overall demand needs as well as regional constraints such as transmission congestion.

Figure 2-1: Thermal Generation Scheduled by SCE and Average Day-Ahead LMP(Confidential)[20]

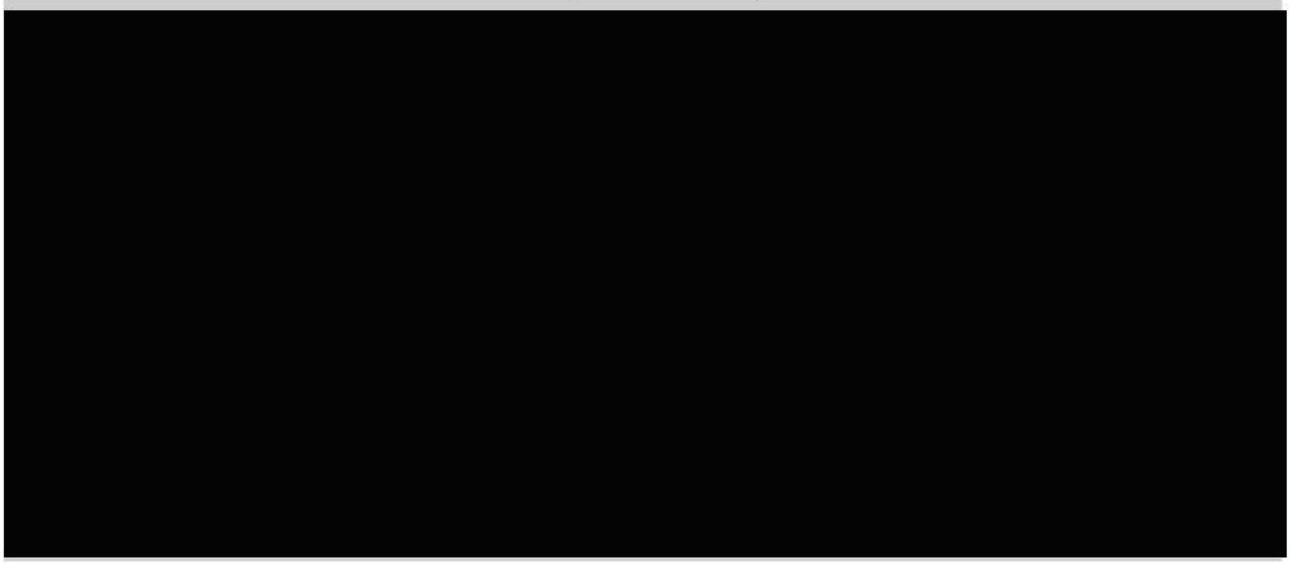

Figure 2-1 above shows the dispatch of natural gas resources scheduled by SCE. In general, SCE received awards in correlation with its monthly demand. As the figure demonstrates, [redacted] The generation shown in Figure 2-1 would be complemented by other forms of supply such as non-thermal resources scheduled by SCE, contracted energy that SCE does not schedule, imported energy, and energy purchases from the CAISO energy markets.

[20] The LMP (right-vertical axis) includes negative prices for the sake of visual clarity of the Average Day Ahead LMP line. Resources with multiple units are aggregated, except for resources with individual units above 100MW nameplate capacity. (Cal Advocates' analysis based on SCE workpaper, "2023 SCE-03 Ch I. Section H_Disp Awards-Bids_CONFIDENTIAL.").

2. Review of Energy Storage Bids

SCE's testimony and worksheets include reports of bid and dispatch behavior of its energy storage resources.[21] Energy storage resources are use-limited given they exhaust their fuel (stored energy) after four consecutive hours of full dispatch. Energy storage resources also often have daily and/or annual charge/discharge limits. This means least-cost dispatch principles are met when the resources are scheduled for dispatch at the most expensive LMP hours of the day and scheduled to charge during the least expensive LMP hours of the day.

SCE creates economic bids for its energy storage resources using opportunity cost principles. [redacted].[22] SCE's strategy [redacted].[23] Cal Advocates' analysis below focuses on one of SCE's energy storage resources as a sample of SCE's storage bidding and scheduling activities.

[21] These are energy storage resources that SCE is responsible for bidding to CAISO. These include Alamitos Energy Storage, Genesis McCoy, Crimson, Dracker Solar Units 2 and 3, Desert Sunlight PV II Storage, Garland B, Mira Loma A and B, and RE Tranquillity. (Cal Advocates DR6, Q1 submitted in A.23-04-003.)

[22] Cal Advocates DR6, Q3 submitted in A.23-04-003.

[23] SCE-03 Testimony at 7.

Figure 2-2: Daily Sum of Discharge and Charge Awards and Average Monthly Bids for [redacted] Energy Storage Resource (Confidential)[24]

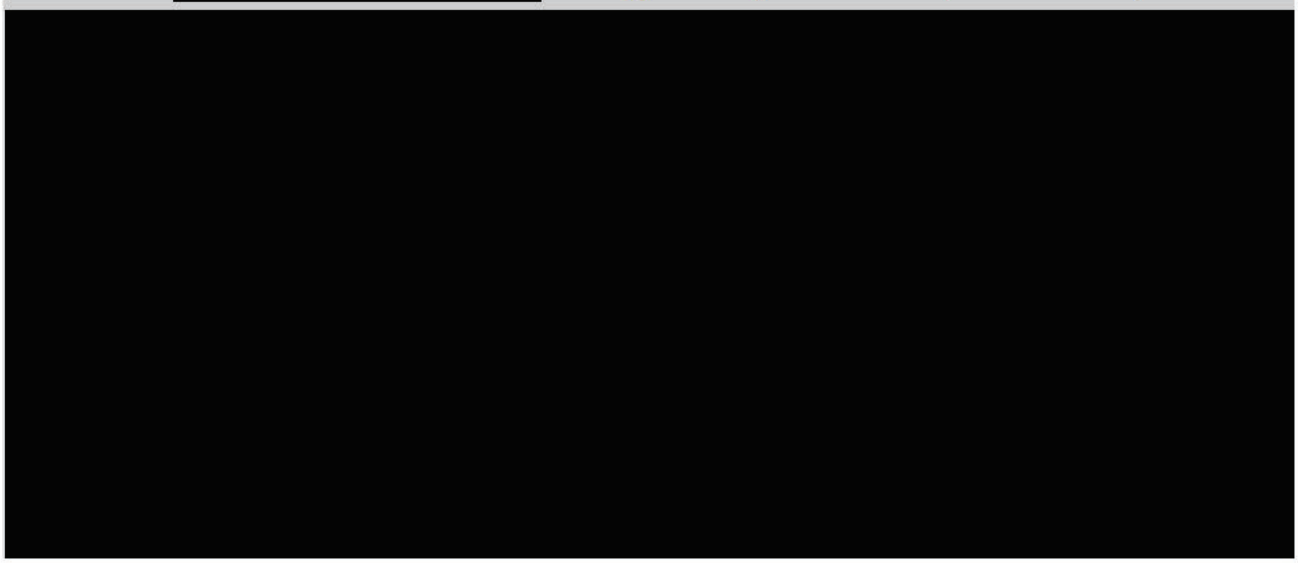

Figure 2-2 shows the average dollar amount of hourly economic bids on a monthly basis and daily charge and discharge awards in the 2023 Record Period for one of SCE's energy storage resources, [redacted].[25] Figure 2-2 does not show [redacted], but it does show [redacted]. This indicates that SCE [redacted]. This is consistent with least-cost dispatch principles.

Presently, there is no explicit requirement for the IOUs to submit their energy storage bidding and scheduling activities in their ERRA compliance applications. Since the least-cost dispatch filing requirements were codified in 2015, there have been numerous changes to the electricity market, including the bidding and scheduling of energy storage resources. Cal Advocates recommends that the Commission hold a workshop with the IOUs and other interested parties to set out revised LCD filing rules that account for these market changes.

[24] Cal Advocates analysis based on SCE workpaper titled, "2023 SCE-03 Ch I. Section H_Disp Awards-Bids_CONFIDENTIAL."

[25] Figure 2-2 does not include ancillary service awards.

3. Self-Scheduling Activity

In the 2023 Record Period, SCE [redacted].[26] [redacted].[27] During the 2023 Record Period, CAISO awarded [redacted] MWh of SCE's non-dispatchable must-take resources such as wind and solar resources.[28]

SCE submitted [redacted] MWh of self-scheduled energy in the 2023 Record Period for non-discretionary purposes.[29] [redacted].[30] Self-schedule volumes of other dispatchable thermal resources are consistent with historical patterns for testing SCE's thermal fleet.

4. Incremental Bid Cost Formulation and Variances

SCE formulates bids for each resource for it possesses dispatch rights and submits them to the CAISO's Integrated Forward Market (IFM), which is made up of the DAM for energy and ancillary services, as well as the Residual Unit Commitment (RUC)

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[26] SCE-03 Testimony at 13.

[27] SCE-03 Testimony at 7.

[28] SCE-03 Testimony at 17.

[29] SCE Workpaper titled, "2023 SCE-03 Ch I. Section H_SS and Market Awards_CONFIDENTIAL."

[30] SCE included the following note in its 2022 Record Period ERRA Compliance filing: [redacted] (SCE Workpaper titled, "(Confidential) SCE ERRA 2022 Section E_SS and Market Awards." See also SCE Advice Letter 4767-E, accessed at https://edisonintl.sharepoint.com/:b:/r/teams/Public/TM2/Shared%20Documents/Public/Regulatory/Filings-Advice%20Letters/Approved/Electric/ELECTRIC_4767-E.pdf?csf=1&web=1&e=2s2la2.)

process.[31] Bid variances may arise when SCE's calculation of resource bids (calculated bids) varies from the price that is ultimately submitted to the CAISO markets (clean bids).[32]

SCE reports that of the 282,413 bids for dispatchable thermal resources it submitted to CAISO during the 2023 Record Period, 874 led to "true"[33] variances because [redacted][34] [redacted][35] [redacted][36] [redacted][37] [redacted][38]

[31] SCE-03 Testimony at 12.

[32] [redacted]. (SCE Workpaper titled, "2023 SCE-03 Ch I. Section F_Inc Bid Cost Variance Methodology_CONFIDENTIAL.pdf" at 1.)

[33] There were [redacted] other bids leading to a variance of greater than $0.10 that [redacted] SCE Workpaper titled, "2023 SCE-03 Ch I. Section F_Inc Bid Cost Variance Methodology_CONFIDENTIAL.pdf" at 1.

[34] SCE Workpaper titled, "2023 SCE-03 Ch I. Section F_Inc Bid Cost Variance Methodology_CONFIDENTIAL.pdf" at 1.

[35] SCE Workpaper titled, "2023 SCE-03 Ch I. Section F_Inc Bid Cost Variance Methodology_CONFIDENTIAL.pdf" at 2.

[36] SCE Workpaper titled, "2023 SCE-03 Ch I. Section F_Inc Bid Cost Variance Methodology_CONFIDENTIAL.pdf" at 2-3.

[37] SCE Workpaper titled, "2023 SCE-03 Ch I. Section F_Inc Bid Cost Variance Methodology_CONFIDENTIAL.pdf" at 3.

[38] SCE Workpaper titled, "2023 SCE-03 Ch I. Section F_Inc Bid Cost Variance Methodology_CONFIDENTIAL.pdf" at 3.

SCE also reports 264 energy storage resource bid variances that stemmed from a single user error, and which impacted the ancillary services bids for SCE's [redacted] storage resources.[39] There were an additional 144 dispatchable thermal bids that SCE submitted that were not flagged as variances "but that were submitted incorrectly due to an incorrect bid parameter being utilized to calculated the bids."[40] These 1,282 variances had a total cost impact of $81,491.36.[41] Given that these 1,282 bids represent only 0.45% of SCE's overall dispatchable resource bids and amount to a relatively small sum, along with the fact that [redacted], SCE meets the SOC 4 reasonable manager standard for its dispatchable resource bidding activity.

C. Hydro Management

Dispatchable hydro, specifically reservoir-fed systems and pumped storage facilities, is a type of use-limited generation constrained by available water and various local, state, and federal water-use constraints. SCE bids these resources into the market with consideration for the opportunity cost of running the resource at particular times, subject to those constraints.[42] Hydro resources provide the highest value to customers when they are dispatched during high energy price periods, maximizing market revenues and mitigating the cost of dispatching more expensive resources.

In the 2023 Record Period, SCE operated five dispatchable hydro resources/systems. The Big Creek hydroelectric system is made up of six reservoirs and nine powerhouses, representing 1,015 MW of combined capacity.[43] This complex includes the John S. Eastwood Power Station (Eastwood), a 200 MW pumped hydro

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[39] SCE-03 Testimony at 13, SCE Workpaper titled, "2023 SCE-03 Ch I. Section F_Energy Storage Bid Cost Variance Cost Impact_CONFIDENTIAL."

[40] SCE-03 Testimony at 13.

[41] The first 874 thermal bids had a $79,075.36 cost impact, the 264 energy storage bids had a $0 cost impact, and the last 144 thermal bids had a cost impact of $2,416. (SCE-03 Testimony at 13.)

[42] SCE-03 Testimony at 7, 9.

[43] SCE-01C Testimony at 11.

resource.[44] SCE also owns and operates the Poole[45] and Rush Creek[46] hydroelectric resources, 11.25 MW and 13.01 MW, respectively. SCE also holds a contract with the Western Area Power Administration and the Bureau of Reclamation for 280.2 MW of Hoover Dam generation.[47] Finally, SCE operates several relatively smaller non-dispatchable hydro assets totaling 149 MW.[48]

Cal Advocates reviewed SCE's hydro dispatch over the course of the 2023 Record Period, with particular focus on energy dispatched during the highest-value energy hours of the year. SCE's hydro facilities were awarded for energy dispatches and/or ancillary services [redacted][49] of the 2023 Record Period in which the hydro resource was operational.[50]

Table 2-3: Dispatch and Ancillary Service Awards for SCE's Hydro Resources During the Top 500 Highest LMP Hours of the Record Period[51]

Hydro Resource	Percent total available capacity utilized by the market	Hours of no generation[52]
Big Creek	[redacted]	[redacted]
Eastwood	[redacted]	[redacted]
Hoover Dam	[redacted]	[redacted]
Rush Creek	[redacted]	[redacted]
Poole	[redacted]	[redacted]

[44] SCE-01C Testimony at 11-12.

[45] "Southern California Edison Lee Vining Hydroelectric Project Draft License Application, Volume 1," September 2024 at A-11, accessed at https://www.sce.com/sites/default/files/custom-files/PDF_Files/_Lee_Vining_P-1388_DLA_Volume-I_Combined.pdf. Note: the Poole Powerhouse is part of the Lee Vining Hydroelectric Project.

[46] "Rush Creek Project Relicensing," last updated August 2024, accessed at https://www.sce.com/regulatory/hydro-licensing/rush-creek.

[47] SCE-03 Testimony at 63.

[48] SCE-01C Testimony at 11.

[49] SCE Workpaper titled, "2023 SCE-03 Ch I. Section D.5 Hydro Awards-LMPs_CONFIDENTIAL."

[50] Operability may be reduced by forced or planned outages, water availability, transmission outages, reservoir work, and water use constraints determined by county, state, or federal agencies.

[51] SCE Workpaper titled, "2023 SCE-03 Ch I. Section D.5 Hydro Awards-LMPs_CONFIDENTIAL_CalDR03_01," from Cal Advocates DR3, Q1.

[52] Does not include hours of no generation when the unit was unavailable to the market, such as during an outage.

Cal Advocates finds SCE's bidding of its hydroelectric resources in the 2023 Record Period reasonable.

1. Eastwood Pumped Hydro

The Eastwood hydroelectric resource has pump-back capabilities that allow the resource to consume energy to pump water from Shaver Lake and store it at the higher-altitude forebay, Balsam Meadow.[53] This stored water may be used for generation during hours with high energy prices to offset the high costs of generating electricity.[54] Since pump-back operations are less efficient than generation, pumping adds value only when utilized in hours of relatively low energy prices and with the expectation that high energy prices will occur very soon due to the limited size of Eastwood's forebay and the natural and manmade water flows into it. This enables Eastwood to generate revenue by buying low (consuming energy through pump-back) and selling high (using the pumped water for generation).

In September 2022, Eastwood's main unit circuit breaker "reached the end of its useful life and experienced a critical in-service failure."[55] Consequently, the breaker exploded, critically damaging the facility's walls and requiring the facility to shut down.[56] Eastwood has been in a forced outage state since this event took place and did not perform any electricity generation or pump-back activities throughout the 2023 Record Period.[57] SCE states that it will provide an update on Eastwood in its next ERRA Compliance filing.[58]

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[53] SCE-01C Testimony at 19.

[54] SCE-01C Testimony at 19-20.

[55] SCE-01C Testimony at 34.

[56] SCE-01C Testimony at 34.

[57] SCE-01C Testimony at 34.

[58] SCE-01C Testimony at 34.

D. Demand Response Management

1. Least-Cost Dispatch Principles

SCE's economically-triggered demand response resources may be dispatched by CAISO when the LMP is above the resource's economic bid or during periods of emergency reliability. Cal Advocates reviewed SCE's demand response resource bid price calculations and SCE's decisions to offer or withhold the resources to the market, to ensure that SCE met least-cost dispatch principles and utilized the most cost-effective portfolio of resources.

SCE's demand response programs include the Capacity Bidding Program (CBP),[59] Summer Discount Plan (SDP), Smart Energy Program (SEP), and three Local Capacity Requirement (LCR) resources. These programs are further categorized by 1) day-of scheduling versus day-ahead scheduling, 2) the sector served, and/or 3) how many hours the program may be active per day. SCE formulated bids for its 1,035 MW[60] of economically-triggered demand response resources based on [redacted][61]

2. Dispatch in the Record Period

SCE meets least-cost dispatch principles when its demand response programs are dispatched as much as possible during high-price energy hours, with consideration for program and contract limitations, such as maximum monthly dispatches, and other opportunity costs. Optimized demand response programs mitigate the dispatch of higher-priced resources on the grid and help to offset the fixed monthly costs of the demand

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[59] [redacted] (SCE Workpapers, "2023 SCE-03 Ch I. Section I_DR-CBPDA16_CONFIDENTIAL" and "2023 SCE-03 Section I_Ch I. DR-CBPDO16_CONFIDENTIAL.")

[60] SCE-03 Testimony at 19.

[61] SCE Workpapers, "2023 SCE-03 Ch I. Section I_DR-CBPDA16_CONFIDENTIAL," "2023 SCE-03 Ch I. Section I_DR-CBPDO16_CONFIDENTIAL," "2023 SCE-03 Ch I. Section I_DR-LCR_ACES_CONFIDENTIAL," "2023 SCE-03 Ch I. Section I_DR-LCR_AMS_CONFIDENTIAL," "2023 SCE-03 Ch I. Section I_DR-LCR_STEM_CONFIDENTIAL," "2023 SCE-03 Ch I. Section I_DR-SDP_CONFIDENTIAL," and "2023 SCE-03 Ch I. Section I_DR-SEP_CONFIDENTIAL."

response programs. SCE pays demand response subscribers or contracted program managers a fixed rate per month regardless of whether the program is dispatched or not.

Figure 2-3: Monthly Demand Response Program Dispatch Count with Average LMP (Confidential)[62]

Figure 2-3 above shows the number of dispatches of each demand response program compared with the average monthly LMP. [redacted],[63]

[62] Cal Advocates Workpaper – Combined DR Analysis CONFIDENTIAL.

[63] [redacted] (SCE Workpapers, "2023 SCE-03 Ch I. Section I_DR-LCR_ACES_CONFIDENTIAL," "2023 SCE-03 Ch I. Section I_DR-LCR_AMS_CONFIDENTIAL," and "2023 SCE-03 Ch I. Section I_DR-LCR_STEM_CONFIDENTIAL.")

Figure 2-4: Monthly Demand Response Dispatch Awards with Average Monthly LMP (Confidential)[64]

Figure 2-4 above shows the total MWh dispatch awards for each demand response program. [redacted] Given [redacted], however, it is reasonable for the demand response programs to have been dispatched to mitigate those prices.

Table 2-4: Demand Response Program Use Factor, Dispatch Exceptions, and Efficiency (Confidential)[65]

Program	Use Factor	Number of Exceptions	Exception Cost Impact	Program Optimization	Reasons for Exceptions
CBP-DA	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
CBP-DO	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

[64] Cal Advocates Workpaper – Combined DR Analysis CONFIDENTIAL.

[65] SCE Workpapers, "2023 SCE-03 Ch I. Section I_DR-CBPDA16_CONFIDENTIAL," "2023 SCE-03 Ch I. DR-CBPDO16_CONFIDENTIAL," "2023 SCE-03 Ch I. Section I_DR-LCR_ACES_CONFIDENTIAL," "2023 SCE-03 Ch I. Section I_DR-LCR_AMS_CONFIDENTIAL," "2023 SCE-03 Ch I. Section I_DR-LCR_STEM_CONFIDENTIAL," "2023 SCE-03 Ch I. Section I_DR-SDP_CONFIDENTIAL," and "2023 SCE-03 Ch I. Section I_DR-SEP_CONFIDENTIAL."

Program	Use Factor	Number of Exceptions	Exception Cost Impact	Program Optimization	Reasons for Exceptions
LCR-AMS	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
LCR-NRG	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
LCR-STEM	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
SDP	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
SEP	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

Table 2-4 shows SCE's demand response use factor[66] program dispatch exceptions[67] and program efficiency rate. In its workpapers, SCE reports a demand response program's "cost impact/potential cost," or the estimated lost revenue from a demand response resource not getting dispatched when it would have been most optimal; Cal Advocates interprets this calculation as the efficiency rate. Although [redacted] There were [redacted] total demand response dispatch exceptions with a total cost impact of [redacted]. This is reasonable, given [redacted], and given the reasons for the exceptions, which were largely outside of SCE's control.

3. Cal Advocates' Assessment of Demand Response Administration

Cal Advocates concludes that SCE's economically-triggered demand response resources were made available during high-price hours at reasonable bid prices in the 2023 Record Period. Throughout the year, demand response resources were dispatched

[66] The use factor measures the amount of MWh dispatched out of the total available MWh for the demand response resource. (SCE Workpapers, "2023 SCE-03 Ch I. Section I_DR-CBPDA16_CONFIDENTIAL," "2023 SCE-03 Ch I. DR-CBPDO16_CONFIDENTIAL," "2023 SCE-03 Ch I. Section I_DR-LCR_ACES_CONFIDENTIAL," "2023 SCE-03 Ch I. Section I_DR-LCR_AMS_CONFIDENTIAL," "2023 SCE-03 Ch I. Section I_DR-LCR_STEM_CONFIDENTIAL," "2023 SCE-03 Ch I. Section I_DR-SDP_CONFIDENTIAL," and "2023 SCE-03 Ch I. Section I_DR-SEP_CONFIDENTIAL.")

