Docket	:	A.25-06-002
Exhibit Number	:	
Commissioner	:	John Reynolds
Admin. Law Judge	:	Maria Sotero
Public Advocates Office Project Mgr.	:	Sarah Cornett
Public Advocates Office Witnesses	:	Various

PUBLIC ADVOCATES OFFICE
CALIFORNIA PUBLIC UTILITIES COMMISSION

PREPARED TESTIMONY
ON
APPLICATION OF SAN DIEGO GAS & ELECTRIC COMPANY FOR COMPLIANCE REVIEW OF UTILITY OWNED GENERATION OPERATIONS, PORTFOLIO ALLOCATION BALANCING ACCOUNT ENTRIES, ENERGY RESOURCE RECOVERY ACCOUNT ENTRIES, ECONOMIC DISPATCH OF ELECTRIC RESOURCES, UTILITY OWNED GENERATION FUEL PROCUREMENT, AND OTHER ACTIVITIES FOR THE PERIOD JANUARY 1 THROUGH DECEMBER 31, 2024 (U 902 E)

(PUBLIC VERSION)

San Francisco, California
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TABLE OF CONTENTS

EXECUTIVE SUMMARY

(Witness: Sarah Cornett)

I. INTRODUCTION AND RECOMMENDATIONS

This testimony presents the Public Advocates Office's (Cal Advocates) review of San Diego Gas and Electric Company's (SDG&E) Energy Resource Recovery Account (ERRA) Compliance Application for the period from January 1, 2024, through December 31, 2024 (Record Period). SDG&E filed its annual ERRA compliance application pursuant to Decision (D.) 02-10-062. In that Decision, the California Public Utilities Commission (Commission or CPUC) required certain utility procurement activities to be reviewed annually 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 record and recover power costs and ensure timely recovery of procurement costs incurred related to an investor-owned utility's approved procurement plan.[1] PU Code § 454.5(d)(3) allows the Commission to establish balancing accounts to track the differences between recorded revenues and costs incurred related to the approved procurement plan.[2]

SDG&E filed its ERRA compliance application on June 2, 2025, requesting Commission approval for costs associated with activities that occurred during the 2024 Record Period. The scope of Cal Advocates' review of SDG&E's application includes a review of least-cost dispatch (LCD), demand response, utility-owned generation operations, and an audit of balancing account entries. In addition, Cal Advocates also reviewed other ERRA issues summarized below.

Cal Advocates reviewed SDG&E's compliance related to greenhouse gas emissions, which is summarized here rather than as a separate chapter. As an emitter of

[1] D.02-10-062, Finding of Fact (FOF) 23 and 26, at 71, 71 – 72.

[2] PUC 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."

greenhouse gas (GHG) in California, SDG&E is obligated to comply with the requirements of the California Air Resources Board's (CARB) Cap-and-Trade program. SDG&E must procure and retire GHG compliance instruments in proportion to the GHG emitted due to their business activities. Per Commission Decision (D.)14-10-033 a utility records Cap-and-Trade compliance costs using a weighted average cost (WAC) methodology,[3] where the utility records the cumulative WAC of all procured compliance instruments and uses this to calculate its Cap-and-Trade compliance costs, multiplying the WAC by the volume of GHG emitted per metric ton of carbon dioxide equivalent (MTCO2e). The Commission requires utilities to record and demonstrate GHG Cap-and-Trade compliance with methodologies adopted in D.21-05-004.[4]

During the 2024 Record Period, SDG&E recorded [redacted] worth of GHG compliance costs from utility-owned generation (UOG), [redacted] worth of GHG compliance costs from tolling contracts, and [redacted] worth of GHG compliance costs from imports for a total of [redacted].[5] Additionally, when factoring in carrying costs and an adjustment from incorrectly recorded costs from the Miramar Energy Center (Miramar), total direct GHG costs amount to [redacted].[6] Before the 2024 Record Period Miramar emitted over 25,000 MTCO2e, and consequently was above the minimum emissions threshold needed to be considered a compliance entity under CARB regulations. However, Miramar did not surpass the emissions threshold in 2024 and thus was not subject to Cap-and-Trade compliance, though SDG&E had previously budgeted

[3] D.14-10-033 OP 6, at 50.

[4] While D.14-10-033 first required the use of the WAC methodology, demonstrating compliance with the WAC methodology was further refined in D.14-10-055, D.15-01-024, D.19-04-016, and most recently D.21-05-004.

[5] *Application of San Diego Gas & Electric Company (U 902-E) for Approval of: (i) Contract Administration, Least-Cost Dispatch and Power Procurement Activities in 2024, (ii) Costs Related to Those Activities Recorded to the Energy Resource Recovery Account, Portfolio Allocation Balancing Account, Transition Cost Balancing Account, Local Generating Balancing Account, and Modified Cost Allocation Mechanism Balancing Account in 2024, and (iii) Costs Recorded in related Regulatory Accounts in 2024,* Prepared Direct Testimony of Sheri Miller on behalf of San Diego Gas & Electric Company (Sheri Miller Testimony) at B-1.

[6] Sheri Miller Testimony at B-1.

to incur the cost of compliance. SDG&E's workpapers accurately report GHG costs and SDG&E's calculations comply with the methodologies adopted in D.21-05-004.

SDG&E appears to have accurately recorded its 2024 Record Period GHG compliance costs in accordance with Commission requirements. As such, Cal Advocates does not object to SDG&E's demonstration of compliance with the CARB GHG Cap-and-Trade program.