[67] In this context, "exception" is roughly synonymous with "error."

with respect to their use limitations and program design, helping to mitigate the dispatch of more expensive resources.

V. CONCLUSION

Overall, Cal Advocates does not object to SCE's conduct, procedures, and market results of economic bidding and scheduling in the 2023 Record Period. Cal Advocates recommends that the Commission hold a workshop with the IOUs and other interested parties to set out revised LCD filing rules that account for the electricity market changes since the rules were first developed in 2015, such as the bidding and scheduling of energy storage resources.

LIST OF ATTACHMENTS FOR CHAPTER 2

#	Attachment	Description
2.1	Attachment 2.1 Confidential	2023 SCE-03 Ch I. Section D. Price Forecast_CONFIDENTIAL Available via email
2.2	Attachment 2.2 Confidential	2023 SCE-03 Ch I. Section D.1_DLAP Awards and Prices_CONFIDENTIAL Available via email
2.3	Attachment 2.3 Confidential	Confidential ERRA-2023-SCE-Compliance_CalAdvocates-DR32_response Available via email
2.4	Attachment 2.4	A.23-04-003_Cal Advocates-SCE-006 - 01 - Answer
2.5	Attachment 2.5 Confidential	A.23-04-003_Cal Advocates-SCE-006 - 03 - Answer Confidential
2.6	Attachment 2.6 Confidential	2023 SCE-03 Ch I. Section H_Disp Awards-Bids_CONFIDENTIAL Available via email
2.7	Attachment 2.7 Confidential	2023 SCE-03 Ch I. Section H_SS and Market Awards_CONFIDENTIAL Available via email
2.8	Attachment 2.8 Confidential	(Confidential) SCE ERRA 2022 Section E_SS and Market Awards Available via email
2.9	Attachment 2.9 Confidential	2023 SCE-03 Ch I. Section F_Inc Bid Cost Variance Methodology_CONFIDENTIAL
2.10	Attachment 2.10 Confidential	2023 SCE-03 Ch I. Section F_Energy Storge Bid Cost Variance Cost Impact_CONFIDENTIAL Available via email
2.11	Attachment 2.11 Confidential	2023 SCE-03 Ch I. Section D.5 Hydro Awards-LMPs_CONFIDENTIAL_CalDR03_01 Available via email

#	Attachment	Description
2.12	Attachment 2.12 Confidential	2023 SCE-03 Ch I. Section I_DR-CBPDA16_CONFIDENTIAL Available via email
2.13	Attachment 2.13 Confidential	2023 SCE-03 Ch I. Section I_DR-CBPDO16_CONFIDENTIAL Available via email
2.14	Attachment 2.14 Confidential	2023 SCE-03 Ch I. Section I_DR-LCR_ACES_CONFIDENTIAL Available via email
2.15	Attachment 2.15 Confidential	2023 SCE-03 Ch I. Section I_DR-LCR_AMS_CONFIDENTIAL Available via email
2.16	Attachment 2.16 Confidential	2023 SCE-03 Ch I. Section I_DR-LCR_STEM_CONFIDENTIAL Available via email
2.17	Attachment 2.17 Confidential	2023 SCE-03 Ch I. Section I_DR-SDP_CONFIDENTIAL Available via email
2.18	Attachment 2.18 Confidential	2023 SCE-03 Ch I. Section I_DR-SEP_CONFIDENTIAL Available via email
2.19	Attachment 2.19 Confidential	Cal Advocates Workpaper - Combined DR Analysis CONFIDENTIAL Available via email

CHAPTER 3: UTILITY-OWNED GENERATION – NATURAL GAS

(Witness: Michael Yeo)

I. INTRODUCTION AND RECOMMENDATION

This chapter addresses the operation and management of SCE's utility-owned natural gas facilities, and the outages that occurred at those facilities during the 2023 Record Period.

After reviewing SCE's testimony and responses to data requests, Cal Advocates recommends that the Commission:

(a) disallow SCE recovery of [redacted] in replacement power costs stated in SCE's ERRA balancing account for the 2023 Record Period because SCE failed to explain why it chose May 9, 2023 for its elective forced outage of Unit 4, and why it did not choose any other dates, such as during the Unit's maintenance shutdown period.

(b) order SCE to change its operation and maintenance procedure relating to its inspection practices to include checking for loose conductor connections in the feeder cabinet, when practicable, during planned unit maintenance outages.

II. GENERATION FACILITIES[68]

SCE owns, operates, and maintains five natural gas-fired peaking generating plants (Peakers) and one combined-cycle gas-fired generating station called Mountainview Generating Station.

A. SCE Peaker Facilities

As a result of heat and power-demand conditions experienced in Southern California during July and August 2006, the Commission directed SCE to develop five SCE-owned black-start-capable Peaker units[69] (Peaker) of up to 250 MW total generating capacity to provide the urgently needed capacity and grid reliability for its entire

[68] Information about SCE's natural gas generation facilities was provided in Chapter III (Natural Gas Generation) of SCE Direct Testimony SCE-01, SCE-06, and from SCE data request responses.

[69] Black start is the ability to start or restore a power generator to operation without relying on external energy sources. (https://ieeexplore.ieee.org/document/5469492).

transmission and distribution system.[70] The objective was to reduce the risk of shortages and blackouts during peak demand periods and other system emergencies. SCE filed Application (A.) 07-12-029 to recover costs associated with acquiring and installing the five Peakers, four of which became operational in August 2007, and the fifth in November 2012.[71]

The fifth Peaker, the McGrath Peaker Generating Station (McGrath Peaker), became operational on November 1, 2012. SCE then filed A.12-12-028 on December 31, 2012, to demonstrate the reasonableness of the costs incurred to install the McGrath Peaker and requested recovery of the revenue requirement associated with it. The Commission approved SCE's request in D.14-06-043.

Each of SCE's five Peakers consist of a single, simple-cycle, aeroderivative combustion turbine generator of approximately 49 MW-rated net capacity.[72] Together, the five Peakers offer 245 MW of generating capacity.[73]

The Peakers contribute to bulk power grid reliability with quick starting and rapid ramping capabilities and can run several times per day if necessary.[74] Because of their relatively low startup costs and ability to start up and shut down quickly, the Peakers can run when necessary to help reduce overall customer costs.[75]

SCE states that the power from its Peakers is used for the CAISO energy and ancillary services markets, where the units run to meet unexpected customer demand when needed, respond to unplanned system contingencies, or provide required system operating reserves by remaining off-line but immediately available.[76] Because of the

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[70] August 15, 2006, *Assigned Commissioner's Ruling Addressing Electric Reliability Needs in Southern California for Summer 2007* (ACR) in Rulemakings (R.) 05-12-013 and R.06-02-013, pp. 2, 6.

[71] SCE testimony, SCE-01, at 37:11-12.

[72] SCE testimony, SCE-01, at 37:9-10.

[73] SCE testimony, SCE-01, at 37:10-11.

[74] SCE testimony, SCE-01, at 37:15-16.

[75] SCE testimony, SCE-01, at 37:16-18.

[76] SCE testimony, SCE-01, at 37:18-20.

Peakers' black-start capability, they can be used to help restore power if the grid experiences a total shutdown or "black-out."[77] However, there is a limitation on each Peaker's daily and annual use as Peakers are not allowed to exceed their respective daily and annual air emissions permit limits.[78]

The five SCE Peakers are:

1. Barre Peaker

The Barre Peaker is located at SCE's Barre Substation in Stanton, California (CA), with an operation date of August 2007.[79]

2. Center Hybrid Peaker

The Center Hybrid Peaker is located at SCE's Center Substation in Norwalk, CA, with an operation date of August 2007.[80] Pursuant to the Commission's May 26, 2016, Resolution E-4791, authorizing expedited procurement of storage resources, and D.18-06-009, the Center Hybrid Peaker underwent Enhanced Gas Turbine upgrades in 2016, that included the integration of a 10 MW battery energy storage system into the Peaker.[81] Henceforth, it became a hybrid unit. The cost recovery for the upgrade was approved in D.18-06-009.[82]

3. Grapeland Hybrid Peaker

The Grapeland Hybrid Peaker is located at SCE's Etiwanda Substation in Rancho Cucamonga, CA, with an operation date of August 2007.[83] In 2016, pursuant to Commission Resolution E-4791 and D.18-06-009, the Grapeland Peaker also underwent Enhanced Gas Turbine upgrades that included the integration of a 10 MW battery energy

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[77] SCE testimony, SCE-01, at 37:21 – 38:2.

[78] SCE testimony, SCE-01, at 37, fn. 49.

[79] SCE testimony, SCE-01, at 37:5:11.

[80] SCE testimony, SCE-01, at 37:5-6:11.

[81] SCE testimony, SCE-01, at 37, fn. 46.

[82] A.17-03-020 *Application of Southern California Edison Company for Recovery of Aliso Canyon Utility-Owned Energy Storage Costs*.

[83] SCE testimony, SCE-01, at 37:6-7:11.

storage system into the Peaker.[84] Like the aforementioned Center Hybrid Peaker, it became a hybrid unit. The cost recovery for the upgrade was approved in D.18-06-009.[85]

4. McGrath Peaker

The McGrath Peaker is located next to NRG Energy's Mandalay Generating Station in Oxnard, CA, with a commercial operation date of November 2012.[86]

5. Mira Loma Peaker

The Mira Loma Peaker is located at SCE's Mira Loma Substation in Ontario, CA, with an operation date of August 2007.[87] Pursuant to Commission Resolution E-4791 and D.18-06-009, SCE added 2 10 MW, 4-hour battery energy storage systems adjacent to the Mira Loma Peaker.[88] Unlike the enhancements at the Center Hybrid Peaker and the Grapeland Hybrid Peaker, these battery system additions were not integrated into the Mira Loma Peaker.[89] Therefore, the Mira Loma Peaker is not considered a hybrid generating facility.

B. Mountainview Generating Station

Background

The Mountainview Generating Station (Mountainview Station) is a two-unit (named Unit 3 and Unit 4) combined-cycle gas turbine power plant located in Redlands, CA.[90] Each unit consists of two combustion turbines (CTs) and one steam turbine (ST)

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[84] SCE-01, at 37, fn. 46.

[85] A.17-03-020 *Application of Southern California Edison Company for Recovery of Aliso Canyon Utility-Owned Energy Storage Costs*.

[86] SCE testimony, SCE-01, at 37:8-9:11-12.

[87] SCE testimony, SCE-01, at 37:7-8:11.

[88] SCE testimony, SCE-01, at 37, fn. 46.

[89] SCE testimony, SCE-01, at 37, fn. 46.

[90] SCE testimony, SCE-01, at 46, line 11 to 13 and SCE response to Cal Advocates Data Request 28, Question 004.

and generates approximately 555 MW of power per unit.[91] The two units yield a nominal 1,110 MW net for the plant.[92]

The current Mountainview Station was built on the site of SCE's former San Bernardino Generating Station that consisted of two units, Unit 1 and 2, both of which were retired and decommissioned several years ago.[93] SCE decommissioned the two units in 2009 and sold the San Bernardino Generating Station to Thermo Ecotek Corporation as part of its generation divestiture during electric restructuring.[94] The sale to Thermo Ecotek Corporation was approved by the Commission in D.97-12-106.[95] Thermo Ecotek subsequently changed the name of the facility to Mountainview.[96]

Thermo Ecotek subsequently filed an Application for Certification for Mountainview Units 3 and Unit 4 with the California Energy Commission (CEC) on February 1, 2000.[97] The CEC approved the Application for Certification on March 21, 2001.[98] The AES Corporation purchased Thermo Ecotek from Ecotek's parent company, Thermo Electron Corporation, on July 31, 2001, and the sale included the Mountainview power plant.[99] In April 2003, Intergen bought the Mountainview Project from AES.[100]

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[91] SCE testimony, SCE-01, at 46, line 12 to 13 and SCE response to Cal Advocates Data Request 28, Question 004.

[92] SCE testimony, SCE-01, at 46, line 13 and SCE's response to Cal Advocates Data Request 28 Question 004.

[93] SCE response to Cal Advocates Data Request 28, Question 004.

[94] The divestiture was undertaken by Decision 95-12-063, as modified by Decision 96-01-009, Assembly Bill 1890, and Decision 03-02-028.

[95] A.96-11-046 *In the Matter of the Application of Southern California Edison Company (U-338-E) for authority to sell gas-fired electrical generation facilities.*

[96] Powermag.com 8/15/2006 article on Mountainview. http://www.powermag.com/mountainview-power-plant-redlands-california/?pagenum=2.

[97] https://www.energy.ca.gov/powerplant/combined-cycle/mountainview-generating-station

[98] https://www.energy.ca.gov/powerplant/combined-cycle/mountainview-generating-station

[99] Thermo Electron Corporation's New Release on July 31, 2001: https://ir.thermofisher.com/investors/news-and-events/news-releases/news-release-details/2001/Thermo-Electron-Completes-Final-Phase-of-Thermo-Ecotek-Sale/default.aspx?print=1

[100] https://www.energy.ca.gov/powerplant/combined-cycle/mountainview-generating-station

In A.03-07-032,[101] filed on July 21, 2003, SCE sought the Commission's authorization to acquire the Mountainview Power Company either (1) as a wholly owned subsidiary to enter into a power purchase agreement (PPA) with the Mountainview Power Company for electricity from the Mountainview Power Project, or (2) as a utility-owned generation facility. On December 18, 2003, the Commission approved A.03-07-032 in D.03-12-059 and authorized SCE to execute the PPA. D.03-12-059 was modified by two subsequent Decisions, D.04-03-037[102] and D.04-04-019.[103] Through D.04-03-037 and D.04-04-019, the Mountainview Power Company became a wholly-owned subsidiary of SCE and held a PPA with SCE.

In D.09-03-025,[104] the Commission approved SCE's request to operate Mountainview Station as a utility-owned generation facility rather than as a PPA lessee. D.09-03-025, "…approve[d] the transfer of ownership,"[105] and "…allow[ed] SCE to acquire direct ownership of Mountainview, and to include its capital costs in rate base and recover its operating costs through the Test Year 2009 revenue requirement."[106]

Unit 3 of the Mountainview Station began commercial operation on December 9, 2005, and Unit 4 began commercial operation on January 19, 2006.[107]

In May 2016, the two Mountainview Station units underwent CT system upgrades which increased the nominal generating unit output from 536 MW to 555 MW.[108] After

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[101] A.03-07-032, *In the Matter of the Application of Southern California Edison Company (U 338-E) for Approval of a Power Purchase Agreement under PUHCA Section 32(k) Between the Utility and a Wholly Owned Subsidiary and Authority to Recover the Costs of Such Power Purchase Agreement in Rates.*

[102] D.04-03-037, *Opinion Adopting Federal Energy Regulatory Commission's Changes to The Mountainview Power Purchase Agreement Approved by This Commission In Decision 03-12-059*.

[103] D.04-04-019, *Order Modifying Decision 03-12-059 And Denying Rehearing of Decision, As Modified*.

[104] SCE's GRC Application A.07-11-011 for Test Year 2009.

[105] D.09-03-025 (A.07-11-011), *Alternate Decision of President Peevey on Test Year 2009 General Rate Case for Southern California Edison Company*, at 33.

[106] D.09-03-025 (A.07-11-011)., at 365.

[107] https://www.energy.ca.gov/powerplant/combined-cycle/mountainview-generating-station

[108] SCE response to Cal Advocates Data Request 28, Question 004.

the upgrade, each CT was rated at 182 MW each, and the ST was rated at 191 MW.[109] Therefore, the total nominal generating unit rating for Unit 3 and Unit 4 is 555 MW each (2x182 MW + 191 MW), or 1,110 MW net (2x555 MW) for the entire Mountainview Station.[110]

However, due to constraints on the San Bernardino 220 kilovolt (kV) transmission line, the maximum generation output at Mountainview Station is limited to 536 MW.[111] Subsequently, a new interconnection agreement executed in April 2019 allowed Mountainview Station to officially increase the nominal rated capacity to 1,110 MW.[112]

Although Unit 3 and Unit 4 each have a nominal net capacity rating of 555 MW, the actual power output varies above and below this number because of ambient weather effects, such as temperature and humidity.[113] Each of the 2 units can operate independently from one another.[114] However, for a unit to operate and prevent the heat recovery steam generator (HRSG) from overheating, at least 1 of its 2 CTs and its ST must be in service.[115] This is because when a CT is operating, it produces hot exhaust gas that flows through the HRSG attached to that CT.[116] To keep the HRSG from overheating, water must flow through that HRSG.[117] The resulting steam produced by that HRSG must then be routed to that unit's operating ST, otherwise the HRSG will overheat.[118]

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[109] SCE response to Cal Advocates Data Request 28, Question 004, 008 and 009.

[110] SCE response to Cal Advocates Data Request 28, Question 004 and 012.

[111] SCE response to Cal Advocates Data Request 28, Question 004.

[112] SCE response to Cal Advocates Data Request 28, Question 004.

[113] SCE response to Cal Advocates Data Request 28, Question 004.

[114] SCE response to Cal Advocates Data Request 28, Question 004.

[115] SCE response to Cal Advocates Data Request 28, Question 004, 013, and 014.

[116] SCE response to Cal Advocates Data Request 28, Question 013.

[117] SCE response to Cal Advocates Data Request 28, Question 013.

[118] SCE response to Cal Advocates Data Request 28, Question 013.

The nominal rated output for a Mountainview Station unit when it is operating with a single CT and the ST is 250 MW,[119] versus the 555 MW[120] when both CTs and the ST are in service.[121]

In practice, the Mountainview Station does not operate constantly at its full rated output level, but functions rather as an "intermediate duty" plant.[122] This means its power output fluctuates in real-time based on dispatch orders to meet current power requirements and changing market conditions.[123] As a dispatchable resource, Mountainview Station should only operate when its variable costs are expected to be recoverable from the market.[124]

Physical Properties and Operational Characteristics

For either Unit 3 or Unit 4 to operate, at least one of the unit's two CTs, as well as that unit's ST, must be in service.[125] The unit is typically started with a single CT and its ST in service (i.e., its "1+1" configuration or C1 configuration[126]).[127] Following a unit start-up, if more output is needed, the unit is then transitioned to having both CTs and its ST in service (i.e., its "2+1" configuration).[128]

While in operation, the unit can be transitioned from its 1+1 configuration to its 2+1 configuration (and vice versa) as needed, without coming offline.[129] Unit startups

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[119] SCE response to Cal Advocates Data Request 28, Question 013.

[120] SCE testimony, SCE-01, at 46, line 12 to 13 and SCE response to Cal Advocates Data Request 28, Question 004.

[121] SCE testimony, SCE-01, at 46, line 12 to 13 and SCE response to Cal Advocates Data Request 28, Question 004.

[122] SCE response to Cal Advocates Data Request 28, Question 004.

[123] SCE response to Cal Advocates Data Request 28, Question 004.

[124] SCE testimony, SCE-03, at 3, line 17 to 18.

[125] SCE testimony, SCE-01, at 48, line 4 to 5 and SCE response to Cal Advocates Data Request 28, Question 013 and 015.

[126] SCE response to Cal Advocates Data Request 28, Question 019.

[127] SCE response to Cal Advocates Data Request 28, Question 015.

[128] SCE response to Cal Advocates Data Request 28, Question 015.

[129] SCE response to Cal Advocates Data Request 28, Question 015.

and shutdowns, as well as transitions from 1+1 to 2+1 configurations (and vice versa) while operating, are based on CAISO dispatch instructions.[130]

Occasionally, a unit's operations are restricted to its 1+1 configuration, to perform maintenance on one of that unit's CTs.[131] Depending on the exact scope of the maintenance work involved, it is often possible for a unit to operate in its 1+1 configuration while the non-operating CT is undergoing maintenance.[132]

When a unit is started up after being offline, the exact timing of when the CT and ST are synchronized to the power grid can vary, but typically the ST is placed online within approximately 30 minutes after that unit's first CT is placed online.[133] The normal unit shutdown process is to first ramp down the CT (or both CTs, if both are operating) to its rated minimum load condition, and to then take the CT offline (or to sequentially ramp down and take both CTs offline, if both were running).[134] The ST ramps down at the same time the CT (or both CTs) are ramping down, and the ST is then taken offline simultaneously with the last CT going offline (i.e., of the two CTs, if both were running).[135] Forced outages can (but do not always) result in the ST and CT (or both CTs) coming offline faster than if the offline process occurs in a normal shutdown (e.g., a forced outage can cause the turbines to suddenly trip, and as such, the turbines are not ramped down prior to going off line).[136]

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[130] SCE response to Cal Advocates Data Request 28, Question 015.

[131] SCE response to Cal Advocates Data Request 28, Question 015.

[132] SCE response to Cal Advocates Data Request 28, Question 015.

[133] SCE response to Cal Advocates Data Request 28, Question 015.

[134] SCE response to Cal Advocates Data Request 28, Question 015.

[135] SCE response to Cal Advocates Data Request 28, Question 015.

[136] SCE response to Cal Advocates Data Request 28, Question 015.

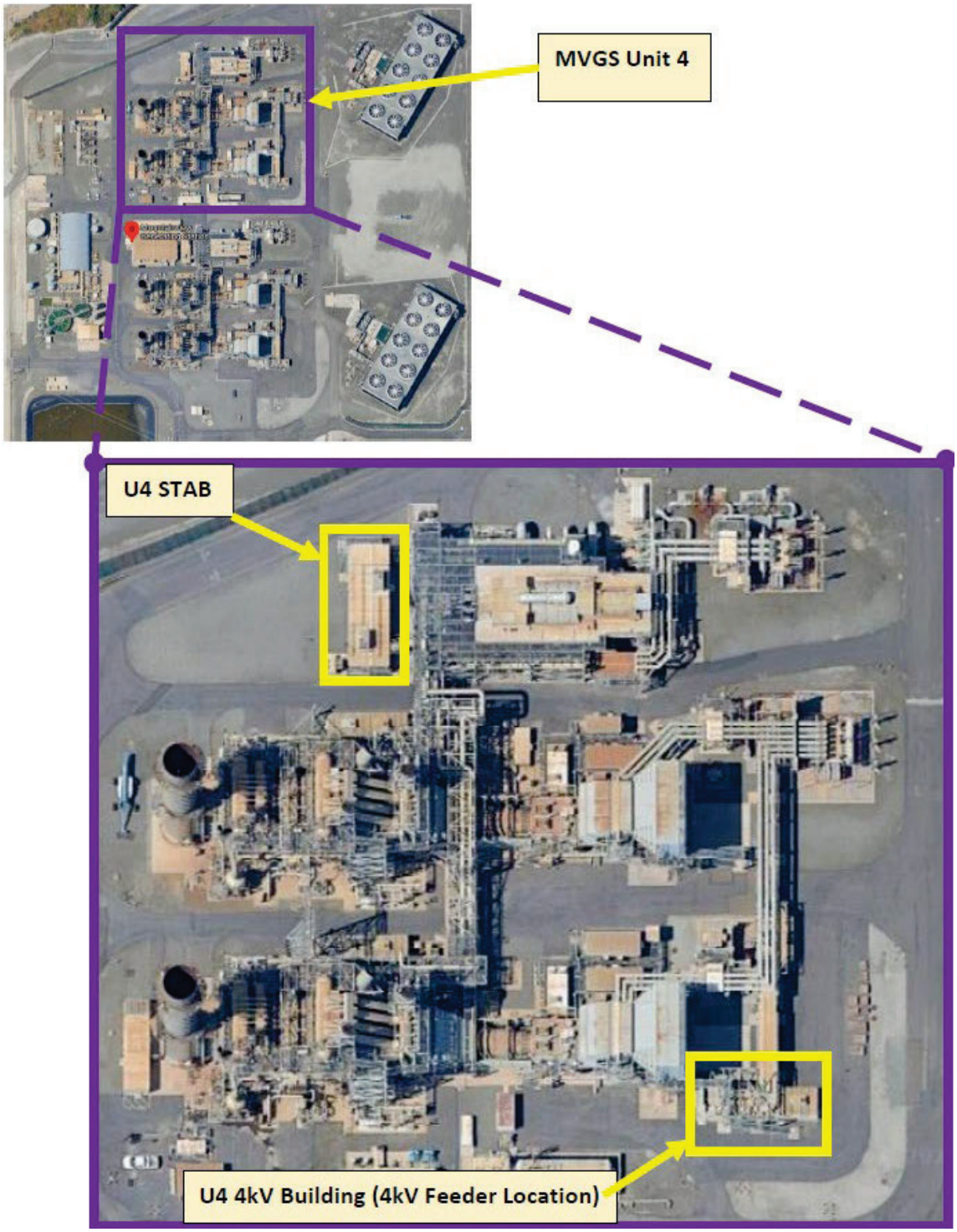
Figure 3-1 Mountainview Station – Aerial View of Unit 3 and Unit 4[137, 138]

Legend
3A: Gas Turbine
3A HRSG: Heat Recovery Steam Generator
3B: Gas Turbine
3B HRSG: Heat Recovery Steam Generator
3ST: U3 Steam Turbine
4A: Gas Turbine
4A HRSG: Heat Recovery Steam Generator
4B: Gas Turbine
4B HRSG: Heat Recovery Steam Generator
4ST: U4 Steam Turbine
Water Treatment: Steam and Cooling tower water processing plant.

[137] SCE response to Cal Advocates Data Request 28, Question 003 and 017.

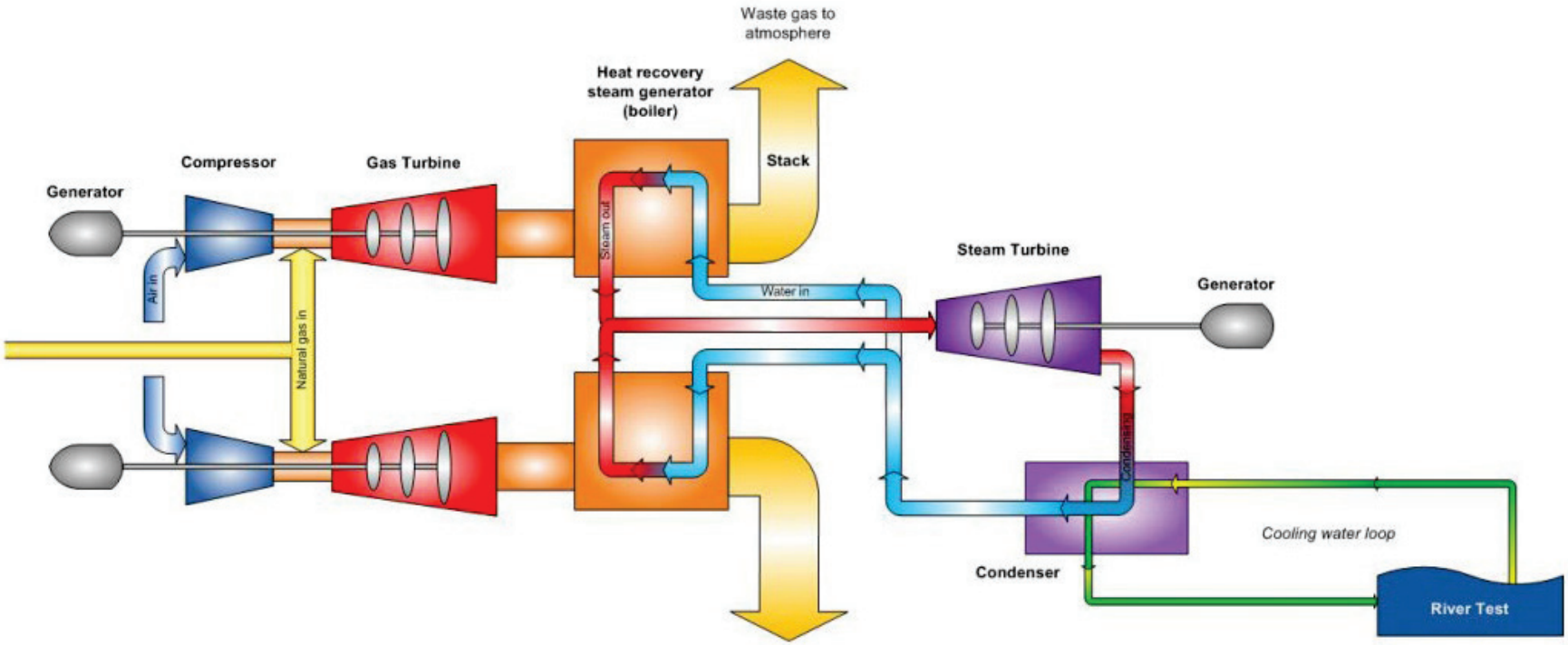
[138] SCE response to Cal Advocates Data Request 28, Question 004 and 016: Unit 1 and Unit 2 were located on the same plant site, formerly named San Bernardino Generating Station; they were retired and decommissioned.

Figure 3-2 Mountainview Station – Aerial View of Unit 4 Steam Turbine Accessory Building (STAB) and 4kV Feeder[139]



[139] SCE-01 Workpapers, at 136, and SCE response to Cal Advocates Data Request 28, Question 034, 035 and 113.

Figure 3-3 Schematic View of a Combined Cycle Gas Generator[140,141]



[140] The schematic view is that of the Marchwood Power Plant (https://www.marchwoodpower.com/ccgt/); it represents a typical equipment arrangement in a two-combustion turbine, combined-cycle generator. The diagram shows the relative locations of the two Combustion Turbines (CTs) shown as "Gas Turbine" above, the two Heat Recovery Steam Generators (HRSGs), and the single Steam Turbine (ST).

[141] SCE response to Cal Advocates Data Request 28, Question 007 – A Gas Turbine and a CT are standard industry nomenclature utilized interchangeably to describe a turbine that's propelled through the combustion of one of the following fuel sources; natural gas, propane, or hydrogen.

III. OUTAGE

For the 2023 Record Period, Cal Advocates reviewed the Mountainview Generating Station Unit 4 Steam Turbine Accessory Building (STAB) outage which started on May 9, 2024 at 10:00 am[142] and ended on May 19, 2023 at 23:59, for a total of 10.583 days (10 days, 10 hours, and 59 minutes).[143] The outage was caused by a trip of a 4kV feeder breaker.[144]

The descriptions of the activities, parts, and systems affected and/or referenced in the forced outage are as follows:

1. Combustion Turbine (CT) versus Combustion Turbine Generator (CTG):[145]

   The CTG is the whole operating unit (combustion turbine and generator), whereas the CT is specifically the prime mover by itself.

   The prime mover is the object that "turns" another object. For example, an electrical generator cannot produce energy by itself; it needs something that has the force to turn its shaft. Whatever is attached to that shaft that turns it is considered the prime mover. In the case above, it is the CT.

2. Conductor:[146] Wire (usually copper or aluminum) that allows the flow of electrical current in one or more directions. A loose conductor does not have a secure connection at the terminal block.

3. Feeder: The source of power for the individual load.[147] For example, in the case of the May 9, 2023 outage incident, the 4kV feeder supplies electrical power to the Mountainview Station Unit 4 Steam Turbine Accessory Building (4S STAB).[148] The 4kV feeder breaker energizes the transformer that reduces the 4kV voltage to 480V.[149]

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[142] The time convention used is the 24-hour clock.

[143] SCE testimony, SCE-01, at 56:20-21.

[144] SCE testimony, SCE-01, at 56:20-21.

[145] SCE response to Cal Advocates Data Request 28, Question 005 and 006.

[146] SCE response to Cal Advocates Data Request 28, Question 106 and 107.

[147] SCE response to Cal Advocates Data Request 28, Question 037: SCE-01 Workpapers.

[148] SCE response to Cal Advocates Data Request 28, Question 019.

[149] SCE response to Cal Advocates Data Request 28, Question 031 and 037: SCE-01 Workpapers.

Feeder Breaker Trip: The breaker has shut off the flow of electricity by opening breaker electrical contacts and, thus, preventing damage to equipment.[150] The opening of the electrical contacts stops the flow of electricity to the equipment powered by the breaker.[151]

Corollary: When a feeder breaker trips, the contacts within the breaker are opened, and the flow of electricity through the breaker is consequently disrupted.[152]

To prevent the 4kV feeder breaker from inadvertent trips, SCE ensures that the breaker in use is properly rated for the application, regularly maintained, and installed in a suitable environment with adequate ventilation and protection against electrical anomalies, such as voltage spikes, frequency variations, etc.[153] SCE mitigates these anomalies through regular maintenance and the use of protective devices such as relays.[154]

[150] SCE response to Cal Advocates Data Request 28, Question 037.

[151] SCE response to Cal Advocates Data Request 28, Question 063.

[152] SCE response to Cal Advocates Data Request 28, Question 062.

[153] SCE response to Cal Advocates Data Request 28, Question 065.

[154] SCE response to Cal Advocates Data Request 28, Question 065.

Figure 3-4 Photo of the 4kV STAB feeder[155]

4. Heat Recovery Steam Generator (HRSG):[156] An energy recovery heat exchanger that recovers heat from a hot gas stream, such as a combustion turbine. It produces steam that is used to drive the steam turbine (i.e., combined cycle). There are four HRSGs at Mountainview Station (see Figure 3-1).

5. Lockout Relay:[157] An electromechanical relay which controls its output contact. As the name suggests, this relay, once operated, locks out the circuit and isolates the fault, preventing further damage or safety risks by ensuring the circuit remains de-energized. Locking out

[155] SCE response to Cal Advocates Data Request 28, Question 057: Exhibit SCE-01 Workpapers. at 137.

[156] SCE response to Cal Advocates Data Request 28, Questions 011.

[157] SCE response to Cal Advocates Data Request 28, Questions 038.

means that the circuit cannot be normalized until and unless this relay is reset.

This relay does not automatically reset; it requires manual resetting for normalizing the protection and trip circuit. The output contacts of a lockout relay are wired to the breaker trip coil circuit. Therefore, whenever the relay gets energized, a trip command to the breaker is issued.

This relay is also known as Master Trip Relay and its American National Standards Institute (ANSI) code is 86. It is provided with a flag (a physical indicator to show "activated" or "tripped"). The relay gets flagged to "activated" on actuation.

6. North American Electric Reliability Corporation's (NERC) Generating Availability Data System (GADS):[158] GADS, which is part of NERC, is an electric industry-initiated data system introduced in 1982 to expand data collection activities that began in 1963.[159]

GADS was developed by utility designers, operating engineers, and system planners to meet the information needs of the electric utility industry.[160] The objective of the GADS program is the compilation and maintenance of an accurate, dependable, and comprehensive database capable of monitoring the performance of electric generating units and major pieces of equipment.[161]

Today, GADS maintains operating information on conventional generating units, wind plants, and solar plants.[162]

Through GADS, NERC collects information about the performance of electric generating equipment and supports equipment availability analyses.[163]

GADS reporting is mandatory for NERC-registered entities with conventional generating units that are 20 MW or more, wind plants with a total installed capacity of 75 MW or more, and a commercial operation date of January 1, 2005, or later:[164]

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[158] SCE response to Cal Advocates Data Request 28, Questions 049.

[159] SCE response to Cal Advocates Data Request 28, Questions 049.

[160] SCE testimony, SCE-01, at 23:4-5.

[161] SCE testimony, SCE-01, at 23:6-8.

[162] SCE response to Cal Advocates Data Request 28, Questions 049.

[163] SCE response to Cal Advocates Data Request 28, Questions 049.

[164] SCE response to Cal Advocates Data Request 28, Questions 049.

a. Effective January 1, 2024, solar plants with a total installed capacity of 100 MW or more, regardless of interconnection, are required to report.

b. Effective January 1, 2025, solar plants with a total installed capacity of 20 MW or more, regardless of interconnection, are required to report.

When reporting events to GADS, there are numerous reporting requirements,[165] two of which are Event Type and Cause Code:[166, 167]

a. The Event Type is a two-letter code describing a unit's operational state. For example, an Event Type, D1, is an unplanned (Forced) derating.[168] This is a derating that requires an immediate reduction in capacity.[169]

b. The Cause Code identifies the cause of the event; the codes are created and defined by GADS.[170]

7. Reserve Shutdown: An event when a unit is available for load but is not synchronized to the grid due to lack of demand (i.e. not required for generation), as defined by the GADS.[171] CAISO determines when a generating unit is to be placed in a reserve shutdown.[172]

8. Steam Turbine (ST):[173] Equipment that converts the thermodynamic energy in the steam supplied by the HRSGs into mechanical energy at its shaft. Mountainview Station has two STs.

9. Steam Turbine Generator (STG):[174] Equipment that converts the mechanical energy at the ST shaft into electrical energy at the

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[165] SCE response to Cal Advocates Data Request 28, Questions 050hh.

[166] SCE response to Cal Advocates Data Request 28, Questions 049: A list of the Event Codes and their definitions are provided in Exhibit SCE -06.

[167] SCE response to Cal Advocates Data Request 28, Questions 047: NERC GADS Data Reporting Instructions (GADS_DRI_2024.pdf)

[168] SCE response to Cal Advocates Data Request 28, Questions 049.

[169] SCE response to Cal Advocates Data Request 28, Questions 049.

[170] SCE response to Cal Advocates Data Request 28, Questions 049.

[171] SCE Workpapers, SCE-06, at 1-A-2, and SCE response to Cal Advocates Data Request 18, Question 024, 028, 039 and 045.

[172] SCE response to Cal Advocates Data Request 28, Question 024 and 028.

[173] SCE response to Cal Advocates Data Request 28, Question 024.

[174] SCE response to Cal Advocates Data Request 28, Question 011.

generator terminals. Each ST is attached to an electrical generator; Mountainview Station has two STGs.

10. Steam Turbine (ST) versus Steam Turbine Generator (STG):[175]

The STG is used to describe the operating unit as a whole, whereas ST is utilized when speaking specifically of the prime mover by itself.

The prime mover is the object that "turns" another object. For example, an electrical generator cannot produce energy by itself; it needs something that has the force to turn its shaft. Whatever is attached to that shaft that turns it is considered the prime mover: in the case above, it is the ST.

11. Steam Turbine Auxiliary Building (STAB):[176] A motor control center (MCC) powered by a transformer that reduces the voltage from 4kV to 480V.[177] The 4kV feeder breaker energizes that transformer.[178]

MCCs are essential for efficient and safe motor operation because they provide centralized control, protection, and monitoring.[179] The MCC at Mountainview Station is used to operate the steam turbine and its auxiliary equipment.[180] Once this 4kV feeder breaker trips, the 480V electrical power is no longer available to energize the MCC.[181] This results in a loss of power to motors, control, protection and monitoring of auxiliary equipment connected to this 480V power supply.[182]

There is a direct current (DC) bus located in the STAB that supplies power to major components, such as the Steam Turbine Emergency Lube Oil Pump, and the Panelboards for the Steam Turbine Control System and electrical protective relays.[183] When there is a loss of alternating current (AC) power, the DC power system maintains essential power to safely shut down the steam turbine.[184]

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[175] SCE response to Cal Advocates Data Request 28, Question 010.

[176] SCE response to Cal Advocates Data Request 28, Question 031.

[177] SCE response to Cal Advocates Data Request 28, Question 031.

[178] SCE response to Cal Advocates Data Request 28, Question 031.

[179] SCE response to Cal Advocates Data Request 28, Question 031.

[180] SCE response to Cal Advocates Data Request 28, Question 031.

[181] SCE response to Cal Advocates Data Request 28, Question 031.

[182] SCE response to Cal Advocates Data Request 28, Question 031.

[183] SCE response to Cal Advocates Data Request 28, Question 074.

[184] SCE response to Cal Advocates Data Request 28, Question 075.

There are two STABs at Mountainview Station.[185] Each steam turbine has a STAB: Unit 3 STAB and Unit 4 STAB.[186]

12. Terminal Block:[187] A modular block used in electrical and electronics systems to connect and secure electrical wires or cables. It secures electrical connections, whether for power distribution, signal routing, or control wiring.

13. Unit Designation and Operation:

The term, "Unit 4", used at Mountainview Station refers to that specific unit with the numeric designation "4," and the letter, A, B, S, or ST refers to the turbine block for that unit.[188]

Unit 4A refers to the "A" block, which includes the "A" combustion turbine/generator, its associated HRSG, and accessory equipment for unit "A" (see Figure 3-3).[189]

Each of the two generating units, Unit 3 and Unit 4, has two CTs (see Figure 3-3).[190] Each of the two CTs, are assigned either "A" or "B."[191] For example, Unit 4A CT refers to Unit 4's "A" CT, and Unit 4B CT refers to Unit 4's "B" CT.[192] There is no CT Unit 4C, or 4D, etc.[193]

The ST bears no suffix designation "A" or "B" because there is only one ST[194] for each unit (see Figure 3-3). Unit 4S, also referred as Unit 4ST, refers to the steam turbine for Unit 4.[195]

The CAISO recognizes Mountainview Unit 4 as an individual node at its metered point of interconnection (POI) to the bulk electric system.[196] While the unit is comprised of three separate generators

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[185] SCE response to Cal Advocates Data Request 28, Question 032.

[186] SCE response to Cal Advocates Data Request 28, Question 032 and 033.

[187] SCE response to Cal Advocates Data Request 28, Question 105.

[188] SCE response to Cal Advocates Data Request 28, Question 017 and 018.

[189] SCE response to Cal Advocates Data Request 28, Question 017 and 018.

[190] SCE response to Cal Advocates Data Request 28, Question 017.

[191] SCE response to Cal Advocates Data Request 28, Question 017 and 018.

[192] SCE response to Cal Advocates Data Request 28, Question 017 and 018.

[193] SCE response to Cal Advocates Data Request 28, Question 017 and 018.

[194] SCE response to Cal Advocates Data Request 28, Question 019.

[195] SCE response to Cal Advocates Data Request 28, Question 017, 018 and 020.

[196] SCE response to Cal Advocates Data Request 28, Question 021.

(Unit 4A CTG, 4B CTG, & 4S STG), they are connected to a shared transmission line and metering device at the POI.[197]

The terms Unit 4 and Unit 4S are not used interchangeably.[198] The A, B, or S designation after the unit number refers to specific prime mover of Unit 4, that was involved in the event – "A" or "B" combustion turbine generators or "S" steam turbine generator.[199]

Operation of either Unit 3 or Unit 4 requires that at least one of its 2 CTs and its ST be in operation.[200] The CT exhaust gases flow through HRSGs, two of which are installed on each unit (i.e., one HRSG per CT).[201] When a CT is operating, hot CT exhaust gas is produced and flows through the HRSG attached to that CT.[202] To keep the HRSG from over-heating, water must flow through that HRSG.[203] The resulting steam that is produced by that HRSG must then be routed to that unit's operating ST or the HRSG will overheat.[204]

The nominal rated output for a Mountainview Station unit (Unit 3 or 4), when that unit is operating with a single CT and its ST in service, is 250 MW.[205] To achieve the full rated 555 MW output[206] from the ST, both CTs on a generating unit must be in-service (i.e., both HRSGs must be in-service).[207]

14. Unit Operational Statuses[208]

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[197] SCE response to Cal Advocates Data Request 28, Question 021.

[198] SCE response to Cal Advocates Data Request 28, Question 021.

[199] SCE response to Cal Advocates Data Request 28, Question 021.

[200] SCE response to Cal Advocates Data Request 28, Question 013 and 014.

[201] SCE response to Cal Advocates Data Request 28, Question 013.

[202] SCE response to Cal Advocates Data Request 28, Question 013.

[203] SCE response to Cal Advocates Data Request 28, Question 013.

[204] SCE response to Cal Advocates Data Request 28, Question 013.

[205] SCE response to Cal Advocates Data Request 28, Question 013.

[206] SCE Testimony, SCE-01, at 46, line 12 and SCE response to Cal Advocates Data Request 28, Question 004 and 019.

[207] SCE Testimony, SCE-01, at 59, footnote 81 and SCE response to Cal Advocates Data Request 28, Question 013 and 019.

[208] SCE response to Cal Advocates Data Request 28, Question 039.

a. Unit Offline means that the power plant or generating unit is not currently producing electricity and the unit is no longer synchronized to (or is disconnected from) the bulk electric system (i.e., grid).[209]

b. Unit Online means that the plant is generating power and supplying electricity to the grid.[210]

c. Equipment Online means that the equipment is energized electrically and operating.[211]

d. Unit Outage refers to the circumstances when a unit is unable to function.[212]

An outage exists whenever a unit is not synchronized to the grid system and not in a reserve shutdown state.[213]

Unit Forced Outage: An unplanned component failure or other condition that requires the unit to be removed from service immediately.[214]

Unit Outage Date: The calendar date the generating unit is no longer available for electrical production.[215]

Unit Outage Starts: When the unit is either desynchronized from the grid or when it moves from one unit state to another (for example, goes from a reserve shutdown to a maintenance outage or forced outage).[216]

Unit Outage Ends: When, after a Unit Outage Starts, the unit is again synchronized to the grid or moves to another unit state.[217]

e. Unit Shutdown is the process of taking a generating unit offline.[218]

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[209] SCE response to Cal Advocates Data Request 28, Question 039.

[210] SCE response to Cal Advocates Data Request 28, Question 040.

[211] SCE response to Cal Advocates Data Request 28, Question 040.

[212] SCE response to Cal Advocates Data Request 28, Question 039.

[213] SCE response to Cal Advocates Data Request 28, Question 037.

[214] SCE response to Cal Advocates Data Request 28, Question 045.

[215] SCE response to Cal Advocates Data Request 28, Question 037.