In this testimony Cal Advocates presents its analyses and recommendations associated with SDG&E's request to be found compliant. This testimony focuses exclusively on the 2024 Record Period and is based on analysis of information submitted by SDG&E that includes, but is not limited to, SDG&E's testimony and workpapers submitted with its application and responses to data requests.

The issues that Cal Advocates reviewed for the 2024 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 the Cal Advocates Witnesses and Respective Chapters

Chapter #	Description	Witness(es)
	Executive Summary	Sarah Cornett
1	Least-Cost Dispatch and Demand Response	Stanley Kuan
2	Utility-Owned Generation – Fossils and Renewables	Michael Yeo
3	Compliance Review of the Energy Resource Recovery Account (ERRA) and Other Balancing/Memorandum Accounts	Brian Lui, Craig Jenquin, Michael Ammermuller

II. SUMMARY OF FINDINGS & RECOMMENDATIONS

The following summary provides an overview of each chapter presented and sponsored by the witnesses for the 2023 Record Period. This summary is provided strictly for the reader's convenience.

1. Executive Summary (Sarah Cornett)

2. Least-Cost Dispatch And Demand Response (Stanley Kuan)

Though load and price forecast accuracy remains well below pre-2022 levels, Cal Advocates finds that SDG&E managed its thermal, hydro, and demand response resources reasonably and does not recommend any disallowances.

3. Utility-Owned Generation (Michael Yeo)

Disallow cost recovery of $28,310 in SDG&E's ERRA Balancing Account for the Record Period due to a failure of SDG&E's Continuous Emissions Monitoring System Data Acquisition and Handling System's computer hard drive, and order SDG&E to perform a Root Cause Analysis as to why this failure occurred.

4. Compliance Review of the Energy Resource Recovery Account (ERRA) And Other Balancing/Memorandum Accounts

Cal Advocates does not object to SDG&E's requests during the 2024 Record Period.

CHAPTER 1 : LEAST- COST DISPATCH AND DEMAND RESPONSE

(Witness: Stanley Kuan)

I. INTRODUCTION

This chapter of testimony reviews San Diego Gas and Electric Company's (SDG&E) dispatch activities for the Record Period from January 1, 2024, through December 31, 2024 (2024 Record Period), and considers whether SDG&E met the California Public Utilities Commission's (Commission) least-cost dispatch standard. Cal Advocates examined the Direct Testimony of Rolyn Abugan in SDG&E's 2024 Energy Resource Recovery Account (ERRA) Compliance Application and accompanying workpapers. Cal Advocates reviewed both SDG&E's energy scheduling dispatch decisions and management of demand response programs using the least-cost dispatch standard of review, as described below.

II. SUMMARY AND RECOMMENDATIONS

Cal Advocates notes a general decline in SDG&E's load and price forecast accuracy since the 2022 Record Period. SDG&E attributes the decline in accuracy to significant load migration and indicates that it has taken steps to mitigate the high error rate as of July 2023.[7] Load and price forecast accuracy has improved from the 2023 to 2024 Record Period as measured by the mean average percentage error and absolute difference metrics typically used to evaluate forecast accuracy. Though load and price forecast accuracy remains well below pre-2022 levels, Cal Advocates does not object to SDG&E's least-cost dispatch activities that occurred during the 2024 Record Period.

[7] A.23-06-002 (CONFIDENTIAL) Public Advocates Office Testimony on SDGE ERRA at 2-7; Appendix B, Attachment 1.1, 2022 ERRA CONFIDENTIAL Response to Cal Advocates Data Request 9, Question 2a and c.

III. BACKGROUND

A. Standard of Conduct for Least-Cost Dispatch and Demand Response

The phrase "least-cost dispatch," or "LCD," refers to "a situation in which the most cost-effective mix of total resources is used," subject to certain constraints.[8] More specifically, LCD is the Commission's "up-front standard"[9] of compliance with Standard of Conduct 4 (SOC4) from Decision (D.) 02-10-062. SOC4 states,

> "The utilities shall prudently administer all contracts and generation resources and dispatch the energy in a least-cost manner. Our definitions of prudent contract administration and least cost dispatch is the same as our existing standard."[10]

In D.05-01-054, the Commission clarifies that LCD requires the utility to achieve cost minimization.[11]

Following the California Independent System Operator's (CAISO) Market Redesign and Technology Upgrade in 2009, the CAISO itself assumed dispatch responsibilities.[12] As a result, the Commission's application of LCD as a compliance standard shifted to an examination of SDG&E's, Southern California Edison Company's

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[8] D.02-12-074, *Interim Opinion*, October 25, 2001 at 54.

[9] D.02-12-074 at 54.

[10] D.02-10-062, *Interim Opinion*, October 25, 2001 at 52. In D.02-12-074, the Commission further clarifies,"Prudent contract administration includes administration of all contracts within the terms and conditions of those contracts to include dispatching dispatchable contracts when it is most economical to do so. 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. Least-cost dispatch refers to a situation in which the most cost-effective mix of total resources is used, thereby minimizing the cost of delivering electric services. …[A] pure economic dispatch of resources may need to be constrained to satisfy operational, physical, legal, regulatory, environmental, and safety considerations. The utility bears the burden of proving compliance with the standard set forth in its plan." *See* D.02-12-074 at 54.

[11] D.05-01-054 at 14.

[12] *See* Federal Energy Regulatory Commission Docket No. ERO6-615. Additional information available at: https://www.cpuc.ca.gov/General.aspx?id=4427.

(SCE), and Pacific Gas and Electric Company's (PG&E) scheduling and bidding activities.[13]

The Commission consolidated LCD specifications adopted in D.14-07-006, D.15-05-005 and related LCD workshops into a single document that applies to each of the ERRA compliance showings for SDG&E, SCE, and PG&E.[14] That document, formally adopted as "Attachment A" of D.15-12-015, establishes granular guidelines for the LCD showings of the utilities' ERRA testimonies and workpapers.

Cal Advocates contested SDG&E's application of these specifications in SDG&E's 2016 ERRA compliance proceeding.[15] The Commission approved the resulting settlement in D.18-10-006, which further provided that SDG&E's future LCD showings should include additional clarifying details.[16] SDG&E also agreed to pursue an independent evaluation of SDG&E's load and price forecasting,[17] which was conducted by Dr. Derek Bunn of the London Business School in 2019.[18]

IV. DISCUSSION AND ANALYSIS

A. Overall Forecasting Accuracy

1. Overview

SDG&E's dispatch scheduling, bidding process, and procurement strategies require SDG&E to develop load and price forecasts. Load forecasting accuracy is important due to its impact on ratepayer costs. If actual load exceeds SDG&E's forecast, SDG&E must purchase additional load on the real-time market or through bilateral purchases which tend to have much more volatile prices than the day-ahead market

[13] D.14-05-023, Finding of Fact 15 at 19.

[14] *See*, D.15-12-015.

[15] *See* D.18-10-006.

[16] D.18-10-006 at 14, 15.

[17] D.18-06-006, at 16.

[18] A.20-06-001, *San Diego Gas & Electric Company's (SDG&E) Energy Resource Recovery Account (ERRA) Compliance Application for the period from January 1, 2019 through December 31, 2019, Prepared Testimony of Joseph Pasquito*, at JP-5. Report of Dr. Derek Bunn on SDG&E's Load and Price Forecasting.

(DAM). These purchases can potentially increase ratepayer costs depending on real-time prices as those prices are expected to converge with day-ahead prices. SDG&E uses two different price forecasts as inputs to its optimization models. One price forecast is developed internally, before and during day-ahead (DA) trading, and the second is provided by an external entity (Wood Mackenzie) after most of the DA trading is finished.[19]

2. Forecast and Bid Strategy

SDG&E utilizes a production cost model called "GenTrader" that optimizes resources to serve SDG&E's load requirement. GenTrader is set up with numerous parameters, including load forecast, plant operating data, resource availabilities/outages, forecasted Locational Marginal Pricing (LMP) prices, and dispatch constraints to produce a preliminary forecast of generation dispatch and market transactions that minimize total cost to serve the forecasted load requirement.[20] SDG&E produces its load forecast using a load forecasting model developed by Enverus,[21] which uses artificial intelligence (AI) technology to analyze relationships between historical bundled load and weather data.[22] Prior to July 2023, SDG&E calculated bundled load by taking a System Load forecast (produced by Enverus) and subtracting System losses and Direct Access and Community Choice Aggregator (CCA) customer load forecasts. However, in an attempt to eliminate multiple variables in calculating bundled load, SDG&E has begun using historical actual

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[19] *Application of San Diego Gas & Electric Company (U 902-E) for Approval of: (i) Contract Administration, Least-Cost Dispatch and Power Procurement Activities in 2024, (ii) Costs Related to Those Activities Recorded to the Energy Resource Recovery Account, Portfolio Allocation Balancing Account, Transition Cost Balancing Account, Local Generating Balancing Account, and Modified Cost Allocation Mechanism Balancing Account in 2024, and (iii) Costs Recorded in related Regulatory Accounts in 2024,* Prepared Direct Testimony of Rolyn Abugan on Behalf of San Diego Gas & Electric Company,
(Abugan Testimony) at RA-15-16. Wood Mackenzie, formerly known as Genscape Inc., is an independent energy industry provider of market intelligence such as nodal DA LMP forecasts and transmission congestion risks.

[20] Abugan Testimony at RA-12.

[21] Formerly known as Pattern Recognition Technologies (PRT).

[22] Abugan Testimony at RA-12.

(metered) bundled load data from customer meters.[23] SDG&E states that using bundled load actuals should allow for better control of inputs by eliminating unnecessary inputs to the prior bundled load forecast.[24]

SDG&E generally self-schedules 100% of its forecasted load in the CAISO DAM.[25] There are three main reasons that SDG&E self-schedules load in the DAM: (i) to avoid purchasing its forecasted load requirement in the real-time market which may produce more volatile prices, (ii) to effectively offset load costs through supply revenues, and (iii) to leverage more opportunities to hedge its self-scheduled load through market transactions.[26] However, in the 2024 Record Period, SDG&E began bidding a small portion of its bundled load forecast in the DA market(?).[27] The portion of forecasted load in which SDG&E elected to bid into the market rather than self-schedule was bid at prices based on the Real Time pricing forecasts provided by Wood Mackenzie.[28]

3. Analysis

Cal Advocates analyzed data provided by SDG&E and evaluated the accuracy of its load and price forecasting during the 2024 Record Period.[29] As part of this analysis, Cal Advocates calculated the mean absolute percentage error (MAPE), which is a measure of the deviation between forecast (day-ahead) price or load and the actual (real

[23] Abugan Testimony at RA-13.

[24] Abugan Testimony at RA-13.

[25] Abugan Testimony RA-20; SDG&E testimony describes two different types of self-scheduling in different contexts, bidding of load versus bidding of supply (generation). Here, self-scheduling refers to bidding of load in the CAISO DAM. SDG&E describes it as a price-taker bid that is awarded, regardless of the clearing price. However, SDG&E also uses the term "self-schedule" (discussed on p. 15 of Abugan's testimony) to describe the non-economic bidding process for certain energy resources. Self-scheduling of generation resources is appropriate for non-intermittent must-take resources and for unit testing and other non-discretionary reasons.