[216] SCE response to Cal Advocates Data Request 28, Question 037.

[217] SCE response to Cal Advocates Data Request 28, Question 037.

[218] SCE response to Cal Advocates Data Request 28, Question 039.

f. Unit Trip is typically a sudden, unexpected shutdown of a unit.[219] This trip is usually an automatic event, but can be a manual trip in an emergency.[220]

On May 8, 2023 at 20:53,[221] the Mountainview Unit 4 STAB 4 kV feeder breaker[222, 223] tripped and caused the entire STAB to lose AC power.[224] When the breaker tripped, the power supply to the STAB was interrupted.[225] Plant operations was alerted of the trip from the Digital Control System (DCS) alarms.[226] The operators did not have to shut down Unit 4 because it was already in Reserve Shutdown.[227]

When the 4kV feeder that supplies electrical power to the Mountainview Unit 4 STAB tripped, the 4kV electrical energy to the STAB was discontinued automatically by the Unit's control and monitoring system.[228] This directly affected operation of the ST (or S).[229] Unit 4 cannot generate power if the Unit 4S cannot operate.[230]

However, at the time of the Unit 4 STAB 4kV feeder trip on May 8, 2023, Unit 4 was in Reserve Shutdown as dispatched by the CAISO.[231] Because the Unit was in a

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[219] SCE response to Cal Advocates Data Request 28, Question 039.

[220] SCE response to Cal Advocates Data Request 28, Question 039.

[221] SCE response to Cal Advocates Data Request 28, Question 024.

[222] SCE response to Cal Advocates Data Request 28, Question 059 and 090: All 4kV feeder breakers at Mountainview Generating Station are the same design, were manufactured by Cutler Hammer, now owned by Eaton.

[223] SCE response to Cal Advocates Data Request 28, Question 060: Bechtel Power that constructed the facility designed, commissioned and engineered the existing 4kV infrastructure.

[224] SCE testimony, SCE-01, at 56:20-21.

[225] SCE response to Cal Advocates Data Request 28, Question 070 and 071.

[226] SCE response to Cal Advocates Data Request 28, Question 077.

[227] SCE response to Cal Advocates Data Request 28, Question 079, 080 and 083.

[228] SCE response to Cal Advocates Data Request 28, Question 019.

[229] SCE response to Cal Advocates Data Request 28, Question 019 and 040.

[230] SCE response to Cal Advocates Data Request 28, Question 040.

[231] SCE response to Cal Advocates Data Request 28, Question 024, 025 and 028.

reserve shutdown, Unit 4 never tripped.[232] The 4 kV feeder breaker trip did not cause Unit 4 to shut down immediately.[233]

The 4kV feeder trip on May 8, 2023 did not affect unit operation because the auxiliary equipment electrical load supplied by this 4kV feeder has a secondary electrical source from backup batteries.[234] Charging of the batteries is maintained by a battery charger; DC power from the batteries is converted to AC power through an inverter to power the STAB.[235] However, the AC power supply used to maintain the DC battery charger and floating inverter supply is impacted when the 4kV power supply is lost.[236] In addition, the various DC-powered equipment does not have the ability to provide temporary startup of Unit 4S.[237]

SCE Operations personnel reset the breaker and returned electrical power to the STAB.[238] Therefore, if Unit 4 had been dispatched to come online by CAISO, the combustion turbines could have been started while Operations reset the breaker(s) and restored power to the STAB.[239] Because Unit 4 was available, SCE did not have to inform CAISO of the 4kV feeder trip.[240]

The outage began on May 9, 2023 when SCE made Unit 4 unavailable for dispatch.[241] SCE maintains that the outage began on May 9, 2023 at 10:00 am[242] when SCE management decided to remove Unit 4 from service as a forced outage (U1) to

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[232] SCE response to Cal Advocates Data Request 28, Question 024, 028 and 083.

[233] SCE response to Cal Advocates Data Request 28, Question 028 and 083.

[234] SCE response to Cal Advocates Data Request 28, Question 024, 030 and 073.

[235] SCE response to Cal Advocates Data Request 28, Question 073.

[236] SCE response to Cal Advocates Data Request 28, Question 072.

[237] SCE response to Cal Advocates Data Request 28, Question 076.

[238] SCE response to Cal Advocates Data Request 28, Question 024 and 030.

[239] SCE response to Cal Advocates Data Request 28, Question 024, 025 and 030.

[240] SCE response to Cal Advocates Data Request 28, Question 042.

[241] SCE response to Cal Advocates Data Request 28, Question 025.

[242] SCE-01, at 55, Table III-17, SCE Workpapers, A2404001 SCE-01 Workpapers.pdf, at 132, and SCE response to Cal Advocates Data Request 01 (MDR), Question 1.1.4 to 1.1.13, and Data Request 28, Question 025.

investigate and resolve the tripping issues of the 4kV STAB feeder breaker; this was over twelve hours after the 4kV feeder breaker tripped on May 8, 2024 at 20:53[243].[244] In this incident, the beginning of trip and the beginning of outage occurred at different times.[245]

Once SCE management decided to place Unit 4 in an outage on May 9, 2023, the Station Manager informed Operations personnel, including plant operators, of the decision.[246] SCE also had to inform CAISO that Unit 4 was no longer available for operation because SCE decided to shut down the Unit to investigate the cause of the steam turbine accessory building feeder trip.[247]

There is no spare STAB to substitute the one that lost its power.[248] The investigation required a forced outage because of personnel safety as electrical systems must be de-energized and systems depressurized, as required by the California Division of Occupational Safety and Health (CalOSHA).[249] The electrical systems in the work area were made secure through a lockout tagout (LOTO) system common within the industry.[250]

In preparation for the investigation, SCE had to cool the ST, degas the generator, and prepare the equipment that contained hydrogen for de-energization.[251]

a. Cooling of the ST: Mountainview Station follows the cooling recommendations from the turbine manufacturer's General Electric Knowledge (GEK) Instruction Manual.[252] The temperature required to

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[243] SCE response to Cal Advocates Data Request 28, Question 024.

[244] SCE response to Cal Advocates Data Request 28, Question 024, 025, 027, 029 and 039.

[245] SCE response to Cal Advocates Data Request 28, Question 027.

[246] SCE response to Cal Advocates Data Request 28, Question 077.

[247] SCE response to Cal Advocates Data Request 28, Question 045.

[248] SCE response to Cal Advocates Data Request 28, Question 043.

[249] SCE response to Cal Advocates Data Request 28, Question 029.

[250] SCE response to Cal Advocates Data Request 28, Question 029.

[251] SCE testimony, SCE-01, at 57:1-2.

[252] SCE response to Cal Advocates Data Request 28, Question 088.

take the turbine off turning gear is 500 degrees Fahrenheit or less.[253] The ST was cooled through ambient conditions over approximately five days and in accordance with the recommendations of General Electric, the original equipment manufacturer (OEM).[254]

b. Degassing the Generator: Hydrogen from the hydrogen cooled generator needed to be degassed (removed) before commencement of work; the gas is contained in the generator by the seal oil pumps.[255]

Hydrogen is circulated through the generator's internal components as a cooling agent, transferring heat away from the generator's internal components.[256] The hydrogen is maintained within the generator by a seal system with pressurized oil seals.[257]

Both the generators for the combustion turbines and the steam turbines use hydrogen for cooling.[258] Hydrogen use for cooling purposes is a common industry practice and its use is determined by the manufacturer.[259] Hydrogen gas is non-toxic; however, its primary hazard is its flammability.[260]

SCE followed the steam turbine's GEK procedure.[261] When the generating unit is removed from service for repairs, power to the oil seal pumps is also shut off.[262] Without the oil seal pressure, the hydrogen gas would leak through the seals and potentially create an extremely flammable atmosphere, posing a great safety risk.[263] It is therefore necessary to degas the generator prior to disconnecting the power supply.[264]

The GEK provides a procedure to inject carbon dioxide (CO_2) from a bank of CO_2 cylinders, until all the hydrogen is expelled to the

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[253] SCE response to Cal Advocates Data Request 28, Question 088.

[254] SCE response to Cal Advocates Data Request 28, Question 089.

[255] SCE response to Cal Advocates Data Request 28, Question 091 and 093.

[256] SCE response to Cal Advocates Data Request 28, Question 096.

[257] SCE response to Cal Advocates Data Request 28, Question 096.

[258] SCE response to Cal Advocates Data Request 28, Question 092, 094 and 095.

[259] SCE response to Cal Advocates Data Request 28, Question 096.

[260] SCE response to Cal Advocates Data Request 28, Question 091.

[261] SCE response to Cal Advocates Data Request 28, Question 092, 097 and 098.

[262] SCE response to Cal Advocates Data Request 28, Question 092.

[263] SCE response to Cal Advocates Data Request 28, Question 092.

[264] SCE response to Cal Advocates Data Request 28, Question 092.

atmosphere through the hydrogen exhaust pipe, 30 or more feet into the air, away from sources of potential ignition.[265] CO_2 is admitted to the system until the concentration of CO_2 gas has reached a certain percentage.[266] The next stage is to then remove the CO_2 and fill with air until the concentration of air in the CO_2 is more than 95%.[267] It is then safe to turn off the seal oil system to the generator.[268]

The turning gear, and seal oil pumps that contain the hydrogen in the generator, receive power from the STAB which was de-energized for this investigation.

The unit was ready for work by May 15, 2023.[269]

a. The inspection was in an area that was not accessible prior to this outage.[270]

b. The investigation included several tests and tasks, including the inspection of fuses, wiring, connections, and secondary switches, checking insulation resistance to ground, etc.[271] SCE did not use any outside contractors for the work.[272]

SCE explained why the inspection area was not easily accessible.[273] Within the Unit 4 4kV building (see Figure 3-2) is the "4kV Load Center XFMR STG" cubicle (cabinet) that SCE partially disassembled for inspection.[274] This cabinet supplies power to the STAB:[275]

a. The cabinets are minimally two feet deep and contain layers of internal components such as 4kV feeder breaker, cables and wiring (conductors), busbar, insulating panels, protection devices, fuses, etc. Arc Flash personal protective equipment (PPE) and clothing is required to work near and within these cabinets. The contents within the cabinet must be

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[265] SCE response to Cal Advocates Data Request 28, Question 092 and 098.

[266] SCE response to Cal Advocates Data Request 28, Question 092.

[267] SCE response to Cal Advocates Data Request 28, Question 092.

[268] SCE response to Cal Advocates Data Request 28, Question 092.

[269] SCE testimony, SCE-01, at 57:2-3.

[270] SCE testimony, SCE-01, at 57:3-4.

[271] SCE testimony, SCE-01, at 57, fn. 75.

[272] SCE response to Cal Advocates Data Request 28, Question 086, 087, 123 to 129 and 151.

[273] SCE response to Cal Advocates Data Request 28, Question 101 to 105.

[274] SCE response to Cal Advocates Data Request 28, Question 086 and 087.

[275] SCE response to Cal Advocates Data Request 28, Question 086 and 087.

de-energized prior to access. The process of disassembly and reassembly is painstakingly methodical to ensure the safety of personnel during and after the work.

b. The terminal block is in the back end of this cubicle, and the back end cannot be accessed because the cabinet is against the building wall. These cabinets are made for industrial equipment and not for quick access. Without prior knowledge of the exact location of the outage issue, and given the difficulty in accessing the feeder cabinet, SCE contends that it is cost prohibitive to engineer and remodel or build a new 4kV feeder building to provide easier access to the terminal block and conductor.

SCE documented its inspection report of the above activities into its management software data base – Systems, Applications, and Products (SAP).[276]

SCE performed a series of tests and tasks to troubleshoot the 4kV feeder breaker trip.[277] Ultimately, SCE maintenance personnel found a loose conductor connection on a terminal block where the conductor was subsequently fitted with a lug so that it can be secured.[278] During the inspection, SCE determined that the issue was caused by a loose connection.[279] The wire (conductor) became loose in the terminal block because the screw that secured the conductor had loosened.[280] It is unknown whether the connection loosened over time through usage or was not properly secured when initially installed.[281] SCE believes that the conductor and terminal block are original construction.[282]

SCE later determined that the loose connection resulted in the voltage relay (designation 27/41, a 3-phase voltage monitor) to initiate the trip: the temporary dips and losses in the V3 (C Phase) wire voltage triggered the relay which resulted in tripping the

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[276] SCE response to Cal Advocates Data Request 28, Question 099.

[277] SCE response to Cal Advocates Data Request 28, Question 117 and 118: SCE-01 Workpapers, at 132 to 139.

[278] SCE testimony, SCE-01, at 57:3-4, and SCE response to Cal Advocates Data Request 28, Question 038, 039, 064,100 and 108.

[279] SCE response to Cal Advocates Data Request 28, Question 108.

[280] SCE response to Cal Advocates Data Request 28, Question 135.

[281] SCE response to Cal Advocates Data Request 28, Question 108 and 109.

[282] SCE response to Cal Advocates Data Request 28, Question 130.

breaker.[283] Relay 27/41 sensed the instantaneous loss of voltage created by the loose conductor and this triggered the trip setpoint.[284]

[283] SCE response to Cal Advocates Data Request 28, Question 039 and 064.

[284] SCE response to Cal Advocates Data Request 28, Question 066 and 085.

Figure 3-5 Photo of the 4kV STAB feeder – Loose Conductor[285]

[285] SCE response to Cal Advocates Data Request 28, Question 105 and 149.

The conductor was re-attached, and the unit returned to service by May 19, 2023.[286] No other equipment failed.[287] The 4kV feeder breaker is original equipment and was installed when the plant was commissioned in 2004-2005.[288]

The Unit 4 STAB 4 kV feeder breaker trip did not cause the disruption of power generation and sales from other generating facilities because each facility connected to the grid (bulk electric system) is independent of one another.[289] Also, the incident did not violate any in-house SCE procedures and operating instructions, or any other requirements.[290]

History of STAB 4S Trips

On May 8, 2023, the Mountainview Station Unit 4 STAB 4 kV feeder breaker tripped and caused the entire STAB to lose AC power.[291] Because this incident was the ninth time the Unit 4 STAB had tripped since June 3, 2022, SCE used the unit outage on May 9, 2023 to determine the cause of the repeated trips.[292]

Seven of the nine Unit 4 STAB trips, including the latest, occurred while the Unit was offline in a Reserve Shutdown status.[293]

For these seven outages, SCE operations personnel reset the breaker and returned electrical power to the STAB.[294]

a. SCE determined that the unit was able to reach its online status on time, through normal operating and unit start-up practices.[295] The time frame to begin start-up of the steam turbine is well established following the

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[286] SCE testimony, SCE-01, at 57:4-5.

[287] SCE response to Cal Advocates Data Request 28, Question 069.

[288] SCE response to Cal Advocates Data Request 28, Question 068 and 151.

[289] SCE response to Cal Advocates Data Request 28, Question 044.

[290] SCE response to Cal Advocates Data Request 28, Question 141.

[291] SCE testimony, SCE-01, at 56:20-21.

[292] SCE testimony, SCE-01, at 56:21-23.

[293] SCE testimony, SCE-01, at 56, fn. 74.

[294] SCE response to Cal Advocates Data Request 28, Question 042.

[295] SCE response to Cal Advocates Data Request 28, Question 042.

initial start of a gas turbine.[296] The time to reset the 4kV feeder breaker falls well below the time to initiate start-up of the steam turbine.[297]

b. Conditions had returned to normal; the breaker was reset, and the unit was quickly available for service.[298] For these instances, the trips did not impact the unit from reaching its online status on time, in the event that CAISO determined to dispatch the unit.[299]

For the two other occurrences, because the Unit was online, the trips resulted in immediate forced outages.[300] The duration of these two outages were less than 24 hours and therefore not ERRA-reportable.[301]

SCE described the remedial actions and decisions[302] that it undertook before finally being able to find, after the ninth occurrence, the exact cause of the 4kV feeder breaker trip.

a. SCE was unaware that the trips were due to a fast-acting electrical event until the cause was determined to be a loose conductor because this type of trip is extremely difficult to identify and replicate.[303] That is why, after many attempts to resolve the issue by replacing multiple pieces of equipment, SCE was able to narrow the issue down to this last area within the 4kV feeder.[304]

b. Initially, the cause of the intermittent trips could not be determined due to the absence of lockout relay triggers, control system alarms, or any indication of the source or specific component responsible.[305] Following the 4kV feeder trip on December 28, 2022, SCE maintenance personnel suspected a voltage relay (designation 27/41, a

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[296] SCE response to Cal Advocates Data Request 28, Question 042.

[297] SCE response to Cal Advocates Data Request 28, Question 042.

[298] SCE testimony, SCE-01, at 56 to 57, fn. 74.

[299] SCE testimony, SCE-01, at 56 to 57, fn. 74.

[300] SCE testimony, SCE-01, at 56, fn. 74, and SCE response to Cal Advocates Data Request 28, Question 081.

[301] SCE response to Cal Advocates Data Request 28, Question 040.

[302] SCE response to Cal Advocates Data Request 28, Question 038 and 039.

[303] SCE response to Cal Advocates Data Request 28, Question 038.

[304] SCE response to Cal Advocates Data Request 28, Question 038.

[305] SCE response to Cal Advocates Data Request 28, Question 038.

3-phase voltage monitor) might be the cause of the trips and replaced it.[306] However, the feeder tripped again less than a month later.[307]

The original 27/41 relay was tested after removal and found to be functioning correctly.[308] However, during the seven previous trips, the functioning status was not known because the 27/41 relay does not seal the trip[309] indication.[310] Therefore, the cause of the 4kV feeder breaker tripping remained unknown during those instances.[311]

c. Consequently, during the February 2023 trip (the eighth outage), maintenance personnel replaced the feeder protection relay with a newly-tested relay that was programed with event recording and reporting capabilities to identify the potential trip source.[312] This device successfully identified a potential failure component within the 4kV feeder breaker.[313] As a result, SCE management decided to disassemble the feeder on May 9, 2023, to locate the issue when maintenance personnel discovered a loose conductor.[314]

d. Because of the loose connection, the 27/41 voltage relay caused the trips.[315] Temporary dips and losses in the V3 (C Phase) wire voltage triggered the relay, resulting in the breaker tripping.[316]

e. SCE personnel were unable to fully resolve the issue until the May 9, 2023 outage when the cause was discovered while disassembling the 4kV feeder breaker.[317] Prior to that time the issue was intermittent, and there was no apparent cause.[318]

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[306] SCE response to Cal Advocates Data Request 28, Question 038, 039 and 064.

[307] SCE response to Cal Advocates Data Request 28, Question 038.

[308] SCE response to Cal Advocates Data Request 28, Question 039 and 064.

[309] SCE response to Cal Advocates Data Request 28, Question 039: "Seal the trip" refers to the process of maintaining the trip signal once a fault has been detected. This is to ensure that the circuit breaker remains open until the fault is cleared and the relay is manually reset. This relay 27/41 does not have this capability.

[310] SCE response to Cal Advocates Data Request 28, Question 039.

[311] SCE response to Cal Advocates Data Request 28, Question 039.

[312] SCE response to Cal Advocates Data Request 28, Question 038.

[313] SCE response to Cal Advocates Data Request 28, Question 038.

[314] SCE response to Cal Advocates Data Request 28, Question 038.

[315] SCE response to Cal Advocates Data Request 28, Question 039 and 064.

[316] SCE response to Cal Advocates Data Request 28, Question 039 and 064.

[317] SCE response to Cal Advocates Data Request 28, Question 041.

[318] SCE response to Cal Advocates Data Request 28, Question 041.

f. SCE explained that it took time to pinpoint the cause of the trip because the trip events had been short in duration and seemed to have resolved themselves quickly.[319] The cause was known once the loose conductor was discovered.[320]

SCE provided a précis of the nine incidents, all of which pertain to Unit 4,[321] as shown in Table 3-1.[322] Based on the latest information, SCE contends that the prior eight incidents were caused by the loose conductor.[323] There have been no further Unit 4, 4kV STAB feeder trips since the May 9-19, 2023 outage.[324]

Cal Advocates finds SCE's above explanation of its gradational approach in determining the 4kV feeder problem to be acceptable.

[319] SCE response to Cal Advocates Data Request 28, Question 039.

[320] SCE response to Cal Advocates Data Request 28, Question 039.

[321] SCE response to Cal Advocates Data Request 28, Question 036.

[322] SCE response to Cal Advocates Data Request 28, Question 037.

[323] SCE response to Cal Advocates Data Request 28, Question 116.

[324] SCE response to Cal Advocates Data Request 28, Question 116.

Table 3-1 History of STAB Trips[325]

	Trip date and Time	Trip Duration (Hours:Minutes)	Outage Date Start	Outage Duration (Hours:Minutes)	Unit #	Cause of Trip/ Failure	Source of Information**	Comments
1	6/3/2022 6:58:00 PM	Not Available *	No Outage Taken	Not Applicable**	4	Feeder Breaker Trip - Unknown cause	Control Rm Log - Not an ERRA reportable event	Unit was in Reserve Shutdown
2	8/28/2022 8:32:00 PM	4:03	8/28/2022 8:32:00 PM	4:03	4	Feeder Breaker Trip - Unknown cause	Control Rm Log - Not an ERRA reportable event	Unit was online at the time of the trip
3	11/7/2022 12:29:00 PM	2:40	No Outage Taken	Not Applicable**	4	Feeder Breaker Trip - Unknown cause	Control Rm Log - Not an ERRA reportable event	Unit was in Reserve Shutdown
4	12/25/2022 3:36:00 AM	Not Available *	No Outage Taken	Not Applicable**	4	Feeder Breaker Trip - Unknown cause	Control Rm Log - Not an ERRA reportable event	Unit was in Reserve Shutdown
5	12/26/2022 6:40:00 PM	Not Available *	No Outage Taken	Not Applicable**	4	Feeder Breaker Trip - Unknown cause	Control Rm Log - Not an ERRA reportable event	Unit was in Reserve Shutdown
6	12/28/2022 1:03:00 PM	0:04	No Outage Taken	Not Applicable**	4	Manually removed feeder breaker from service while in Reserve Shutdown	Control Rm Log - Not an ERRA reportable event	Manually opened breaker to replace an under voltage relay as the relay was suspected to have been causing the trips
7	1/17/2023 10:08:00 AM	0:13	No Outage Taken	Not Applicable**	4	Feeder Breaker Trip - Unknown cause	Control Rm Log - Not an ERRA reportable event	Unit was in Reserve Shutdown
8	2/3/2023 7:08:00 AM	0:06	2/3/2023 7:14:00 AM	9:45	4	Feeder Breaker Trip - Unknown cause	Control Rm Log - Not an ERRA reportable event	Unit was online at the time of the feeder trip. Equipment on battery power. A/C Power was restored by 0714 followed by a U1 outage to replace an older feeder protection relay, with event recording/reporting capabilities, to help identify the source of the trips.
9	5/8/2023 8:53:00 PM	0:49	5/9/2023 10:00:00 AM	253:59	4	Feader Breaker Trip due to loose conductor on a terminal block	Control Rm Log - See A.24-04-001 SCE-01 Workpapers, pages 132-139	Unit was in Reserve Shutdown

* Not Available because the time of the 4kV Feeder breaker reset was not reported in the Control Room Log

** Not Applicable because no outage was taken.

[325] SCE response to Cal Advocates Data Request 28, Question 037.