[26] Abugan Testimony, at RA-16-17.

[27] Abugan Testimony at RA-16.

[28] Abugan Testimony at RA-17; See Appendix B, Attachment 1.2, 2024 Attachment A –*Summary Load Data and LMP Price Forecasts.xlsx*.

[29] D.15-05-005, Appendix A, "Joint Utilities Least Cost Dispatch Demonstration Proposal." Cal Advocates and SDG&E jointly agreed previously to LCD forecast reporting metrics.

time) price or load experienced. Cal Advocates also calculated the average hourly difference[30] to determine if SDG&E tended to over-forecast (a positive value) or under-forecast (a negative value) the price and load.

In the prior Record Period (2023), Cal Advocates made adjustments to the load MAPE calculation to reduce the disproportionate impact of large percentage errors in hourly data that occur when a node has a real-time (RT) load of zero or near-zero MW. In electricity markets with high renewable penetration, it is not uncommon for RT load to be zero or near-zero. When the DA load is non-zero but the RT load is zero, the percentage error becomes mathematically infinite, returning an error value in Excel. This is because the MAPE calculation has the RT load in the denominator, dividing the absolute difference between DA load and RT load by the RT load. If the RT load is zero, the calculation will return an error even if the absolute difference is relatively small. To address this, Cal Advocates capped hourly load percentage errors at 100%.[31] Without this adjustment, the Load MAPE calculation would not be feasible or would be heavily skewed by extremely large percentage error values. Cal Advocates also capped Price MAPE at 100% for hourly data when hourly actual prices were zero or near-zero.

Based on SDG&E's workpapers in the 2024 Record Period, Cal Advocates calculated an adjusted load MAPE of [redacted], which is [redacted] adjusted load MAPE for the 2023 Record Period, and slightly greater than the [redacted] adjusted load MAPE in 2022. However, it is [redacted] the [redacted] load MAPE observed in 2021.[32] Cal Advocates compared the MAPE values to results from previous ERRA reviews to develop a historical record of relative accuracy. All SDG&E's prices and load correspond to its Default Load Aggregation Point (DLAP) and load served in

[30] "Average hourly difference" is determined by calculating the sum of the net differences between actual load/price and forecast load/price for each hour in the Record Period, and dividing by the number of hours in the Record Period.

[31] Periods with zero or near-zero actual values can have a disproportionate impact on the overall MAPE. Small absolute errors can lead to extremely large percentage errors. These large percentage errors can dominate the average, overshadowing the errors from more significant price periods.

[32] The 2021 Record Period load MAPE is unadjusted.

SDG&E's own service territory. The load and price MAPEs and average hourly difference for load and price are presented in Tables 1-1 and 1-2 below.

Table 1-1: Load Forecasting Accuracy[33], [34]

Reporting Year	Load MAPE (Hourly)	Average Hourly Difference (MW)
2024	[redacted]	
2023		
2022		
2021		
2020		
2019		
2018		
2017		
2016		

[33] A.24-06-001, (CONFIDENTIAL) Public Advocates Office Prepared Testimony on SDG&E ERRA Compliance, at 2-6.

[34] Appendix B, Attachment 1.3, CalAdv - 2024_ERRA-C_SDG&E_Attachment A - Summary Load Data and LMP Price Forecasts_CONF.xlsx, Tab "DA vs RT Load (Edit)."

[35] This adjustment was applied to [redacted] (compared to [redacted] for the 2023 Record Period). Without the adjustment, the average Load MAPE is [redacted].

[36] The unadjusted load MAPE for 2022 was [redacted]

Table 1-2: Price Forecasting Accuracy (Hourly)[37, 38]

Reporting Year	Price MAPE	Average Hourly Difference ($/MWh)
2024	[redacted]	
2023		
2022		
2021		
2020		
2019		
2018		
2017		
2016		

Table 1-1 shows that load forecast MAPE values [redacted]

[37] A.24-06-001, (CONFIDENTIAL) Public Advocates Office Prepared Testimony on SDG&E ERRA Compliance at 2-6.

[38] Appendix B, Attachment 1.3, CalAdv - 2024_ERRA-C_SDG&E_Attachment A - Summary Load Data and LMP Price Forecasts_CONF.xlsx, Tab "ZE-DA LMP Fcast vs Act (Edit)."

[39] Adjustments were made for the same reasons outlined in footnote 23 by capping hourly Price MAPE at 100%. Cal Advocates adjusted [redacted] of trading hours in the 2024 Record Period. Without adjustments, the average hourly Price MAPE is [redacted]

[40] Applying the same MAPE adjustment to the 2022 LMP data whereby individual hourly load percentage errors where actual price was between -$1 and $1 resulted in an adjusted Price MAPE of [redacted]. *See* Appendix B, Attachment 1.4, CalAdv – 2023_ERRA_C_SDG&E_CalAdv_Load-Forecast-Atch_CONF – Attch A.xlsx, Tab ZE-DA LMP Fcast vs Actual(edit).

[redacted][41]

SDG&E also stated in rebuttal testimony to its 2022 ERRA Compliance Application proceeding[42] that SDG&E continued in 2023-2024 to work with Pattern Recognition Technologies (PRT) to reduce load deviations due to load migration.[43] For the 2023 Record Period, SDG&E had roughly 2,000 GWh of load migration.[44] Prior to July 19, 2023, SDG&E was calculating its bundled load by taking the System Load forecast (produced by PRT), subtracting System losses, and also subtracting CCA/Direct Access customer forecasts.[45] To eliminate the multiple variables in calculating bundled load, SDG&E began using historical actual (metered) bundled load from customer meters. Although SDG&E addressed the load forecasting deviations by eliminating multiple inputs to the model, SDG&E states that there will be an adjustment period as load migration has impacted the historical bundled load inputs to the model and ultimately will impact the forecast.[46]

For the 2024 Record Period, Cal Advocates includes average daily MAPE values in addition to the average hourly MAPE calculation. The daily MAPE reduces the distortion from large percentage errors from a few near-zero hours by distributing their impact across the full day. It also avoids the arbitrary nature of capping hourly errors. The average daily MAPE focuses on the overall daily forecasting accuracy rather than hour-by-hour forecasting accuracy.

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[41] A.23-06-002, (CONFIDENTIAL) Public Advocates Office Testimony on SDGE ERRA at 2-7; Appendix B, Attachment 1.1, 2022_ERRA - CONFIDENTIAL SDG&E Response to Cal Advocates Data Request 9, Question 2a.

[42] A23-06-002, RY 2022 ERRA Confidential Compliance Rebuttal Testimony – SDG&E 8, at AS-2.

[43] Appendix B, Attachment 1.5, ERRA-2023_SDG&E-Compliance-CalAdvocates-DR_03.pdf, Question 1.

[44] Appendix B, Attachment 1.5, ERRA-2023_SDG&E-Compliance-CalAdvocates-DR _03.pdf, Question 1.

[45] Appendix B, Attachment 1.19, SDG&E Response to DR 07, Question 3.

[46] Appendix B, Attachment 1.19, SDG&E Response to DR 07 Question 3.

Table 1-3: Load Forecasting Accuracy – Average Daily MAPE[47]

Reporting Year	Load MAPE (Daily)	Average Daily Difference (MW)
2024	[redacted]	
2023		
2022		
2021		

Table 1-4: Price Forecasting Accuracy – Average Daily MAPE[48]

Reporting Year	Price MAPE	Average Daily Difference ($/MWh)
2024	[redacted]	
2023		
2022		
2021		

The Daily MAPE values for both load and price [redacted] from 2023 to 2024, yet the average daily differences for both load and price [redacted]. [redacted]. The average hourly RT load in the 2024 Record Period was [redacted] in 2023.[49]

[47] Appendix B, Attachment 1.3, CalAdv - 2024_ERRA-C_SDG&E_Attachment A - Summary Load Data and LMP Price Forecasts_CONF.xlsx, "DA vs RT Load (Edit)" Tab; Appendix B, Attachment 1.6, CalAdv - 2022 Attachment A - Summary Load Data and LMP Price Forecasts (CONF), "DA vs RT Load" Tab.

[48] Appendix B, Attachment 1.3, CalAdv - 2024_ERRA-C_SDG&E_Attachment A - Summary Load Data and LMP Price Forecasts_CONF.xlsx, "ZE-DA LMP Fcast vs Act (Edit)" Tab; Appendix B, Attachment 1.6, CalAdv - 2022 Attachment A - Summary Load Data and LMP Price Forecasts (CONF), "ZE-DA LMP Forecast vs Actual" Tab.

[49] Appendix B, Attachment 1.7, CalAdv - 2024 Attachment A - Summary Load Data and LMP Price

Cal Advocates also examined the top 35 trading hours with the highest percentage errors measured in MAPE for the 2024 Record Period for both Load and Price Forecasting. Many of the top 35 hours appear to be in the Spring and early Summer months between hours 12-16, and show mostly negative prices.[50] These tend to be solar hours where high percentage errors occur because solar generation can be volatile and difficult to predict since it depends on the accuracy of weather forecasts and rooftop solar generation. This mirrors similar trends from Load and Price forecasts in prior Record Periods.[51] SDG&E states that increasing levels of rooftop solar and battery storage increased the complexity of its forecast methodology.[52]

Cal Advocates also looked at load forecast accuracy during times when DA price and RT price per MWh are highest. SDG&E provided data on the top 100 days in the 2024 Record Period with the highest value energy (HVE), or the days in which energy prices were highest.[53] Mis-forecasts in HVE days can have a greater cost impact compared to days with average or below average energy prices.

For the top 100 HVE days in 2024, SDG&E's adjusted hourly Price MAPE is [redacted] compared to the 2024 annual adjusted hourly Price MAPE of [redacted].[54] This indicates that price forecasting on HVE days [redacted] Of the top 100 HVE

Forecasts-Revised.xlsx, "ZE-DA vs RT Load" Tab.

[50] Appendix B, Attachment 1.3, CalAdv - 2024_ERRA-C_SDG&E_Attachment A - Summary Load Data and LMP Price Forecasts_CONF.xlsx, Tab "ZE-DA LMP Fcast vs Act (Edit)."

[51] A.24-06-001, Cal Advocates Testimony to SCE's 2023 ERRA Compliance Application - LCD Chapter at 2-11.

[52] A.24-06-001, Cal Advocates Testimony to SCE's 2023 ERRA Compliance Application - LCD Chapter at 2-11.

[53] *See* Appendix B, Attachment 1.7, CalAdv - 2024 Attachment A - Summary Load Data and LMP Price Forecasts-Revised.xlsx, "Top 100" Tab; The top 100 HVE days are determined by summing the hourly DA Prices for each day and ranking the days by the daily sum of DA prices.