The outage ended on May 19, 2023 at 23:59.[326]

The May 9, 2023 incident was designated as a 4S outage without any "A" or "B" suffix because this outage affected the sole ST in Unit 4.[327]

Unlike Unit 4, Unit 3 has not experienced a similar type of event.[328]

North American Electric Reliability Corporation (NERC) Classification and Generation Availability Data System (GADS) Cause Code

Since 1982, SCE has utilized the NERC GADS to classify and track outage events (i.e., scheduled and unscheduled outages) at its generation facilities.[329] The GADS program was established for compilation and maintenance of an accurate, dependable, and comprehensive database capable of monitoring the performance of electric generating units and major pieces of equipment.[330] SCE provides information annually to the Western Electricity Coordinating Council (WECC).[331]

SCE classified the May 9, 2023 forced outage event as a NERC Event Type D1.[332] A D1 event is one when there is a forced/unplanned derating that requires an immediate reduction in capacity.[333] SCE also classified this outage with Cause Code 3664,[334] described as, "4000-7000-volt protection devices" and it is used to describe the failure of

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[326] SCE-01, at 55, Table III-17, SCE Workpapers, A2404001 SCE-01 Workpapers.pdf, at 132, and SCE response to Cal Advocates Data Request 01 (MDR), Question 1.1.4 to 1.1.13, and Data Request 28, Question 026.

[327] SCE response to Cal Advocates Data Request 28, Question 019.

[328] SCE response to Cal Advocates Data Request 28, Question 036.

[329] SCE response to Cal Advocates Data Request 18, Question 045 and 051.

[330] SCE response to Cal Advocates Data Request 18, Question 045 and 051.

[331] SCE response to Cal Advocates Data Request 18, Question 045 and 051.

[332] SCE testimony, SCE-01, at 55, Table III-17, and SCE response to Cal Advocates Data Request 01 (MDR), Question 1.1.13: Excel File 2022 A2304XXX PAO-SCE-MDR-001 Q1.1.4-Q1.1.13 Fossil-fueled-CONFIDENTIAL.xlsx.

[333] SCE response to Cal Advocates Data Request 28, Question 047: North American Electric Reliability Corporation Generating Availability Data System (NERC GADS) Data Reporting Instructions (Q47 GADS_DRI_2024.pdf).

[334] SCE response to Cal Advocates Data Request 01 (MDR), Question 1.1.13: Excel File 2022 A2304XXX PAO-SCE-MDR-001 Q1.1.4-Q1.1.13 Fossil-fueled-CONFIDENTIAL.xlsx.

the 4kV feeder protection for the May 9, 2023 outage, even though the cause[335] was due to a loose conductor on a terminal block. SCE explained that the protection device that detected the anomaly resulting from a loose conductor and that initiated the trip of the 4kV feeder breaker was the voltage relay 27/41.[336] As such, SCE Operations selected the corresponding Cause Code 3664 when reporting the event in GADS.[337]

In addition to reporting the Event Types and GADS Cause Codes to NERC, SCE currently shares its NERC-GADS information with the WECC and the in SCE's annual ERRA Compliance Docket.[338] For the 2023 Record Period, SCE did not state that it had provided/shared its NERC-GADS information to any other party/person.[339] SCE did not receive any request from any entity for follow-up documentation for the 2023 Record Period.[340]

Unit Restoration

Cal Advocates requested that SCE explain why the repair and restoration of the unit took 10.583 days.[341] As stated previously, SCE detailed their troubleshooting efforts for the 4kV feeder breaker trip, noting that accessing the feeder cabinet was particularly challenging.

SCE provided a timeline of the time spent on the May 9, 2024 outage, as shown in Table 3-2.[342]

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[335] SCE testimony, SCE-01, at 55:3-4,

[336] SCE response to Cal Advocates Data Request 28, Question 048.

[337] SCE response to Cal Advocates Data Request 28, Question 048.

[338] SCE response to Cal Advocates Data Request 28, Question 051.

[339] SCE response to Cal Advocates Data Request 18, Question 051.

[340] SCE response to Cal Advocates Data Request 18, Question 052 and 053.

[341] SCE response to Cal Advocates Data Request 28, Question 119 and120.

[342] SCE response to Cal Advocates Data Request 28, Question 119 and 120.

Table 3-2 Unit 4S Trip Timeline[343]

Date	Activity Log
05/09/2023 09:57	U4 - STG Shell Warming - power is down in prep for troubleshooting of the STAB 4KV breaker tripping issue.STAB problem corrected awaiting cold start to place warming blanket in service.
05/09/2023 10:00	Notified GOC to place U4 in OUTAGE from 05/09/23, 1000H until 05/19/23 at 2359H to troubleshoot 4KV STAB feeder breaker tripping issue- Scott
05/10/2023 15:50	4B CTG 18KV SWITCH OUTCHECK OPEN - UNIT 4B CTG GENERATOR 18KV CBOPEN - UNIT 4B CTG GENERATOR 18KV CBCLOSE - UNIT 4B CTG 18KV GENERATOR SIDE GROUND DISCONNECT 57/1HINOJOS/DUPREE/ACABAL
05/11/2023 08:24	Switched Out Unit 4 STG for Generator TestingChecked Open U4 STG 18kV Circuit BreakerOpened U4 STG 18kV Generator Line Disconnect 89Closed U4 STG 18kV Generator side Ground Disconnect 57/1Santoro/Hinojos/Fafard D.
05/14/2023 05:25	5/14 0525 - U4 Steam turbine off gear for degas - Highest Metal temp 259*F5/14 0845 - U4 STEAM TURBINE GENERATOR IS PURGED OF H2 AND ON CO2 - SECURING SEAL OIL - LANG / LIVINGSTON
05/14/2023 08:44	Transferred 480v feed for water treatment MCC#2 from 4 STAB to 3 STAB via cross-tie on MCC-1 - Lang / Glen / LivingstonNOTE: We did have an erroneous spike on SARI Ph due to probe re-power during power swap.
5/14/2023 9:15	**4 STG LOAD CENTER XFMR removed from service as per LOTO #4677**
05/14/2023 09:21	De-Energized 4 STG LOAD CENTER XFMR for trouble shooting. This will be down for a few days. This dropped power to 4 CEMS buildings. Email has been sent to environmental dept. Airport notified about loss of stack lights.ABNORMAL STUFF- 4 STG ISOPUR FEEDER BRK OPEN (prevent power spike to controls)- WATER TREATMENT MCC#2 ON CROSS-TIE TO MCC#1- 5/17/23 WTT MCC #2 Returned to normal- DIESEL GEN OFF-GENERATOR IS PURGED WITH CO2 (DIDN'T GO TO AIR, JUST VENTED CO2)- 4 STG SEAL OIL IS ISOLATED @ REGULATOR
5/14/2023 9:51	Shinto has a clearance on 4 STG LOAD CENTER XFMR as per LOTO #4677
05/14/2023 11:13	Notified SB Airport that U4 Stack lights (2 North Stacks) are out and will be down for a few days - Ruby (Airport Ops) / Livingston2224 - Got a call from SB Airport inquiring about 2 stack lights being down. Told him that Ruby was notified in the morning - Padilla (airport Ops) /Acabal09:00 5/18/23 Notified SB Airport lights were returned to normal on 17:00 5/18/23.
05/14/2023 18:10	U4 STAB - Portable blower installed/placed by the south door. STAB doors are open. Battery room doors are pry open.
05/15/2023 10:22	At this time Jacob Gaulrapp has 6 Personal Grounds installed on the Unit 4 Steam Turbine Generator Leads. 2 per Phase. Gaulrapp/Banks5/15/23 - 1548 - At this time Jacob Gaulrapp has removed 6 Personal Ground from the Unit 4 Steam Turbine Generator Leads. Gaulrapp/Banks
05/15/2023 10:30 through 05/16/2023 06:58	Technicians performed 4KV STAB feeder cabinet disassembly and the following: •Applied secondary voltage and monitored voltages. Tugged and manipulated wires to see if it would cause a loss of voltage. •Inspected wiring and connections. Rang out wiring. •Checked for proper grounding. •Checked fuses. •Inspected and checked secondary switches and Timemark base. •Meggered the PT and associated circuits. •Performed TTR on PT. •Removed 4kV Contactor and inspected contactor and cubicle. •Replaced and properly lugged secondary potential wiring.
05/16/2023 06:58	EDG started to charge 4 STAB DC buss.EDG breaker closed in in auto and inverter is in service and charging the batteries.10:15 EDG off at this time. 135V
05/17/2023 07:32	0701 EDG Started to recharge U4 Stab Batteries.10:34 EDG Shutdown
05/17/2023 12:38	Issued Switching Order to Switch in 4 STG.
5/17/2023 14:54	Shinto has a clearance on 4 STG LOAD CENTER XFMR as per LOTO #4677
05/17/2023 15:57	At this time U4 STAB returned to normal.1556 4 STG Load Center Transformer High side Bkr (4ES331301 - 15) CLOSED.
5/17/2023 16:15	**LOTO # 4677 picked up, 4 STG LOAD CENTER XFMR returned to service.**
05/18/2023 10:23	10:23 Opened STG 4 Load Center Transformer 4kv feeder breaker for test on EDG.10:24 EDG started10:34 EDG stopped10:38 Closed STG 4 Load Center Transformer 4kv feeder breaker problems with test. Investigating.10:47 Opened STG 4 Load Center Transformer 4kv feeder breaker for test on EDG.10:48 EDG Started10:54 EDG Stopped10:56 Closed STG 4 Load Center Transformer 4kv feeder breaker.11:04 Opened STG 4 Load Center Transformer 4kv feeder breaker for test on EDG.11:05 EDG Started11:08 Opened STG 4 Load Center Transformer 4kv feeder breaker for test on EDG. ESS bus picked up by EDG.11:14 EDG Stopped11:15 Essential bus restored
05/18/2023 13:00	16:00 Started gassing 4STG admitting CO2 start 2000# and seal oil system is in service. Ending 1650#.16:05 Admitting H2 start 1890# to 4STG.23:54 H2 admission complete
05/18/2023 23:55	4 Steam Turbine on Gear
05/19/2023 12:30	Confirmed with GOC the MVGS Unit 4 Outage #13538933 will end 5/19/23 @ 23:59. WOOD / JONESAdding a new Forced Outage #13595334 for MVGS Unit 4B for Fuel Gas valve OOS, parts on order, Unit 4 is available for 1x1 Operation. 5/20/23 @ 00:00 to 6/23/23 @ 23:59. WOOD / JONESUnit 4B CTG SRV Gas Valve has been replaced and calibrated today 5/26/23. After a 8 hour roll out on Turning Gear I have successfully ran 4B CTG to FSNL and have released the Forced Outage making Unit 4 fully available for C2 operation. Outage 13595334 was released 5/26/23 @ 2043hrs. Obi/Banks

Cal Advocates finds the expended outage time described by SCE in Table 3-2 to be reasonable.

[343] SCE response to Cal Advocates Data Request 28, Question 119 and 150.

Post-Mortem and Corrective Actions

SCE Management approved all corrective work.[344] The loose conductor was re-attached, and the unit returned to service by May 19, 2023.[345] No parts were replaced.[346] SCE prepared an Incident Report (IR) for this outage and provided it in its supporting workpapers.[347]

No Root Cause Evaluation (RCE) Report was prepared for these events.[348] Except for the May 9, 2023 incident, these events had been short in duration and resolved themselves quickly.[349] For the May 9, 2023 outage, SCE stated that it took time to pinpoint the trip cause, but the cause was understood once the loose conductor was discovered.[350]

SCE did not prepare any other reports pertaining to the May 9, 2023 incident.[351]

SCE did not indicate whether, going forward, it would intend to check for loose conductor connections as part of its regular maintenance inspections.[352] However, SCE states that it does not plan to change its operation and maintenance procedure on its inspection practices due to this one isolated incident regarding the 4kV STAB feeder breaker.[353] While SCE considers this an isolated incident, it did not state how rare or pervasive this type of incident is industry-wide. SCE also contends that this incident was not a result of SCE's operations and maintenance practices.[354]

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[344] SCE response to Cal Advocates Data Request 28, Question 154 and 155.

[345] SCE testimony, SCE-01, at 57:4-5, SCE response to Cal Advocates Data Request 28, Question 153.

[346] SCE response to Cal Advocates Data Request 28, Question 153.

[347] SCE testimony, SCE-01, at 57:5-6, and SCE response to Cal Advocates Data Request 28, Question 039, 040 and 149: SCE-01 Workpapers.

[348] SCE response to Cal Advocates Data Request 28, Question 039 and 040.

[349] SCE response to Cal Advocates Data Request 28, Question 039 and 040.

[350] SCE response to Cal Advocates Data Request 28, Question 039 and 040.

[351] SCE response to Cal Advocates Data Request 28, Question 143.

[352] SCE response to Cal Advocates Data Request 28, Question 115.

[353] SCE response to Cal Advocates Data Request 28, Question 147, 148 and 152.

[354] SCE response to Cal Advocates Data Request 28, Question 147.

SCE's current practice, as part of the troubleshooting process, is to inspect only those safely-accessible conductors and terminations at any possible opportunity.[355] From the aforementioned narrative, Cal Advocates understands why the loose connection in the feeder cabinet was not detected sooner. However, it appears that during future routine unit shutdowns, such inspections for loose connections could be safely performed, even in the feeder cabinet area, and would be prudent, reasonable, and apropos.

Cost of Outage

The cost of the outage consists of two components: 1) the cost of energy purchased to replace the unavailable generation facility, and 2) the cost of the repair work at Unit 4S.

The May 9, 2023 Unit 4S forced outage resulted in a replacement power cost of [redacted] to ratepayers.[356] SCE is not seeking reimbursement from any vendor because SCE is not aware of any instance in which power plant component suppliers, or providers of power plant maintenance services, offer reimbursement of replacement power costs as part of their routine product offerings to their customers.[357]

In addition, there were no failed parts, only a loose connector.[358] The existing 4kV infrastructure was designed and commissioned by Bechtel Power who constructed the facility.[359] Unit 4 commercial operation began in January of 2006; therefore, all warranties have expired.[360]

SCE did not hire any contractor to perform the outage work.[361] As such, SCE's direct repair cost of the outage was $0.00 while SCE's Operation and Maintenance cost

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[355] SCE response to Cal Advocates Data Request 28, Question 111 to 114 and 145, 146.

[356] SCE response to Cal Advocates Data Request 28, Question 121.

[357] SCE response to Cal Advocates Data Request 28, Question 122, 131 to 133, 136.

[358] SCE testimony, SCE-01, at 57:3-4, and SCE response to Cal Advocates Data Request 28, Question 038, 039, 064, 100, 108 and 134.

[359] SCE response to Cal Advocates Data Request 28, Question 134.

[360] SCE response to Cal Advocates Data Request 28, Question 134 and 151.

[361] SCE response to Cal Advocates Data Request 28, Question 086, 087, 123 to 129 and 151.

was [redacted] (labor and materials).[362] SCE's repair cost is recovered through its authorized funding in D.21-08-036 of SCE's GRC Application, A.19-08-013.[363]

Therefore, the total cost of this outage from both replacement power and SCE's direct cost is [redacted]

SCE did not explain whether the replacement energy cost could have been avoided. As previously described in the above narrative, Unit 4S was capable of generating power because of the backup batteries.[364] The 4kV feeder trip on May 8, 2023 did not affect unit operation because the auxiliary equipment electrical load supplied by this 4kV feeder has a secondary electrical source from backup batteries.[365] If Unit 4 had been dispatched to come online by CAISO, the combustion turbines could have been started while Operations reset the breaker(s) and restored power to the STAB.[366] Because Unit 4 was available, SCE did not have to inform CAISO of the 4kV feeder trip.[367]

Therefore, SCE had discretion when it chose a date for the outage and could have changed the May 9, 2023 outage date to some other date, viz., during a planned maintenance outage. A different date could have resulted in less, or no, cost to ratepayers. SCE did not provide any information in its testimony, workpapers, or Data Request responses as to why the May 9, 2023 date was chosen as its elective outage date. In addition, SCE did not explain whether May 9, 2023 cost the least amount of replacement power energy to ratepayers during that time period, or why the elective outage could not have waited until the next scheduled maintenance outage.

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[362] SCE response to Cal Advocates Data Request 28, Question 139.

[363] SCE response to Cal Advocates Data Request 28, Question 139 and 140.

[364] SCE response to Cal Advocates Data Request 28, Question 024, 030 and 073.

[365] SCE response to Cal Advocates Data Request 28, Question 024, 030 and 073.

[366] SCE response to Cal Advocates Data Request 28, Question 024, 025 and 030.

[367] SCE response to Cal Advocates Data Request 28, Question 042.

IV. CONCLUSIONS AND RECOMMENDATIONS

After reviewing SCE's testimony and responses to data requests, Cal Advocates recommends that the Commission:

(a) disallow SCE's recovery of [redacted] in replacement power costs stated in SCE's ERRA balancing account for the 2023 Record Period because SCE failed to explain why it chose May 9, 2023 for its elective forced outage of Unit 4, and why it did not choose any other dates, such as during the Unit's maintenance shutdown period.

(b) order SCE to change its operation and maintenance procedure on its inspection practices to include checking for loose conductor connections in the feeder cabinet, when practicable, during planned unit maintenance outages.

LIST OF ATTACHMENTS FOR CHAPTER 3

#	Attachment	Description
1	Attachment 3.1*	SCE Response to Cal Advocates Data Request 28, Cited Responses.

**Note, due to SCE claims of confidentiality pertaining to certain data request responses, material has been redacted or removed from portions of Data Request 28, Questions 121 and 139, in the Public version of attachments for Chapter 3.*

CHAPTER 4: CONTRACT ADMINISTRATION

(**Witness**: Michael Ammermuller)

I. INTRODUCTION AND SUMMARY

This chapter of testimony presents Cal Advocates' review of SCE's contract administration for the 2023 Record Period. SCE reported its contract administration activity in Exhibit SCE-03/SCE-03C, Chapter II of its Application testimony and associated workpapers. Cal Advocates reviewed SCE's administration, modification, and termination of its capacity and energy resource contracts and agreements. This chapter also reviews contract disputes and any contract modifications that resulted in a notional change in the underlying value of the contract. Cal Advocates conducted its analysis to ensure that SCE prudently administered its contracts for the benefit of ratepayers and in compliance with the Commission's SOC 4.

II. RECOMMENDATIONS

To determine the reasonableness of SCE's actions as a contract manager, Cal Advocates analyzed SCE's testimony, issued data requests, and gathered information about specific contracts in SCE's portfolio that were modified, terminated, or involved in contract disputes. Cal Advocates also reviewed SCE's general contract administration activities. Following this analysis, based on the information provided to Cal Advocates, and under the standards of review described below in Chapter 4, Section III, Cal Advocates objects to SCE's contract administration activities and practices for the 2023 Record Period regarding the Brookfield Renewable Trading & Marketing, LP (Brookfield) contract dispute resolution. Therefore, Cal Advocates recommends a disallowance of $[redacted] from the [redacted]

III. REGULATORY BACKGROUND

Pub. Util. Code Section 454.5(d)(2) established "a regulatory process to verify and ensure that each contract was administered in accordance with terms of the contract, and contract disputes that may arise are reasonably resolved." As stated previously in Chapter 2, Cal Advocates' review and analysis of an investor-owned utility's (IOU) energy procurement contracts are guided by two major ERRA decisions:

Decision (D.) 02-10-062 and D.02-12-074 (the October and December Decisions respectively).[368] The October Decision set forth the guidelines for California's three investor-owned utilities to resume procurement responsibilities following the energy crisis of 2000-2001. The October Decision also ordered the utilities to comply with minimum standards of conduct, including SOC 4, which states that, "the utilities shall prudently administer all contracts and generation resources and dispatch the energy in a least-cost manner." SOC 4 was modified by the December Decision to include specific terms regarding contract administration, specifically:

> Prudent contract administration includes administration of all contracts within the terms and conditions of those contracts... In administering contracts, the utilities have the responsibility to dispose of economic long power and to purchase economic short power in a manner that minimizes ratepayer costs… The utility bears the burden of proving compliance with the standard set forth in its plan.[369]

Commission review and enforcement of this standard help ensure that the utilities have "operated [their] resources to produce the lowest possible cost for customers."[370]

IV. DISCUSSION AND ANALYSIS

A. New Contracts

SCE executed 93 new Conventional and Natural Gas contracts in the 2023 Record Period,[371] one new Public Utility Regulatory Policies Act (PURPA) and Combined Heat

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[368] D.02-10-062, *Interim Opinion,* and D.02-12-074, *Interim Opinion,* both in Rulemaking (R.)01-10-024, *Order Instituting Rulemaking to Establish Policies and Cost Recovery Mechanisms for Generation Procurement and Renewable Resource Development*.

[369] D.02-12-074, at 54.

[370] D.05-01-054, at 14, in Application (A.)03-10-022, *Application of Southern California Edison Company (U 338-E) For Approval of its 2004 Revenue Requirement and Related Estimates Under the Energy Resource Recovery Account (ERRA); And For a Commission Finding that its Procurement-Related and Other Operations were Reasonable for the Record Period September 1, 2001 Through June 30, 2003.*

[371] SCE-03C, Ch. II, Table II-9, at 52.

and Power (CHP) contract,[372] 11 new Renewables Portfolio Standard (RPS) contracts,[373] and 13 new Battery Energy Storage System (BESS) contracts.[374] SCE continued to manage a total of 25 Energy Efficiency (EE), 10 Demand Response (DR), nine Renewable Distributed Generation (DG), and four Permanent Load Shifting (PLS) contracts.[375] All new contracts executed in the 2023 Record Period were approved through Commission processes;[376] SCE is not seeking approval of any new contracts through the present Application.

B. Contract Amendments and Modifications

During the 2023 Record Period, SCE executed ten Conventional and Natural Gas contract amendments,[377] one PURPA and CHP contract amendment,[378] 26 RPS contract amendments,[379] and 41 BESS contract amendments.[380] Cal Advocates reviewed SCE's contract amendments and other modifications to determine if SCE met the following criteria:

- Did SCE adequately justify the rationale for the contract amendment?
- Was the contract amendment necessitated by operational need?
- Was the contract amendment in the best interest of SCE's ratepayers?

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[372] SCE-03C, Ch. II, Table II-17, at 68.

[373] SCE-03C, Ch. II, Table II-22, at 80.