[54] Appendix B, Attachment 1.7, CalAdv - 2024 Attachment A - Summary Load Data and LMP Price Forecasts-Revised.xlsx, "ZE-Top 100 (Edit)" Tab.

days, [redacted] [redacted][56]

Additionally, low-value energy days, especially days where the actual price is $0 or near-$0, can result in extremely large percentage errors even if the absolute difference between the forecast and actual price is relatively small. The average absolute hourly price difference for the 100 HVE days was [redacted] while the annual average absolute hourly price difference was [redacted].[57] While the percentage errors for [redacted] since HVE days have higher overall prices.

Table 1-5: Price and Load Forecast Accuracy for Top 100 HVE Days

	Hourly Price Forecast MAPE		Hourly Load Forecast MAPE	
	Top 100 HVE	Annual Avg	Top 100 HVE	Annual Avg
2024	[redacted]			
2023				

SDG&E's 2024 load forecast accuracy measured by the adjusted MAPE for the top 100 HVE days was [redacted]. This represents a [redacted] forecast than the 2024 annual average of [redacted]. The average absolute hourly load difference was [redacted] for the top 100 HVE days versus the [redacted] average absolute difference for

[55] By comparison, [redacted], had a Price MAPE over 100%.

[56] Appendix B, Attachment 1.7, CalAdv – 2024 Attachment A - Summary Load Data and LMP Price Forecasts-Revised.xlsx, "ZE-Top100 (Edit)" Tab.

[57] Appendix B, Attachment 1.4, CalAdv – 2023_ERRA_C_SDG&E_CalAdv_Load-Forecast-Atch_CONF – Attch A.xlsx, Tab ZE-Top100(edit).

[58] Cal Advocates did not apply any caps to hourly Price MAPEs since all DA actual prices were outside the range of -$1 to $1.

the entire 2024 Record Period.[59] [redacted] during HVE periods.

Cal Advocates' analysis shows that the number of under-forecasted and over-forecasted hours for the top 100 HVE days in the 2024 Record Period were relatively similar at [redacted] over-forecasted hours versus [redacted] under-forecasted hours.[60]

4. Summary and Recommendation

Cal Advocates' analysis indicates [redacted] in year-over-year load and price forecasting accuracy in the 2024 Record Period as measured by the hourly MAPE. [redacted]. When evaluating the load and price forecasting accuracy using a daily MAPE, daily percentage errors increased year-over-year, [redacted]. [redacted]. SDG&E's load and price forecasting accuracy for HVE days in the 2024 Record Period showed [redacted]. [redacted]. The 2024 Record Period HVE analysis showed [redacted].

Additionally, Cal Advocates needed to adjust the MAPE calculation for both load and price forecasts due to the extremely high percentage errors in solar hours. Solar hours can be volatile and difficult to predict due to their dependence on weather forecasts and rooftop solar generation. In service territories with high solar adoption, the associated high percentage errors can significantly skew the overall MAPE calculations.

[59] Appendix B, Attachment 1.6, CalAdv – 2022 Attachment A – Summary Load Data and LMP Price Forecasts (CONF).xlsx, Tab"2022_Top 100 Days_CAdv."

[60] Appendix B, Attachment 1.4, CalAdv – 2023_ERRA_C_SDG&E_CalAdv_Load-Forecast-Atch_CONF – Attch A.xlsx, Tab ZE-Top100(edit).

[redacted].

B. Management of Thermal Resources

1. Commitment Cost Decisions

Pursuant to D.15-12-015, the investor-owned utilities (IOUs) provide Commitment Cost Decision workpapers as part of their LCD compliance filings. The IOUs, including SDG&E, submit to CAISO the commitment costs for their resources to CAISO, which include start-up and minimum load costs. This data is entered into CAISO's Master File, which records the operational parameters of all dispatchable resources and costs. CAISO uses this data in making its dispatch decisions. Prior to April 2019, these start-up and minimum load costs could be reported based on either the Registered or Proxy Cost methods. The Registered Cost method reports actual costs for start-up and minimum load to CAISO. The Proxy Cost method uses a standardized formula/model to estimate the costs instead of relying on self-reported numbers.[61]

However, starting in 2019, CAISO retired the "registered cost" option with an exception only for resources that have less than 12 months of 15-minute Locational Marginal Price (LMP) data.[62] None of the resources in SDG&E's portfolio are eligible for the exception in the 2024 Record Period and SDG&E has not used the "registered cost" option since CAISO retired it in 2019. In the 2024 Record Period, SDG&E submitted [redacted] proxy cost elections and [redacted] registered cost elections for its dispatchable thermal resources.[63] There were [redacted] incorrect submissions or cost impacts.[64]

2. Incremental Bid Cost Calculations

SDG&E submits incremental bids to the CAISO, which are calculated using various costs, including heat rate, fuel, fuel transportation, greenhouse gas, and variable

[61] CAISO Tariff, Section 30.4.1.1.

[62] CAISO Tariff Section 30.4.2.

[63] Appendix B, Attachment 1.8, Attachment E - 2024 Master File (RDT) Change Exceptions.

[64] Appendix B, Attachment 1.8, Attachment E - 2024 Master File (RDT) Change Exceptions.

operations and maintenance. SDG&E reports all variances between calculated and submitted bids that are greater than $0.10 and the related cost impacts, as well as those times when available dispatchable resources were not bid into the CAISO markets.[65] For the 2024 Record Period, SDG&E reported [redacted] variances, with [redacted] bid cost exceptions.[66]

3. Bidding Activity

SDG&E bids available resources into the CAISO market at their incremental cost and if the Locational Marginal Price (LMP) of the resource is greater than, or equal to, the bid price, the CAISO will dispatch the resource. Cal Advocates reviewed SDG&E's workpapers to assess instances in which resources were available but not bid and instances in which resources were bid below the relevant LMP but not dispatched. SDG&E reports [redacted] operational hours across [redacted] resources during which resources were not bid into the market.[67] SDG&E reports that the Carlsbad 2 energy resource was available but not bid for [redacted]7 bid hours, and the Carlsbad MSG (Multi-Stage Generator) energy resource was available but not bid for a total of [redacted] bid hours.[68] SDG&E explains that "[a]ll Carlsbad 2 and Carlsbad MSG hours [were] not bid due to use limited environmental restrictions except for Unit testing on 04/20 and 5/31 [2024]."[69] SDG&E states that in all other hours, resources were not bid into the market due to unit testing.[70] In addition, SDG&E reported that [redacted] bid hours out of [redacted] total bid hours were "alleged non-economic dispatch," or bid hours in which the unit was not dispatched

[65] Abugan Testimony at RA-24.

[66] Abugan Testimony at RA-24.

[67] Appendix B, Attachment 1.9, 2024 Attachment B – Incremental Bids 2A-Dv1, Tab "2D – Pivot hrs not bid & Avail."

[68] Appendix B, Attachment 1.9, 2024 Attachment B – Incremental Bids 2A-Dv1, Tab "2D – Pivot hrs not bid & Avail."

[69] Appendix B, Attachment 1.9, 2024 Attachment B – Incremental Bids 2A-Dv1, Tab "2D."

[70] Appendix B, Attachment 1.9, 2024 Attachment B – Incremental Bids 2A-Dv1, Tab "2D."

despite an LMP that exceeded the bid price.[71] This represents [redacted] of all bid hours which is [redacted] than the 2023 percentage of [redacted].[72]

4. Self-Schedules[73]

Self-schedules refer to a bidding process that is non-economic in nature because energy resources are simply purchased for the price of energy at the time the resource is dispatched. In contrast, in an economic bidding process the resource is offered for dispatch at the cost for that resource to generate electricity. Although self-scheduling does not necessarily meet least-cost dispatch objectives, it is appropriate for non-intermittent must-take resources, for unit testing, and other non-discretionary reasons. In the 2024 Record Period, SDG&E recorded no cost impacts due to the self-scheduling of dispatchable resources.[74] SDG&E reported [redacted] bid hours for unit testing.[75]

C. Battery Storage

SDG&E performs separate optimization analysis for its battery storage resources due to their operational characteristics and opportunity costs associated with potential Ancillary Service revenues and real-time prices.[76] Costs are based on the cost of power to charge the battery so the battery can generate power at a later time.[77] The factors considered in determining bids for battery storage resources include: (1) expected DA, RT, and ancillary services prices; (2) charge efficiency parameters; (3) variable operations and maintenance costs; and (4) state of charge, charge/discharge capacity, and

[71] Appendix B, Attachment 1.10, 2024 Attachment B – Incremental Bids 2E, Tab "2E."

[72] Appendix B, Attachment 1.11, 2023 Attachment C – Incremental Bids 2Ev2, Tab "2E."

[73] SDG&E uses the term "self-schedule" here to refer to the non-economic bidding of certain energy resources. However, SDG&E also uses the term "self-schedule" in the context of load bidding, whereby SDG&E submits a price-taker bid that is awarded, regardless of the clearing price.

[74] Abugan Testimony at RA – 25-26.

[75] Appendix B, Attachment 1.12, 2024 Attachment C and D – Self Schedules Supporting Data.xlsx, Tab "3ab."

[76] Abugan Testimony, at RA-19.

[77] Abugan Testimony, at RA-19.

cycling limitations.[78] In terms of LCD, it is only economic to operate the battery when the cost of charging is recovered by revenues from discharging the battery. Battery storage accounts for 730 MW of SDG&E's portfolio.[79] SDG&E makes its battery resources available to CAISO by bidding them into the DA and RT Markets. CAISO models then determine whether to award resources.[80]

The Commission has not yet determined the parameters for demonstrating LCD compliance for battery energy storage resources. Once the Commission orders such requirements, Cal Advocates will review the appropriate records to determine compliance.

D. Hydro Management

1. Introduction

SDG&E operates the Lake Hodges hydropower facility, which has both generation and pumping capacity.

[redacted][81] [redacted].[82]

E. Management of Demand Response Programs

1. Overview

LCD compliance applies to SDG&E's Capacity Bidding Program (CBP) and AC Saver Program, two economically-triggered demand response (DR) programs for which SDG&E submits bids to the CAISO market.[83] In general, DR is considered a limited-use resource that can only dispatch a limited number of times per period. In accordance with

[78] Abugan Testimony, at RA-19.

[79] Abugan Testimony, at RA-19.

[80] Appendix B, Attachment 1.13, Attachment K – Energy Storage Operational Overview.

[81] Appendix B, Attachment 1.14, Attachment B – 2023 Hydro and Pump Storage, Tab "Overall Summary."

[82] Appendix B, Attachment 1.15, 2024 Attachment F – Annual Summary, Tab "Annual_Summary."