[374] SCE-03C, Ch. II, Table II-28, at 106.

[375] SCE-03C, Ch. II, at 41:2-4.

[376] In SCE-03C, Ch. II, Table II-9 included four contracts (IDs 10143, 10142, 10141, and 5150) marked "N/A" in the "CPUC Resolution or Decision/SCE Advice Letter/Application" column of their respective tables. Cal Advocates requested additional information on these contracts; SCE responded with the updated information (see SCE Response to Cal Advocates DR 02, Question 1a.-d.). SCE filed errata testimony on August 14, 2024 to correct these errors.

[377] SCE-03C, Ch. II, Table II-10, at 54.

[378] SCE-03C, Ch. II, Table II-18, at 68.

[379] SCE-03C, Ch. II, Table II-23, at 81-82.

[380] SCE-03C, Ch. II, Table II-29, at 108-110.

- What is the actual or notional value of the contract amendment?
- How is the actual and/or notional value of the amendment accounted for in SCE's expense and/or revenue account?

Contract amendments that resulted in appreciable changes to the underlying notional value of the contract or other substantive changes are summarized below**.**

1. Conventional and Natural Gas Contract Amendments

a. Berry Petroleum Company, LLC (ID 11295-1001)[381]

Berry Petroleum Company, LLC (Berry) and SCE executed an Edison Electric Institute (EEI) Master Agreement on April 26, 2022, and executed a Confirmation Letter on April 27, 2022 as part of SCE's Emergency Reliability Procurement. On February 15, 2023, Berry and SCE executed Amendment Number (No.) 1 to the Confirmation Letter, changing the terms regarding Resource Adequacy (RA) for the months of April and November 2023.[382] Berry was willing to sell RA in April but not able to in November. [redacted].[383] This amendment [redacted]. In addition, the contract price for April 2023 RA [redacted], resulting in savings of [redacted].[384] SCE claims its customers benefit from this amendment by ensuring RA compliance and system reliability in April 2023 and results in a total savings of [redacted] for SCE customers.

b. AES Huntington Beach Energy, LLC (ID 10002)[385]

On November 3, 2014, SCE executed a Power Purchase Agreement (PPA) with AES Huntington Beach Energy, LLC (AES HB)[386] as part of SCE's 2013 Local Capacity

[381] SCE-03C, Ch. II, at 55:12-21.

[382] SCE-03C, Ch. II, at 56:15-16.

[383] SCE-03C, Ch. II, at 55:17.

[384] SCE-03C, Ch. II, at 55:21.

[385] SCE-03C, Ch. II, at 56:1-7 & SCE -03C Testimony, Ch. II, at 56:16-23.

[386] AES HB is a 673.8 megawatt (MW) combined cycle gas-fired project located in Huntington Beach, CA.

Requirement (LCR) Request For Offer(s) (RFO). In the 2023 Record Period, SCE and AES HB executed two amendments to Amendment No.7:[387] Amendment No. 2 on April 21, 2023, and Amendment No. 3 on July 18, 2023. Both Amendments No. 2 and No. 3 to Amendment No. 7 [redacted] SCE claims its customers benefit from these amendments by preserving a net present value (NPV) savings of [redacted],[388] and a more accurate representation of the resource's capabilities.

c. Watson Cogeneration Company (ID 10839)389

Watson Cogeneration Company (Watson)[390] and SCE executed a PPA on April 2, 2022. On December 19, 2023,[391] SCE and Watson executed Amendment No. 1 to [redacted] Due to changes in the RA market, SCE determined Watson's proposal to be competitive in the market. SCE claims its customers benefit from this amendment by realizing an NPV savings of [redacted] and supporting the viability of a grid-reliability project.

[387] Amendment No. 7 was executed on August 31, 2021. See A.23-04-001, *Application of Southern California Edison Company (U338E) for a Commission Finding that its Procurement-Related and Other Operations for the Record Period January 1 Through December 31, 2022 Complied with its Adopted Procurement Plan; for Verification of its Entries in the Energy Resource Recovery Account and Other Regulatory Accounts; and for Recovery of $51.442 Million Recorded in Five Accounts*, SCE-03C, at 50:6-7.

[388] Amendment No. 2 had an NPV of [redacted] but a new NPV of [redacted] is reflected in the latter Amendment No.4.

[389] SCE-03C, Ch. II, at 57:10-25.

[390] Watson is 305 MW cogeneration project located in Carson, California.

[391] SCE-03C, Ch. II, Table II-10, at 54.

2. PURPA and CHP Contract Amendments

a. Orange County Sanitation District (ID 2804)[392]

Orange County Sanitation District (OCSD)[393] and SCE executed a PPA on September 9, 1991. On July 26, 2023,[394] SCE and OCSD executed Amendment No. 4 to [redacted] SCE claims its customers benefit from [redacted] for energy delivered between July 27, 2023 and the Term End Date, realizing an NPV of [redacted]

3. RPS Contract Amendments

a. Tulare PV I, LLC (IDs 5587, 5588, 5589, 5590, 5591, 5592, 5597, 5598, 5599, 5600, 5601, 5602) and Actual Bishop Tungsten Development, LLC (ID 4202)[395]

The Tulare PV I, LLC (Tulare) contracts are small solar projects (0.5 – 1.5 MW) located in four cities in Tulare County, California.[396] Actual Bishop Tungsten Development, LLC (Bishop) is a 0.25 MW hydro project in Bishop, California. SCE executed 13 PPAs with Tulare and Bishop on July 20, 2012. Between January and February of 2023, SCE executed Letter Agreements for the 13 contracts to modify the payment method to allow Automated Clearing House (ACH) transfers. SCE claims customers benefit from the reduced expenses associated with ACH payments. Cal Advocates requested and reviewed the calculated savings.[397] SCE acknowledged ACH payments were available at the time of the contracts but did not pursue integrating ACH payments with either Tulare or Bishop.[398] Cal Advocates notes that both the

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[392] SCE-03C, Ch. II, at 85:35-38 and SCE-03C Testimony, Ch. II, at. 86:1-5.

[393] OCSD is a 12 MW biogas digester project located in Huntington Beach, CA.

[394] SCE-03C, Ch. II, Table II-18, at 68.

[395] SCE-03C, Ch. II, at 83-85.

[396] The cities of Exeter, Lindsay, Visalia, and Porterville.

[397] SCE Response to Cal Advocates DR 02, Q04 (attachment).

[398] SCE response to Cal Advocates DR 02, Question 4a.-e.

associated payment costs prior to these amendments, and the savings over the remaining life of the 13 Tulare and Bishop contracts are minimal (total costs: $2,205.50, total savings: $2,683.32).[399] Despite the relatively small dollar values of the costs and savings between the payment methods Cal Advocates is concerned that SCE did not pursue these savings to minimize ratepayer costs at the outset of the 13 contracts in 2012. SCE should pursue all cost savings, no matter the size.

b. MM Tulare Energy, LLC (ID 1245)[400]

SCE and MM Tulare Energy, LLC (MM Tulare)[401] executed a PPA on March 14, 2017, as part of SCE's Renewable Market Adjusting Tariff (ReMAT) solicitation. On February 23, 2023, SCE and MM Tulare executed a Letter Agreement to settle Guaranteed Energy Product (GEP) damages [redacted] owed by MM Tulare to SCE for failing Performance Measurements 3 and 4 of the PPA. SCE claims its customers benefit by ensuring a payment [redacted] from MM Tulare, while "alleviating any potential disputes"[402] and allowing continuing operation of the project.

c. Lancaster WAD B, LLC (ID 5748)[403]

SCE and Lancaster WAD B, LLC (Lancaster)[404] executed a PPA on February 25, 2015, as part of SCE's ReMAT solicitation. On October 16, 2023, SCE and Lancaster executed a Letter Agreement, to settle GEP Damages owed by Lancaster to SCE due to the project's failure to meet a minimum energy delivery. SCE claims its customers benefit by ensuring a payment of $[redacted] from Lancaster and allowing the continued operation of the project.

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[399] SCE Response to Cal Advocates DR 02, Q04 (attachment). Cells G15 and I15, respectively.

[400] SCE-03C, Ch. II, at 85-86.

[401] MM Tulare is a 1.5 MW biomass project in Visalia, California.

[402] SCE-03C, Ch. II, at 86:4.

[403] SCE-03C, Ch. II, at 87:16-25.

[404] Lancaster is a 3 MW solar PV project in Lancaster, California.

4. BESS Contract Amendments

a. MN8 Energy Operating Company LLC (ID 12065)[405]

SCE and MN8 Energy Operating Company LLC (MN8)[406] executed a PPA on December 15, 2022 as part of SCE's 2021 Midterm Reliability (MTR) RFO. SCE and MN8 executed three Letter Agreements in the 2023 Record Period: February 15, March 7, and August 17. The February Letter Agreement resulted in Amendment No. 1 to the PPA which [redacted]. The March Letter Agreement resulted in Amendment No. 2 to the PPA which addresses [redacted]. The August Letter Agreement resulted in Amendment No. 3 to the PPA to "[redacted]."[407] SCE claims that customers benefit from these amendments by supporting the viability of a grid-reliability project.

b. Nova Power, LLC (IDs 12058, 12059)[408]

Nova Power, LLC (Nova) is a 680 MW BESS project located in Riverside County, California. Contract ID 12058 (Nova I) and Contract ID 12059 (Nova II) describe phase one and two of a 230 MW RA contract with Put Option Storage projects in the City of Menifee, California, located within Riverside County.[409] SCE and Nova executed PPAs for both contracts on September 29, 2022, as part of SCE's 2021 MTR RFO. SCE and Nova executed amendments to the PPAs on March 15, 2023, and

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[405] SCE-03C, Ch. II, at 111:1-8:9-18 and SCE-03C, Ch. II, at 117-118.

[406] MN8 is a 73.8 MW battery energy storage project located in Lemoore, California.

[407] SCE-03C, Ch. II, at 117:27.

[408] SCE-03C, Ch. II, at 112:1-14, and SCE-03C, Ch. II, at 120:16-27.

[409] Nova Power, LLC phase 3 (Nova IV), a 110 MW RA with Put Option Storage contract (ID 12070), is a new BESS contract and can be found in SCE-03C, Ch. II, Table II-28, at 106.

letter agreements on December 14, 2023, on both the Nova I and Nova II contracts. The March 15, 2023 amendments, both titled Amendment No. 1 on each contract, were executed to "[redacted]"[410] and correct a formula error for the Adjusted Available Charging Capacity of the Agreement. The December 14, 2023 letter agreements for both contracts "[redacted]."[411] SCE claims that customers benefit from the contract amendments because the contract administrators will have accurate project information, and customers benefit from the letter agreements by supporting the viability of a grid-reliability project.

c. Silver State Storage South, LLC (ID 12066)[412]

SCE and Silver State Storage South, LLC (Silver Storage)[413] executed a PPA on December 20, 2022, as part of SCE's MTR RFO. During the 2023 Record Period, SCE and Silver Storage executed five letter agreements (March 17, April 17, May 31, August 29, and November 13) and one Amended and Restated Agreement (December 29), to be filed as a Tier 3 Advice Letter (AL) with the Commission. All five letter agreements [redacted] of the contracts. In addition, the latter four letter agreements [redacted]. The December 29, 2023 Amended and Restated Agreement, among other things, [redacted]. SCE claims the letter agreements and amended agreement benefit its customers by supporting the viability of a grid-reliability project.

[410] SCE-03C, Ch. II, at 112:5, 12.

[411] SCE-03C, Ch. II, at 120:20-21, and SCE-03C Testimony, Ch. II, at 121:1-2.

[412] SCE-03C, Ch. II, at 113, 114, 119, 120, 123.

[413] Silver Storage is a 200 MW BESS project located in Jean, Nevada.

d. Homestead Energy Storage, LLC (ID 12041)[414]

SCE and Homestead Energy Storage, LLC (Homestead)[415] executed a PPA on October 21, 2020, as part of SCE's 2020 Distribution Investment Deferral Framework (DIDF) RFO. On June 6, 2023, SCE and Homestead executed Amendment No. 1 [redacted]. SCE claims the agreement benefits its customers by supporting the viability of a grid-reliability project, plus a realization of [redacted] in NPV.

e. SF Tranquillity Solar Storage, LLC (ID 12049)[416]

SCE and SF Tranquillity Storage, LLC (Tranquillity)[417] executed a PPA on April 22, 2020 as part of SCE's 2019 System Reliability RFO. On December 29, 2023, SCE and Tranquillity executed a Settlement Agreement to [redacted] regarding, among other things, [redacted]. SCE claims the Settlement Agreement benefits customers from both the $[redacted] payment to SCE from Tranquillity, but also by "[redacted]."[418]

C. Contract Terminations

During the 2023 Record Period, SCE terminated 16 Behind-the-Meter (BTM) contracts,[419] 18 Conventional and Natural Gas contracts,[420] five PURPA and CHP contracts,[421] and two RPS contracts;[422] there were zero BESS contract terminations during the 2023 Record Period.[423]

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[414] SCE-03C, Ch. II, at 115:1-9.

[415] Homestead is a 14 MW energy storage project in Castaic, California.

[416] SCE-03C, Ch. II, at 122:19-27.

[417] Tranquility is a 72 MW BESS project in Cantua Creek, California.

[418] SCE-03C, Ch. II at 122:26-27.

[419] SCE-03C, Ch. II, Table II-7, at 45.

[420] SCE-03C, Ch. II, Table II-13, at 62.

[421] SCE-03C, Ch. II, Table II-20, at 72.

[422] SCE-03C, Ch. II, Table II-26, at 102.

[423] SCE-03C, Ch. II, at 129:5.

Cal Advocates reviewed SCE's contract terminations described in SCE's testimony and workpapers and issued discovery as necessary. Cal Advocates concludes that SCE's conduct for contract terminations in the 2023 Record Period was not prudent. Below is a summary of a contract termination that resulted in an unfavorable ratepayer impact.

1. Victorville Energy Center, LLC (ID 2836)[424]

Victorville Energy Center, LLC (VEC) was originally contracted as a CHP facility to have a nameplate capacity of 19 MW in Apple Valley, California.[425] SCE and VIAS Energies, Inc. (later VEC)[426] executed a PPA in [redacted][427] The counterparties to the VEC PPA,[428] were [redacted]. As stated by SCE, the counterparties [redacted]"[429] SCE notes the [redacted]. VEC was able to secure "[redacted]"[430] but SCE claims this [redacted] "[redacted]."

[424] SCE-03C, Ch. II, Table II-20, Row 2, at 72.

[425] The contract with this generation facility was submitted for approval via SCE AL 3701-E, and approved in July 2018, via CPUC Resolution E-4911, *Approves Southern California Edison's Agreement with VIAS Energies, Inc. for combined heat and power energy and capacity*: https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M217/K968/217968449.docx.

[426] VIAS Energies, Inc. requested a consent to Assignment of the contract to VEC in September 2018. See SCE Response to Cal Advocates DR 29, Q3a.

[427] SCE Confidential Response to Cal Advocates DR 10, Q3.

[428] See SCE Response to Cal Advocates DR 29, Q3a for all members to the PPA.

[429] SCE Confidential Response to Cal Advocates DR 10, Q3.

[430] SCE Confidential Response to Cal Advocates DR 26, Q4b.

SCE claims ratepayers had [redacted].[431] Cal Advocates requested additional information and calculations to support this claim; SCE stated "SCE made a general comparison between the VEC contract price ($429.59/kW-year for 2025-26) versus the RA market ($[redacted]/kW-year over the same period) at the time of response to [Data Request] 10, [Question] 03. SCE did not perform additional calculations."[432]

While [redacted].[433] Cal Advocates requested additional information on [redacted].[434] SCE supplied [redacted].[435] The [redacted]" rather than "[redacted]." SCE also claims [redacted],"[436] and [redacted].[437]

However, the [redacted] is also SCE's. As noted above, there were [redacted]. Since SCE was [redacted]

[431] SCE Confidential Response to Cal Advocates DR 10, Q3.

[432] SCE Confidential Response to Cal Advocates DR 29, Q1h.

[433] SCE Confidential Response to Cal Advocates DR 10, Q3.

[434] SCE Confidential Response to Cal Advocates DR 26, Q4a.

[435] SCE Confidential Response to Cal Advocates DR 26, Q4c, attachments.

[436] SCE Confidential Response to Cal Advocates DR 29, Q1k.

[437] SCE Confidential Response to Cal Advocates Master Data Request (MDR), Q 1.2.9.4.

[redacted] Cal Advocates has no recommendation related to SCE's [redacted] VEC since there were "[redacted]" for ratepayers.[438] However, as discussed in greater detail below, this [redacted] is part of a continued pattern of imprudent contract management by SCE.

D. Disputes and Other Contracting Issues

SCE noted contract disputes with two counterparties for reasons other than force majeure; the disputes were resolved in the 2023 Record Period. Cal Advocates objects to SCE's administration of Brookfield's contract dispute. This dispute in the 2023 Record Period is summarized below.

1. Brookfield Renewable Trading & Marketing, LP (IDs 11551-1002, 11551-1003, and 11551-1004)[439]

In September 2022, Brookfield Renewable Trading & Marketing, LP (Brookfield) and SCE entered into three agreements in which SCE agreed to purchase Import RA from Brookfield. The purchase agreements were for only the RA attribute, allowing Brookfield to directly offer the energy to the CAISO, or other market participants. The three agreements, governed by the terms of the Western System Power Pool (WSPP) Agreement, were memorialized in RA confirmations on April 25, 2022, May 26, 2022, and August 9, 2022.

In October 2022, Brookfield invoiced SCE $[redacted] for the September 2022 RA.[440] Due to the terms of the WSPP, SCE paid the invoice but claimed an overcharge of $[redacted].[441] SCE states the dispute on the claimed overcharge "centered on the parties' disagreement with respect to the agreed Contract Price and adjustments to the

[438] SCE Confidential Response to Cal Advocates DR 10, Q3.

[439] SCE-03C, Ch. II, at 60.

[440] SCE Confidential Response to Cal Advocates DR 26, Q1a, attachment.

[441] SCE-03C, Ch. II, at 60:16.

Contract Price."[442] SCE and Brookfield participated in mediation but ultimately executed a final settlement agreement in which Brookfield paid SCE $[redacted].[443] Brookfield contends this overcharge was due to a "[redacted]."[444] while SCE maintains there was no mistake.[445] SCE states that this settlement figure resulted in "obtaining value for customers"[446] as part of its Portfolio Optimization efforts.[447] SCE also considers the claim closed.

Cal Advocates requested the original "Contract Price and adjustments to the Contract Price" from the three RA confirmations with Brookfield.[448] The dispute of over the contract price resulted from differing contract prices stated in the three purchase agreements. Specifically, purchase agreements 11551-1002 and 11551-1004 state a different Market Price for Firm Energy than the third contract, 11551-1003.[449] SCE provided both its calculations related to the claimed overcharge[450] and those provided by Brookfield.[451, 452] SCE notes that, for Contracts 11551-1002 and 11551-1004, "[SCE] *meant* to compensate Brookfield" the Contract Price for both Product 1 ("Firm Energy") and Product 2 ("Scheduling Coordinating Services").[453] However, the purpose of the purchase agreements was to memorialize the agreed-upon Contract Price and Energy Adjustment. The fact that the contracts do not clearly state the Contract Price and Energy

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[442] SCE-03C, Ch. II, at 60:21-22.

[443] SCE-03C, Ch. II, at 60:26.

[444] SCE Confidential Response to Cal Advocates MDR, Q 1.2.20.

[445] SCE Confidential Response to Cal Advocates DR 10, Q05.

[446] SCE-03C, Ch. II, at 134:27.

[447] SCE-03C, Ch. II, at 134-135, and SCE Response to Cal Advocates DR 02, Q03, Attachment.

[448] SCE-03C, Ch. II, at 60:21-22.

[449] SCE Confidential Response to Cal Advocates DR 16, Q01. Both 11551-1002 and 11551-1004 utilize the same Market Price for Firm Energy. There was no dispute related to Contract 11551-1003.

[450] SCE Response to Cal Advocates DR 16, Q01, Attachment.

[451] SCE Response to Cal Advocates DR 26, Q01, Attachment 1.

[452] SCE Response to Cal Advocates DR 26, Q01, Attachment 2.

[453] SCE Response to Cal Advocates DR 26, Q02 (emphasis added).

Adjustment in Contracts 11551-1002 and 11551-1004 shows a lack of care by SCE. SCE should have exercised greater care and prudence when reviewing the contracts to ensure the purchase price and adjustments were unambiguously stated in those two Contracts. Had SCE exercised a reasonable standard of care and ensured that the contract price and adjustment were accurately stated, the amount SCE meant to compensate Brookfield would have been clear.

While Brookfield did reimburse SCE $[redacted] as part of the settlement,[454] the ambiguity in the "Contract Price and adjustments to the Contract Price" as understood between Brookfield and SCE, and the resulting overcharge claimed by SCE, follows a pattern of imprudent management in contract administration by SCE. In the 2020 Record Period, Cal Advocates noted disputes between SCE and Sterling Analytics, LLC (Sterling) stating the "[redacted]."[455] The resolution to these 2020 Record Period disputes resulted in a $[redacted] payment from SCE to Sterling. In the 2021 Record Period, Cal Advocates noted disputes between SCE and Willdan Energy Solutions, Inc. (Willdan) stating SCE failed "to include clear, specific, and transparent units of measurement and payment calculation methodologies in its contracts [which] led to ambiguity… and subsequent invoice disputes."[456] The resolution to the 2021 Record Period disputes resulted in a $[redacted] payment from SCE to

[454] This amount was credited to the [redacted].

[455] A.21-04-001, *Application of Southern California Edison Company (U338E) for a Commission Finding that its Procurement-Related and Other Operations for the Record Period January 1 Through December 31, 2020 Complied with its Adopted Procurement Plan; for Verification of its Entries in the Energy Resource Recovery Account and Other Regulatory Accounts; and for Recovery of $60.772 Million Recorded in Four Accounts*, at 4-9:3-5.

[456] A.22-04-001, *Application of Southern California Edison Company (U 338-E) for a Commission Finding that its Procurement-Related and Other Operations for the Record Period January 1 Through December 31, 2021 Complied with its Adopted Procurement Plan; for Verification of its Entries in the Energy Resource Recovery Account and Other Regulatory Accounts; and for Recovery of $25.706 Million Recorded in Five Accounts,* at 4-22:10-12.

Willdan.[457] Furthermore, as stated previously in Section C.1 (above) SCE noted a [redacted], and a failure to [redacted] $[redacted] due to VEC's inability to meet the terms of the contract. The Brookfield contract dispute is yet another instance in which imprudent contract management led to ambiguity and disputes, with outcomes unfavorable to ratepayers.

The entire overcharge and the related compounded interest associated with the Brookfield dispute are recorded in the 2023 Record Period [redacted] which are offset by revenue collected from ratepayers. This recorded entry and related interest for the Brookfield overcharge is imprudent and effectively is a dollar-for-dollar negation of the ratepayer-collected revenue that would otherwise offset prudent expenses in the [redacted]. In compliance with SOC 4, SCE should not be permitted to avoid responsibility for its imprudent contract management at the expense of the ratepayers. Therefore, due to SCE's continued lack of care and imprudent contract administration as demonstrated by critical typographical errors and a lack of specificity in defining the contract terms with counterparties, Cal Advocates recommends a disallowance of $[redacted] from the [redacted]. This figure consists of the difference between the overcharge ($[redacted]) and the settlement amount ($[redacted]), or $[redacted] plus $[redacted] in calculated interest on the overcharge between the invoice date and the end of 2023 Record Period.[458] In addition, Cal Advocates recommends that the Commission require SCE to adopt clear and transparent language in its contracts to avoid future errors and to ensure just and reasonable rates for ratepayers.[459]

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[457] In A.22-04-001, Cal Advocates recommended a disallowance of this $[redacted] based on the pattern of contract ambiguities in both the 2020 and 2021 Record Periods. However, as of the date of this filing in this instant proceeding, A. 22-04-001 is still open, and the Commission has made no ruling on Cal Advocates' recommendation.

[458] $[redacted] + $[redacted] = $[redacted] See Attachment 4.14 for Cal Advocates' calculations.

[459] CA Pub Util Code § 451 (2023). "All charges demanded or received by any public utility, or by any two or more public utilities, for any product or commodity furnished or to be furnished or any service rendered or to be rendered shall be just and reasonable. Every unjust or unreasonable charge demanded or received for such product or commodity, or service is unlawful."

E. Force Majeure and Uncontrollable Force Claims

A force majeure claim is a claim by a contractual party to excuse a change in deliveries or availability due to a circumstance beyond the party's control. PPAs and other contracts typically include force majeure provisions, but generally do not include exhaustive lists of what may qualify as causing a force majeure interruption. SCE works with parties who make force majeure claims to determine whether or not to accept such a claim. Negotiations and third-party arbitration are commonly conducted to resolve a force majeure claim.

SCE identified one Conventional and Natural Gas,[460] one PURPA and CHP,[461] five RPS,[462] and five BESS[463] counterparties that submitted force majeure claims that may have begun or been resolved during or after the 2023 Record Period. Based on a review of the testimony and responses to data requests, Cal Advocates concludes SCE's administration of force majeure claims to be prudent and reasonable.

F. Energy Delivery Performance Administration

During the 2023 Record Period, calculations regarding annual production were performed on 142 RPS contracts. There were 19 contracts in which the failures for the contracts did not meet their required targets during the 2023 Record Period or had prior period replacement damage amounts settled during the 2023 Record Period. Of the 19 contracts, 18 were fully settled in the 2023 Record Period, and the remaining amount in one contract will be "assessed in 2024."[464]

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[460] SCE-03C, Ch. II, Table II-12, at 59.

[461] SCE-03C, Ch. II, Table II-19, at 70.

[462] SCE-03C, Ch. II, Table II-25, at 92.

[463] SCE-03C, Ch. II, Table II-31, at 126.

[464] SCE-03C, Ch. II, at 100:15.

G. Other Contract Administration Activities

1. CAISO System Emergency Transactions

During heat waves in the summer months of the 2023 Record Period, the CAISO issued a series of grid emergency alerts.[465] In July 2023 the CAISO issued two Energy Emergency Alert (EEA) Watches, and one CAISO System Emergency (EEA1) alert. In August 2023, the CAISO issued six Restricted Maintenance Operations alerts.[466]

In advance of the July 20, 2023 EEA1, SCE's Contract Management group coordinated with four BESS projects that had not yet reached their commercial operating date (COD): Desert Peak Energy Storage I, LLC (Desert Peak I), Desert Peak Energy Storage II, LLC (Desert Peak II), Stanton Battery Energy Storage, LLC (Stanton), and SCE's Utility-Owned Storage (UOS) at the Etiwanda Substation (Etiwanda). From the respective ALs seeking approval for these projects, the expected initial delivery date for these projects was August 1, 2023.[467] In its testimony, SCE stated:

> "these projects had capability to provide capacity and energy deliveries during the [EEA1] by aligning test energy to be discharged during time of need prior to reaching their [COD], coordinating with the projects and CAISO on the issuance of [Net Qualifying Capacity] NQC and [Effective Flexible Capacity] EFC, and once NQC was achieved, submitting in the CAISO process for Capacity Procurement Mechanism (CPM)."[468]

SCE states the Desert Peak II was submitted in the CAISO's CPM, awarded 45.71 MW in August 2023, and that the associated CAISO revenue, $288,430.10,[469] was allocated to SCE.

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[465] See CAISO Fact Sheet for a description of these different alerts: https://www.caiso.com/Documents/Emergency-Notifications-Fact-Sheet.pdf

[466] See https://www.caiso.com/documents/grid-emergencies-history-report-1998-present.pdf for dates and times of these alerts.

[467] See SCE AL 4373-E (Desert Peak I), SCE AL 4800-E (Desert Peak II), SCE AL 4885-E (Stanton), and SCE ALs 4617-E/4928-E (Etiwanda). SCE's response to MDR 1.2.8.3 listed CODs for Desert Peak I and Stanton as [redacted].

[468] SCE-03C, Ch. II, at 129:15-19.

[469] SCE Response to Cal Advocates DR 30, Q1c.

2. Central Procurement Entity (CPE)

Beginning in the 2023 Record Period and pursuant to D. 20-06-002,[470] SCE served as the CPE within its Transmission Access Charge area, procuring local RA requirements on behalf of Load Serving Entities (LSE) therein. Cal Advocates verified the two CPE contracts administered by SCE in the 2023 Record Period were previously approved by the Commission.[471] These two contracts Walnut Creek Energy, LLC and El Segundo Energy Center, were previously submitted by SCE in its CPE Annual Compliance Report ALs.[472] As noted by SCE, there were "no new CPE contracts, amendments, issues or terminations" during the 2023 Record Period.[473]

V. CONCLUSION

To determine the reasonableness of SCE's actions as a contract manager, Cal Advocates analyzed SCE's testimony, issued data requests, and gathered information about specific contracts in SCE's portfolio that were modified or terminated, or involved in contract disputes. Cal Advocates also reviewed SCE's general contract administration activities. Following this analysis, based on the information provided to Cal Advocates, and under the standards of review described herein, Cal Advocates recommends a disallowance of $[redacted] from the [redacted] due to SCE's continued imprudent contract management practices resulting in unfavorable ratepayer outcomes.

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[470] D.20-06-002, *Decision on Central Procurement of the Resource Adequacy Program*, in R.17-09-020, *Order Instituting Rulemaking to Oversee the Resource Adequacy Program, Consider Program Refinements, and Establish Annual Local and Flexible Procurement Obligations for the 2019 and 2020 Compliance Years.*

[471] SCE Response to Cal Advocates DR 30, Q2, Attachment.

[472] Walnut Creek Energy LLC (AL 4626-E, submitted November 1, 2021) and El Segundo Energy Center (AL 4865-E, submitted September 19, 2022).

[473] SCE 03C, Ch. II, at 133:22.

LIST OF ATTACHMENTS FOR CHAPTER 4

#	Attachment	Description
1	Attachment 4.1	SCE Responses to Cal Advocates DRs 02, 26, 29, 30.pdf
2	Attachment 4.2	SCE Response to Cal Advocates DR 02, Q04 (attachment) Available via email
3	Attachment 4.3 Confidential	SCE Confidential Responses to Cal Advocates DRs 10, 16, 26, 29
4	Attachment 4.4 Confidential	SCE Confidential Response to Cal Advocates DR 26, Q4c, attachments
5	Attachment 4.5 Confidential	SCE Confidential Response to Cal Advocates MDR, Q 1.2.9.4
6	Attachment 4.6 Confidential	SCE Confidential Response to Cal Advocates DR 26, Q1a, attachment
7	Attachment 4.7 Confidential	SCE Confidential Response to Cal Advocates MDR Q 1.2.20
8	Attachment 4.8 Confidential	SCE Confidential Response to Cal Advocates DR 02, Q03, attachment Available via email
9	Attachment 4.9 Confidential	SCE Confidential Response to Cal Advocates DR 16, Q01, attachment. Available via email
10	Attachment 4.10 Confidential	SCE Confidential Response to Cal Advocates DR 26, Q01, attachment 1 Available via email
11	Attachment 4.11 Confidential	SCE Confidential Response to Cal Advocates DR 26, Q01, attachment 2 Available via email
12	Attachment 4.12 Confidential	A2104001 CONFIDENTIAL Public Advocates Office Prepared Testimony

#	Attachment	Description
13	Attachment 4.13 Confidential	A2204001 CONFIDENTIAL Public Advocates Office Prepared Testimony
14	Attachment 4.14 Confidential	Brookfield Interest Calc- CONF.xlsx Available via email
15	Attachment 4.15	SCE Response to Cal Advocates DR 30, Q02, attachment Available via email

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CHAPTER 5: COMPLIANCE AUDIT OF THE ENERGY RESOURCE RECOVERY ACCOUNT (ERRA) AND OTHER BALANCING/MEMORANDUM ACCOUNTS

(Witnesses: Brian Lui, Craig Jenquin, and Michael Ammermuller)

I. INTRODUCTION

In its Application, SCE requests that the Commission find that its procurement-related expenditures and other operations during the 2023 Record Period were appropriate, correct, and in compliance with Commission decisions.[474] SCE's balancing and memorandum accounts include the Energy Resource Recovery Account Balancing Account (ERRA BA) and forty-five (45) other regulatory accounts (i.e., balancing and memorandum accounts).[475]

Cal Advocates selected and reviewed 19 balancing and memorandum accounts submitted in the Application based on assessments of internal control environment, financial impact, results of prior reviews, and changes to accounting practices. This chapter presents Cal Advocates' findings based on its review of the 19 balancing and memorandum accounts selected for the 2023 Record Period.

II. SUMMARY AND RECOMMENDATIONS

Cal Advocates finds that the accounting entries recorded for the 2023 Record Period in the 19 balancing and memorandum accounts listed below are correctly stated and in compliance with applicable Commission decisions except for the California Solar Initiative Program Balancing Account (CSIPBA). Cal Advocates recommends a [redacted] disallowance in the CSIPBA. In addition, Cal Advocates recommends that SCE file an advice letter to seek Commission approval of its proposed modifications to the Affiliate

[474] SCE Direct Testimony Exhibit SCE-02, Chapter IV at 26:10-12; SCE Direct Testimony Exhibit SCE-04, at 6.

[475] SCE Direct Testimony Exhibit SCE-02, Table IV-14 at 30.

Transfer Fee Memorandum Account (ATFMA).[476] Cal Advocates recommends that SCE revise its conventions for assigning categorical labels to its settlement data.

Cal Advocates does not object to the costs recorded in the following 19 accounts:

- Energy Resource Recovery Account Balancing Account (ERRA BA)
- Portfolio Allocation Balancing Account (PABA)
- Base Revenue Requirement Balancing Account (BRRBA)
- New System Generation Balancing Account (NSGBA)
- Pole Loading and Deteriorated Pole Programs Balancing Account (PLDPBA)
- Risk Management Balancing Account (RMBA)
- Integrated Resource Planning Costs Memo Account (IRPCMA)
- Summer Reliability Demand Response Program Memorandum Account (SRDRPMA)
- Emergency Load Reduction Program Balancing Account (ELRPBA)
- Green Tariff Shared Renewables Balancing Account (GTSRBA)
- Charge Ready Program Balancing Account (CRPBA)
- Residential Rate Implementation Memorandum Account (RRIMA) and
- Percentage of Income Payment Plan Memorandum Account (PIPPMA)
- Modified Cost Allocation Mechanism Balancing Account (MCAMBA)
- AB1X Balancing Account (AB1XBA)

[476] Cal Advocates reviewed the entries recorded in the ATFMA during the 2023 Record Period, and found the entries in the ATFMA to be correctly stated and in compliance with Commission decisions. However, Cal Advocates recommends that SCE (1) file an advice letter seeking Commission approval of SCE's proposed modifications to the ATFMA preliminary statement as specified in SCE Appendix II-A; and (2) include the ATFMA in ERRA proceedings only after the Commission approves SCE's proposed modifications to the ATFMA preliminary statement.

- Emergency Reliability Energy Storage Balancing Account (ERESBA)
- Transportation Electrification Portfolio Balancing Account (TEPBA)
- California Solar Initiative Program Balancing Account (CSIPBA)
    - Except for the disallowance of entries related to 2012 Record Period performance-based incentive (PBI) Payments
- COVID-19 Pandemic Protection Memorandum Account (CPPMA)
- Affiliate Transfer Fee Memorandum Account (ATFMA)

III. REGULATORY BALANCING AND MEMORANDUM ACCOUNTS

A. Applicable Ratemaking Accounts

The revenues, expenses, and ending balances of the 19 ratemaking accounts reported by SCE and reviewed by Cal Advocates for the 2023 Record Period are summarized in Table 5-1 below:

Table 5-1: Ratemaking Accounts Reviewed by Cal Advocates - Record Period Ending December 31, 2023 ($000)

SCE Exhibit and Table Number	Balancing / Memorandum Account	Beginning Balance in Thousands of dollars ($000) as of 1/1/2023	Ending Balance in Thousands of dollars ($000) as of 12/31/2023	Balance Change in Thousands of dollars ($000s)
SCE-02C, Table IV-15	Energy Resource Recovery Account Balancing Account (ERRA BA)	$1,581,937	$(195,548)	$(1,777,485)
SCE-02C, Table IV-46	Portfolio Allocation Balancing Account (PABA)	$(92,083)	$617,032	$709,115

SCE Exhibit and Table Number	Balancing / Memorandum Account	Beginning Balance in Thousands of dollars ($000) as of 1/1/2023	Ending Balance in Thousands of dollars ($000) as of 12/31/2023	Balance Change in Thousands of dollars ($000s)
SCE-02C, Table IV-16	Base Revenue Requirement Balancing Account (BRRBA)	$1,123,550	$[redacted]	$[redacted]
SCE-04C, Table I-1	New System Generation Balancing Account (NSGBA)	$(62,775)	$224,876	$287,651
SCE-02, Table IV-70	Pole Loading and Deteriorated Pole Programs Balancing Account (PLDPBA)	$(51,342)	$(13,917)	$37,425
SCE-02C, Table IV-54	Risk Management Balancing Account (RMBA)	$0	$(146,287)	$(146,287)
SCE-02, Table IV-63	Integrated Resource Planning Costs Memo Account (IRPCMA)	$2,394	$3,537	$1,143
SCE-02, Table IV-65	Summer Reliability Demand Response Program Memorandum Account (SRDRPMA)	$35,083	$35,882	$799
SCE-02C, Table IV-52	Emergency Load Reduction Program Balancing Account (ELRPBA)	$0	$9,565[477]	$0
SCE-02C, Table IV-35	Green Tariff Shared Renewables Balancing Account (GTSRBA)	$951	$870	$(81)

[477] Prior to the annual transfer to the BRRBA Distribution subaccount.

SCE Exhibit and Table Number	Balancing / Memorandum Account	Beginning Balance in Thousands of dollars ($000) as of 1/1/2023	Ending Balance in Thousands of dollars ($000) as of 12/31/2023	Balance Change in Thousands of dollars ($000s)
SCE-02C, Table IV-28	Charge Ready Program Balancing Account (CRPBA)	$0	$15,409[478]	$0
SCE-02, Table IV-62	Residential Rate Implementation Memorandum Account (RRIMA)	$33,693	$43,790	$10,097
SCE-02, Table IV-66	Percentage of Income Payment Plan Memorandum Account (PIPPMA)	$234	$770	$536
SCE-02, Table IV-61	Modified Cost Allocation Mechanism Balancing Account (MCAMBA)	$0	$3,354	$3,354
SCE-02, Table IV-57	AB1X Balancing Account (AB1XBA)	$(55,802)	$11,371[479]	$0
SCE-02C, Table IV-56	Emergency Reliability Energy Storage Balancing Account (ERESBA)	$0	$2,005[480]	$0
SCE-02, Table IV-37	Transportation Electrification Portfolio Balancing Account (TEPBA)	$0	$7,267[481]	$0

[478] Prior to the annual transfer to the BRRBA Distribution subaccount.

[479] Prior to the annual transfer to the BRRBA Distribution subaccount.

[480] Prior to the annual transfer to the BRRBA Distribution subaccount, and transfer to PABA vintage-2021.

[481] Prior to the annual transfer to the BRRBA Distribution subaccount.

SCE Exhibit and Table Number	Balancing / Memorandum Account	Beginning Balance in Thousands of dollars ($000) as of 1/1/2023	Ending Balance in Thousands of dollars ($000) as of 12/31/2023	Balance Change in Thousands of dollars ($000s)
SCE-02, Table IV-67	California Solar Initiative Program Balancing Account (CSIPBA)[482]	$(85,080)	$(81,009)	$4,071
SCE-02, Table IV-68	COVID-19 Pandemic Protection Memorandum Account (CPPMA)[483]	$18,268	$15,233	$2,035
SCE-02, Table IV-69	Affiliate Transfer Fee Memorandum Account (ATFMA)	$0	$(219)	$(219)

IV. REQUESTED REVENUE REQUIREMENT CHANGE

SCE seeks a net revenue requirement decrease of $63,195,000,[484] including franchise fees & uncollectible (FF&U) amounts associated with the following seven accounts: the Residential Rate Implementation Memorandum Account (RRIMA), Integrated Resource Planning Costs Memorandum Account (IRPCMA), Summer Reliability Demand Response Program Memorandum Account (SRDRPMA), Percentage of Income Payment Plan Memorandum Account (PIPPMA), California Solar Initiative Program Balancing Account (CSIPBA), COVID-19 Pandemic Protections Memorandum Account (CPPMA), and the Affiliate Transfer Fee Memorandum Account (ATFMA). During the 2023 Record Period, three accounts authorized by the Commission were

[482] SCE included operation of the CSIPBA for Record Periods 2006 through 2023.

[483] SCE included operation of the CPPMA for Record Periods 2021 through 2023.

[484] SCE Direct Testimony Exhibit SCE-02, Table IV-13 at 27.

undercollected and four were overcollected. A summary of SCE's requested net revenue requirement decrease is shown in Table 5-2 below.

Table 5-2: Summary of Requested Revenue Requirement Change (in $000s)[485]

Balancing / Memorandum Accounts	Requested Revenue Change
Residential Rate Implementation Memorandum Account (RRIMA)	$ 8,145
Integrated Resource Planning Costs Memorandum Account (IRPCMA)	$ 999
Summer Reliability Demand Response Program Memorandum Account (SRDRPMA)	$ (966)
Percentage of Income Payment Plan Memorandum Account (PIPPMA)	$ 516
California Solar Initiative Program Balancing Account (CSIPBA)	$ (81,009)
COVID-19 Pandemic Protections Memorandum Account (CPPMA)	$ 10,030
Affiliate Transfer Fee Memorandum Account (ATFMA)	$ (211)
Net Over-Collected Balance:	$ (62,496)
FF&U:	$ (699)
Total Revenue Requirement Change:	$ (63,195)

V. AUDIT OBJECTIVES, SCOPE, AND PROCEDURES

Cal Advocates conducted its review to determine whether entries recorded in the 19 balancing accounts were appropriate, correctly stated, and compliant with applicable

[485] SCE Direct Testimony Exhibit SCE-02, Table IV-13 at 27.

Commission decisions, advice letters, and resolutions. Cal Advocates' audit procedures included, but were not limited to, the following:

- Review of SCE's application testimony, exhibits, workpapers, and data request responses.
- Review of pertinent advice letters and Commission decisions.
- Review of selected sample entries recorded in each of the balancing and memorandum accounts.
- Examination of invoices, ledger entries, and supporting documents for amounts recorded in the balancing and memorandum accounts to verify the mathematical accuracy of accounting worksheets. Cal Advocates conducted virtual meetings with SCE to review each of the selected line items within the accounts. Cal Advocates' sample was judgmentally selected based on the auditors' knowledge, judgment, and opinion, and consisted of monthly/tariff line items recorded in the balancing and memorandum accounts.
- Review of source documents that support the revenues and expenses recorded in the balancing and memorandum accounts.
- Review of monthly interest rates used for the accounts in question and verification of the interest calculations.

VI. FINDINGS AND RECOMMENDATIONS

A. SCE should not have included the ATFMA in this Application and SCE's requests to modify the ATFMA preliminary statement should be done through an advice letter.

1. SCE's ATFMA Request Summary

In its served testimony, SCE provided 1) the regulatory background on the ATFMA; 2) presented the entries recorded in the ATFMA during the 2023 Record Period for Commission review; 3) stated that the entries recorded in the ATFMA are appropriate, correctly stated, and in compliance with Commission decisions; and 4)

proposed the disposition[486] of the ending balance of -$0.211 million, plus interest, for the 2023 Record Period.[487] SCE also proposed to modify/update the ATFMA.[488] The disposition of the ending balance of -$0.211 million is included in SCE's summary of requested revenue requirement change.[489]

SCE requests that the Commission modify the ATFMA preliminary statement to clarify the language found in the disposition section.[490] SCE included a redlined version of its proposed modifications to Preliminary Statement No. 29.[491] Specifically, SCE requests the Commission approve the annual transfer of the ATFMA to the distribution sub-account of the Base Revenue Requirement Balancing Account (BRRBA) to occur on December 31 of each year.[492] SCE also requests that the Commission review the costs recorded in the ATFMA in SCE's annual ERRA Review proceeding.

The ATFMA Preliminary Statement No. 29 currently does not identify a cost recovery mechanism. Also, Preliminary Statement No. 29 currently states that the disposition of the amounts recorded in the ATFMA shall be determined in the annual Revenue Adjustment Proceeding (RAP). In testimony, SCE states that it no longer files/participates in the RAP.[493]

2. Cal Advocates Arguments relating to the ATFMA

In this proceeding, SCE requests Commission disposition of the ATFMA (a memorandum account) ending balance and Commission approval to modify its preliminary statement to permit such disposition. Typically, under General Order (GO)

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[486] "Disposition" refers to the decision to grant or reject the relief requested in a filing. In this case, disposition of the ATFMA includes the inclusion of the ATFMA over-collection in SCE's revenue requirement.

[487] A.24-04-001 SCE Direct Testimony Exhibit SCE-02, at 225 - 228.

[488] A.24-04-001 SCE Direct Testimony Exhibit SCE-02, at 225 - 228.

[489] A.24-04-001 SCE Direct Testimony Exhibit SCE-02 Table IV-13, at 27.

[490] SCE Preliminary Statement Part N. Memorandum Accounts Section 29, ATFMA.

[491] A.24-04-001 SCE Direct Testimony Exhibit SCE-06, Appendix II-A.

[492] A.24-04-001 SCE Direct Testimony Exhibit SCE-06, Appendix II-A.

[493] A.24-04-001 SCE Direct Testimony Exhibit SCE-02, at 228:6-9.

96-B, IOUs would need to submit an advice letter to modify the tariffs and preliminary statement of a balancing account or memorandum account.[494] The advice letter is then reviewed by the appropriate Commission industry division; in this instance, the Energy Division. Parties would also get an opportunity to review and/or protest the advice letter.

The Commission's GO 96-B[495] addresses rules for filing and publishing tariffs. GO 96-B, Rule 5.1 states, "The primary use of the advice letter process is to review a utility's request to change its tariffs in a manner previously authorized by statute or Commission order, to conform the tariffs to the requirements of a statute or Commission order, or **to get Commission authorization to deviate from its tariffs**" [emphasis added].

If the Commission were to grant SCE's request to include disposition of its ATFMA account in its ERRA filing—whose preliminary statement does not specify ERRA proceedings as the appropriate venue for dispositions—the Commission could set a precedent for SCE or other IOUs to include balancing and memorandum accounts in ERRA Compliance filings, even if those accounts are outside the scope of ERRA proceedings.

Pursuant to GO 96-B, SCE should first request that the Commission approve modifications to the ATFMA preliminary statement in an advice letter. Filing an advice letter allows the Energy Division and other parties to review whether the proposed venue for disposition is appropriate and to protest as necessary.

Cal Advocates reviewed the entries recorded in the ATFMA during the 2023 Record Period, and found the entries in the ATFMA to be correctly stated and in compliance with Commission decisions. However, Cal Advocates recommends that the Commission require SCE to (1) file an advice letter seeking Commission approval of SCE's proposed modifications to the ATFMA preliminary statement as specified in SCE

[494] Commission General Order (GO) 96-B, Rule 5.1.

[495] Accessed September 19, 2024 on http://docs.cpuc.ca.gov/SearchRes.aspx?docformat=ALL&docid=502938128

Appendix II-A,[496] and (2) include the ATFMA in ERRA proceedings only after the Commission approves SCE's proposed modifications to the ATFMA preliminary statement.

B. California Solar Initiative Program Balancing Account (CSIPBA) disallowance due to insufficient invoice support.

In testimony,[497] SCE included background information and presented the operation of the California Solar Initiative Program Balancing Account (CSIPBA) during the 2006 – 2023 Record Periods. SCE Testimony Table IV-67 for the 2012 Record Period shows performance-based incentive (PBI) Payments of $71,546,000.[498] Cal Advocates requested that SCE provide a breakdown of the $71,546,000.[499] SCE provided a detailed breakdown of the $71,546,000, which consisted of over 8,500 recorded entries.[500] After SCE provided the breakdown, Cal Advocates requested supporting documentation (any available journal entries, invoice(s), and proof of payments) for four items within those 8,500 entries.[501] Two of the four item dollar amounts were $[redacted] and $[redacted].

In SCE's response, SCE provided supporting documentation in the form of 1) screenshots from the accounting system of record, SAP, showing the journal entry; 2) screenshots of invoice support; and 3) screenshots of proof of payment.[502] Cal Advocates reviewed SCE's support and noted several issues.

For both the $[redacted] and $[redacted] amounts, SCE provided screenshots of the journal entry as well as the proof of payments. However, SCE did not provide

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[496] A.24-04-001 SCE Direct Testimony Exhibit SCE-06, Appendix II-A

[497] A.24-04-001 SCE Direct Testimony Exhibit SCE-02, at 207 – 216.

[498] A.24-04-001 SCE Direct Testimony Exhibit SCE-02, at 213.

[499] Cal Advocates Data Request 14, Question 07.

[500] SCE response to Data Request 14, Question 07.

[501] Cal Advocates Data Request 25, Question 25.

[502] SCE Confidential response to Data Request 25, Question 25.

invoices for either amount, stating, "[redacted][503] SCE should keep supporting documentation for recorded entries in its balancing and memorandum accounts. Since SCE was unable to provide invoice support, Cal Advocates recommends disallowances of $[redacted] and $[redacted].

Cal Advocates' audit sample for the CSIPBA included requesting documentation support for other Record Periods, and other cost category items. For those items, SCE was able to provide the supporting documentation. However, as stated previously, part of the audit sample for the 2012 Record Period PBI Payments was not supported by invoices. Therefore, Cal Advocates recommends a total disallowance of $[redacted][504] in the CSIPBA due to insufficient invoice support.

C. Incorrect allocation of settlements within the PABA, no impact on Revenue Requirement

Cal Advocates routinely reviews balancing account closing sheets by analyzing records of monthly settlements associated with closing sheet line-items. Cal Advocates identified a settlement for [redacted] allocated to an improper line item of the PABA. SCE confirmed that the settlement was incorrectly allocated. Cal Advocates confirms that the content of the identified settlement is appropriately recorded in the PABA based on the PABA Electrical Preliminary Statement, and therefore does not impact the calculation of SCE's total account closing balances or Revenue Requirement requests. SCE has adjusted the classification of the identified settlement in the PABA 2024 closing sheet.[505]

D. Recommended changes to accounting recording practices

Cal Advocates identified typographical errors and frequent instances of redundant information in the descriptive fields of SCE's recorded entries. Cal Advocates reviews these fields to confirm whether accounting records of specific procurement activity in SCE's balancing accounts are appropriate, correctly stated, and in compliance with

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[503] SCE Confidential response to Data Request 25, Question 25, confidential excel sheet "Tab G CONFIDENTIAL.xlsx" sheet c and sheet e.

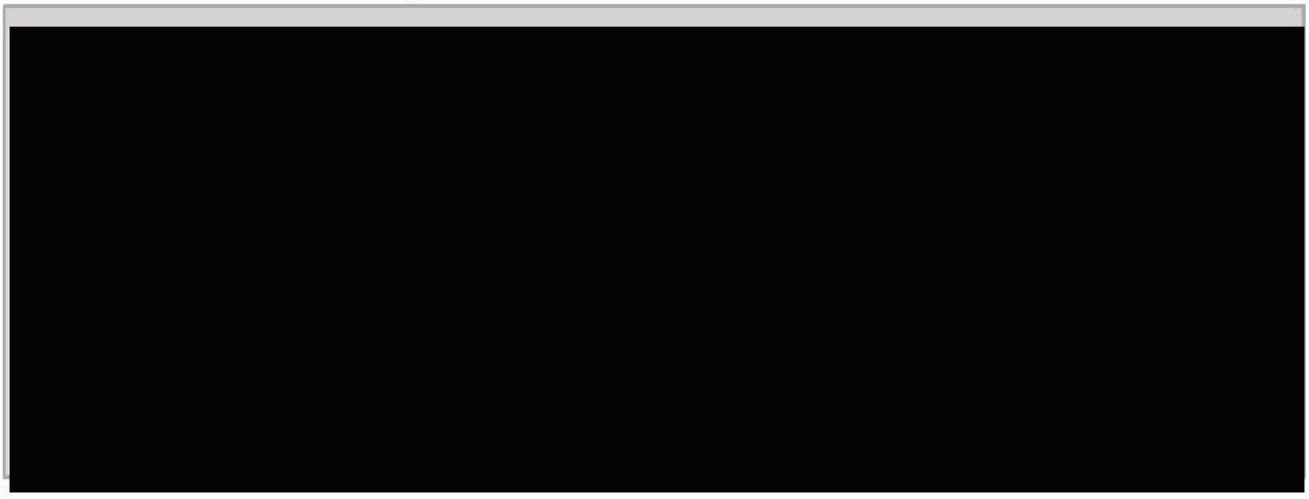
[504] $[redacted] + $[redacted] = $[redacted].

[505] ERRA-2023-SCE-Compliance-CalAdvocates-DR18 Q14 – Answer.

Commission decisions. The presence of such errors and duplications hinder Cal Advocates' efforts to process and analyze the large volume of data in a systematic manner.

SCE provided organized settlement data[506] in response to Cal Advocates MDR to support the monthly entries of SCE's account closing sheet. The additional categorical information included in these recorded entries enhances Cal Advocates' ability to confirm whether accounting records are appropriate and in compliance with Commission decisions. Cal Advocates notes issues with two descriptive text fields[507] included in SCE's recorded entries that typically provide more specific information regarding the purpose of a particular transaction. SCE's entries in the "Text" and "Document Header Text" fields complicated Cal Advocates' analysis of recorded entries because entries often included typographical errors or information duplicative of other fields. Typographical errors or duplicative information in the "Text" and "Document Header Text" fields also prevent the data from being easily machine-readable.

Figure 5-1: Redundant Information[508]



[506] The set of settlement data, individual transactions, adjustments, transfers, and support for SCE's balancing and memorandum accounts will be referred to as "recorded entries" in the remainder of this chapter.

[507] labeled "Text" and "Document Header Text" in SCE's workpapers

[508] Image from sheet [Cal Adv_Pivot_1] in "2023 PABA GL Details (Confidential).xlsx"

Figure 5-2: Typographical Errors[509]

Figure 5-1 shows duplicative entries labeled with different month and year markings like "[redacted]" and "[redacted]." The inclusion of the year and month in a text field prevents the entries from being easily combined in a single category, like "[redacted]," for analysis. Likewise, Figure 5-2 shows a labeling issue in order number [redacted] recorded in December of 2023.[510] Inconsistencies, unnecessary errors, or redundancies in categorical descriptions of recorded entries prevent them from being grouped by functional similarity, which complicates systematic analysis[511] of recorded entries. Designing programs which identify and omit labeling redundancies is

[509] Image from sheet [Cal Adv_Pivot_1] in "2023 PABA GL Details (Confidential).xlsx"

[510] 2023 PABA GL Details (Confidential).xlsx.

[511] Including statistical analysis and analysis using computer programs.

typically more complex, time-consuming, and error-prone than improving the quality and consistency of the data that will be processed by the program.

Cal Advocates uses the categorical data associated with settlements and other accounting entries in ERRA Compliance reviews to determine whether financial transactions recorded to SCE's balancing accounts and memorandum accounts are "appropriate, correctly stated, and in compliance with Commission decisions."[512] As a part of determining the appropriateness of recorded entries, Cal Advocates compares the goods and services associated with account entries to the tariff line-items of the Electric Preliminary Statement (EPS) of each account. The EPS tariff line-items provide high-level descriptions of the activities that may be included in the account for recovery. Cal Advocates compares the information in the "Text" and "Document Header Text" fields with other categorical information[513] in SCE's supporting workpapers to identify potential labeling and allocation errors, or settlements that may not comply with EPS tariff line-items.

Consistent labeling of recorded entries with concise descriptions of the relevant good(s), service(s), or purpose of the entry enhances parties' ability to comprehensively review the compliance of accounting records and improves transparency. Cal Advocates considers charges whose compliance is not supported by their data labels to be a higher risk for allocation error than charges with data labels (1) that clearly associate the charge with account-appropriate activity, and (2) match the data labels of similar charges. In Cal Advocates' review of SCE's 2023 Record Period recorded entries, the majority of the entries that Cal Advocates flagged because of unclear data labels and unclear connection to the account of record were appropriate and well-supported by SCE upon further questioning. Precise and clear labeling of fundamental accounting data reduces the number of recorded entries that Cal Advocates may appropriately, but erroneously, identify as mis-allocated.

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[512] A.24-04-001 SCE ERRA Compliance Application, at 3.

[513] Such as date, GL account, purchase order ID and description, dollar amount, counterparty, contract ID, and resource ID of settlements.

Recording entries in a way that minimizes accidental or unnecessary variations between entries with shared attributes improves transparency and aids parties in identifying similar activity across different accounts, planning orders, internal working groups, and programs. Comparing large numbers of entries across categories is greatly facilitated by computational methods including Excel, programs which automatically filter and group data, statistical modeling, and other methods of analysis[514] typically applied to large data sets. Unnecessary variation in entries' data labels either prevents entries from being automatically grouped by computational methods which organize data by category, or greatly increases the time and complexity of pre-processing data prior to analysis using these methods. Reducing the time it takes to pre-process and analyze accounting data will increase the volume of data parties are able to analyze, and will enable parties to more readily include computational methods in their reviews. Increased transparency in accounting data and the improvement or addition of accounting reviews has high potential to benefit ratepayers by enabling reviewing parties to review larger numbers of accounting entries and to perform these reviews in less time.

SCE appears to have distinct and precise conventions for labeling the date, GL account, purchase order ID and description, dollar amount, counterparty, contract ID, and resource ID of settlements.[515] Cal Advocates recommends that SCE provide qualitative data labels to all fundamental[516] accounting entries provided to support its balancing account and memorandum account activity reviewed in ERRA proceedings. Cal Advocates recommends that SCE work to reduce and remove redundancies in existing labels for the qualitative content of settlements which also prevent identical or similar settlements from being grouped together during machine-reading. Cal Advocates recommends that SCE continue to monitor and review its accounting entries for

[514] "Computational methods" henceforth.

[515] 2023 PABA GL Details (Confidential).xlsx

[516] Summary tables, journal entries, and higher-level workpapers that SCE uses to process accounting entries are typically generated by aggregating specific sets of accounting entries and need not be considered "fundamental."

typographical errors which prevent qualitatively identical or similar entries from being grouped together during machine-reading.

VII. CONCLUSION

In reviewing the 2023 Record Period accounting entries recorded in the 19 balancing and memorandum accounts listed in Table 5-1, Cal Advocates identified issues with entries in the CSIPBA. Due to insufficient invoice support, Cal Advocates recommends a disallowance of [redacted] in the CSIPBA. Cal Advocates finds all other accounting entries recorded in the balancing and memorandum accounts listed in Table 5-1 are correctly stated and in compliance with applicable Commission decisions. In addition, Cal Advocates recommends that the Commission require SCE to a) submit an advice letter seeking Commission approval of SCE's proposed modifications to the ATFMA preliminary statement specified in SCE Appendix II-A, and b) submit an advice letter seeking Commission approval of SCE's proposed modifications to the account preliminary statement to include the ERRA proceedings as appropriate venues for account disposition prior to the inclusion of a balancing or memorandum account in ERRA proceedings.

Lastly, Cal Advocates recommends that SCE improve its accounting entry labels by reducing redundancies and typographical errors, as these issues complicate compliance reviews and hinder transparency.

LIST OF ATTACHMENTS FOR CHAPTER 5

#	Attachment	Description
1	Attachment 5.1	SCE Response to Cal Advocates Data Request 14, Question 7
2	Attachment 5.2 Confidential	SCE Confidential Response to Cal Advocates Data Request 25, Question 25
3	Attachment 5.3 Confidential	SCE Confidential Response to Cal Advocates Data Request 18, Question 14
4	Attachment 5.4 Confidential	2023 PABA GL Details (Confidential)

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CHAPTER 6: GREENHOUSE GAS COMPLIANCE INSTRUMENTS

Cal Advocates is not serving testimony on this chapter.

APPENDIX A:

Witness Qualifications

PREPARED TESTIMONY AND QUALIFICATIONS
OF
STANLEY KUAN

Q1. Please state your name, business address, and position with the California Public Utilities Commission ("Commission").

A1. My name is Stanley Kuan and my business address is 505 Van Ness Avenue, San Francisco, California. I work in the Electricity Planning and Policy Branch of the Public Advocate Office of the California Public Utilities Commission (Cal Advocates) as a Regulatory Analyst.

Q2. Please summarize your education background and professional experience.

A2. I graduated from University of California, San Diego with a B.A. in Economics. I also obtained a law degree from the George Washington University Law School. I have been employed by Cal Advocates on the Procurement Cost Recovery team of the Electricity Planning and Policy Branch for four (4) years. Before that, I was an analyst with the Cal Advocates on the Customer Programs team of the Electric Pricing and Customer Programs Branch for four (4) years. In my experience at the CPUC I have worked on proceedings related to the Energy Resources Recovery Account (ERRA), the Power Charge Indifference Adjustment (PCIA) Rulemaking (R.17-06-026), the Net Energy Metering (NEM) Disadvantaged Communities (DAC) (Rulemaking (R.) 14-07-002, San Joaquin Valley (SJV) DAC proceeding (R.15-03-010), Demand Response Auction Mechanism (DRAM) (Application (A.) 17-01-012, SDG&E Maritime Rate Application (A.17-09-005).

Q3. What is your responsibility in this proceeding?

A3. I am responsible for Chapter 1: Executive Summary of Cal Advocates' Testimony.

Q4. Does this conclude your prepared direct testimony?

A4. Yes, it does.

QUALIFICATIONS AND PREPARED TESTIMONY
OF
MEA HALPERIN

Q.1 Please state your name, business address, and position with the Commission.

A.1 My name is Mea Halperin and my business address is 505 Van Ness Avenue, San Francisco, California. I am the supervisor of the Procurement Cost Recovery Section in the Electricity Policy and Planning Branch of the Public Advocates Office.

Q.2 Please summarize your education background and professional experience.

A.2 I hold a Master of Public Administration degree in Environmental Science and Policy from Columbia University and a Bachelor of Arts degree in Political Science from the University of California, Berkeley. I joined the Commission in 2015 in the Public Advocates Office's Electricity Policy and Planning Branch, where, as a Public Utilities Regulatory Analyst, I served as the witness for Least-Cost Dispatch and Contract Administration for Pacific Gas and Electric, Southern California Edison, and San Diego Gas & Electric's ERRA Compliance proceedings. Prior to joining the Commission, I managed research programs, provided financial analyses, and performed program evaluations for climate and agriculture research.

Q.3 What is the scope of your responsibility in this proceeding?

A.3 I am responsible for Chapter 2: Least Cost Dispatch and Demand Response Programs.

Q.4 Does this complete your testimony at this time?

A.4 Yes, it does.

QUALIFICATIONS AND PREPARED TESTIMONY
OF
MICHAEL YEO

Q.1 Please state your name, business address, and position with the Commission.

A.1 My name is Michael Yeo. My business address is 505 Van Ness Avenue, San Francisco, California. I am employed by the California Public Utilities Commission as a Senior Utilities Engineer in the Public Advocates Office.

Q.2 Briefly state your educational background and experience.

A.2 I graduated from the University of Toronto with a Bachelor of Applied Science in Civil Engineering, and am a registered Professional Engineer. Since joining the Commission in 1992, I have worked in various assignments in Public Advocates Office, Energy Division and the Consumer Protection and Safety Division. Immediately prior to joining the Commission, I worked for the California Department of Transportation.

Q.3 What is the scope of your responsibility in this proceeding?

A.3 I am responsible for Chapter 3, Utility-Owned Generation of Public Advocates Office's Intervenor Testimony in Southern California Edison's Energy Resource Recovery Account Review of Operations, 2023 proceeding (A.24-04-001).

Q.4 Does this complete your testimony currently?

A.4 Yes, it does.

PREPARED TESTIMONY AND QUALIFICATIONS
OF
MICHAEL AMMERMULLER

Q1. Please state your name, business address, and position with the Commission.

A1. My name is Michael Ammermuller. My business address is 505 Van Ness Ave, San Francisco, California, 94102. I am employed as a Public Utilities Regulatory Analyst in the Public Advocates Office, Electricity Planning & Policy Branch.

Q2. Please summarize your education background and professional experience.

A2. I hold a Master of Science in Economics from the State University of New York – at Buffalo. I joined the CPUC in 2017 and worked in both Energy and Communications Divisions prior to joining the Electricity Policy and Planning Branch at the Public Advocates Office in 2023. My experience at the CPUC includes implementing consumer protection and broadband deployment programs and participating in proceedings for telephone General Rate Cases, Diablo Canyon Power Plant Extended Operations Cost Recovery, and Energy Resource Recovery Account (ERRA) Compliance. My other relevant experience includes three years with Citigroup Inc. (trade settlement, risk management) and 19 months at an Iowa-based electric and gas utility MidAmerican Energy Co. (accounting and finance).

Q3. What is your responsibility in this proceeding?

A3. I am responsible for Chapter 4: Contract Administration, and co-witness for Chapter 5: Compliance Review of the Energy Resource Recovery Account (ERRA) and Other Balancing / Memorandum Accounts.

Q4. Does this conclude your prepared direct testimony?

A4. Yes, it does.

QUALIFICATIONS AND PREPARED TESTIMONY
OF
BRIAN LUI

Q.1 Please state your name and business address.

A.1 My name is Brian Lui. My business address is 505 Van Ness Ave, San Francisco, California, 94102.

Q.2 By whom are you employed and in what capacity?

A.2 I am employed by the California Public Utilities Commission (CPUC) as a Public Utilities Financial Examiner in the Public Advocates Office, Electricity Planning & Policy Branch.

Q.3 Please describe your educational and professional experience.

A.3 I hold a Masters Degree in Accounting from Golden Gate University in San Francisco. I also received a Bachelors of Science Degree in Biochemistry from the University of California, Riverside. I joined the Commission on January 7, 2014 in the Public Advocates Office's Electricity Planning and Policy Branch. In the Public Advocates Office, I am involved in the ERRA Forecast and ERRA Compliance proceedings. Immediately prior to joining the Commission, I worked for the California State Board of Equalization as a tax auditor. I have over 9 years of experience working as an auditor in the public sector.

Q.4 What is the scope of your responsibility in this proceeding?

A.4 I am responsible for Chapter 5: Compliance Review of the Energy Resource Recovery Account (ERRA) and Other Balancing / Memorandum Accounts.

Q.5 Does this complete your testimony at this time?

A.5 Yes, it does.

QUALIFICATIONS AND PREPARED TESTIMONY
OF
CRAIG JENQUIN

Q.1 Please state your name and business address.

A.1 My name is Craig Jenquin. My business address is 320 4th St, Los Angeles, California, 90013.

Q.2 By whom are you employed and in what capacity?

A.2 I am employed by the California Public Utilities Commission (CPUC) as a Public Utilities Regulatory Analyst in the Public Advocates Office, Electricity Planning & Policy Branch.

Q.3 Please describe your educational and professional experience.

A.3 I hold a Bachelor of Science in Applied Mathematics and a Bachelor of Arts in Linguistics from the University of California, San Diego (UCSD). I joined the Commission in August 2022 in the Electricity Planning and Policy branch of Public Advocates Office in the Procurement Cost Recovery Department. At the Public Advocates Office, I am involved in ERRA Forecast and Compliance proceedings, focused on reviews of Balancing Accounts and Least-cost Dispatch. Prior to joining the Commission, I worked for over a year as a quality assurance assistant for a neurological and sociological study operating out of UCSD.

Q.4 What is the scope of your responsibility in this proceeding?

A.4 I am responsible for Chapter 5: Compliance Review of the Energy Resource Recovery Account (ERRA) and Other Balancing / Memorandum Accounts.

Q.5 Does this complete your testimony at this time?

A.5 Yes, it does.