[83] Abugan Testimony at RA-32.

a prior settlement with Cal Advocates, SDG&E provides a variety of supporting workpapers on its DR programs, as summarized in SDG&E's testimony.[84]

The CBP program is a voluntary DR program available to all commercial and industrial customers in SDG&E's territory. The program is subdivided into a CBP Elect Day-Ahead (DA) and CBP Elect Day-Of (DO) product, each capped at 24 events per product (annually) and six times per month.[85] The programs are available from May through October and have several operating parameters and program triggers:

- There are three Day-Ahead price triggers for Elect[86] options:
    - Elect option 1 = $200 1-9pm DA
    - Elect option 2 = $400 1-9pm DA
    - Elect option 3 = $600 1-9m DA
- There are three Day-Of price triggers for Elect options:
    - Elect option 1 = $200 1-9pm DO
    - Elect option 2 = $400 1-9pm DO
    - Elect option 3 = $600 1-9pm DO

Additionally, SDG&E may call an event if SDG&E system conditions warrant it or at the request of CAISO as a result of a declared emergency (though it is still at SDG&E's discretion to deploy).[87]

SDG&E bases its decision to dispatch the CBP program on forecasted system demand, program limitations, and customer fatigue.[88] SDG&E also offers the AC Saver Day-Ahead (ACSDA) and AC Saver Day-Of (ACSDO) voluntary programs that utilize

[84] Abugan Testimony at RA-2-3 and D.18-10-006.

[85] Abugan Testimony, at RA-32.

[86] The term "elect" refers to the option customers elect as their chosen method of participation in the CBP program.

[87] Abugan Testimony, at RA-33.

[88] Abugan Testimony, at RA-33.

customer thermostats to reduce air conditioning load. These programs are operational from April 1 to October 31 each year from Monday through Sunday, excluding holidays, between the hours of 12pm to 9pm. Events may range from two to four hours with a 20-hour event, 80-hour annual maximum per program, or 24 hours per month.

2. Least-Cost Dispatch Principles

SDG&E's economically-triggered DR resources may be dispatched by CAISO when the Locational Marginal Price (LMP) is above the resource's economic bid or during periods of emergency reliability. Cal Advocates analyzed SDG&E's demand response resource bid price calculations and SDG&E's decisions to offer the resources to, or withhold them from, the market to ensure that SDG&E met least-cost dispatch principles and utilized the most cost-effective portfolio of resources.

3. Analysis

Cal Advocates reviewed the relevant workpapers provided by SDG&E on its DR programs. The CBP was activated two (2) times during 2024, of which one was a test event.[89] SDG&E reported that when the CBP event was initiated during the 2024 Record Period, the quantified triggers from the tariff were met, and system needs warranted program activation.[90] In comparison, SDG&E activated the CBP on 12 separate occasions in 2023, and activated DR programs a total of 60 times over 21 separate days between July and October[91]

Cal Advocates inquired into the significant drop-off in DR activations from 2023 to 2024. SDG&E attributed the reduction in DR program activations in the 2024 Record Period to the fact that CBP Aggregators only nominated the CBP Elect DA $600 product for 2024.[92] In addition, the CBP Aggregator that had nominated multiple DR products in

[89] Abugan Testimony, at RA-33.

[90] Abugan Testimony, at RA-33.

[91] Appendix B, Attachment 1.16, Attachment H - ERRA 2023 Demand Response Metric 1, sheet "CBP AND SS DISPATCHED."

[92] Appendix B, Attachment 1.17, ERRA-2024_SDGE_Compliance_CalAdvocates-DR_04.pdf, Question 1a.

the 2023 Record Period left the DR programs.[93] SDG&E reported zero DR exceptions in which DR triggers were met, but SDG&E did not dispatch the program.[94]

V. CONCLUSION

Overall, Cal Advocates finds that SDG&E managed its thermal, hydro, and demand response resources reasonably and does not recommend any disallowances. SDG&E's load and price forecasting accuracy for the 2024 Record Period [redacted]

[93] Appendix B, Attachment 1.17, ERRA-2024_SDGE_Compliance_CalAdvocates-DR_04.pdf, Question 1a.

[94] Appendix B, Attachment 1.18, Attachment G - ERRA 2024 Demand Response Metric 1, Tab "2024 Exceptions Report."

LIST OF ATTACHMENTS FOR CHAPTER 1

#	Attachment	Description
1.1	Attachment 1.1 (Confidential)	2022_ERRA - CONFIDENTIAL SDG&E Response to Cal Advocates Data Request 09.
1.2	Attachment 1.2 (Confidential)	2024 Attachment A - Summary Load Data and LMP Price Forecasts.xlsx (Available via Email)
1.3	Attachment 1.3 (Confidential)	CalAdv - 2024_ERRA-C_SDG&E_Attachment A - Summary Load Data and LMP Price Forecasts_CONF.xlsx (Available via Email)
1.4	Attachment 1.4 (Confidential)	CalAdv - 2023_ERRA-C_SDG&E_CalAdv_Load-Forecast-Atch_CONF - Attch A.xlsx (Available via Email)
1.5	Attachment 1.5 (Confidential)	ERRA-2023-SDGE-Compliance-CalAdvocates-DR_03.pdf
1.6	Attachment 1.6 (Confidential)	CalAdv - 2022 Attachment A - Summary Load Data and LMP Price Forecasts (CONF).xlsx (Available via Email)
1.7	Attachment 1.7 (Confidential)	CalAdv - 2024 Attachment A - Summary Load Data and LMP Price Forecasts-Revised.xlsx (Available via Email)
1.8	Attachment 1.8 (Confidential)	Attachment E - 2024 Master File (RDT) Change Exceptions.xlsx (Available via Email)
1.9	Attachment 1.9 (Confidential)	2024 Attachment B - Incremental Bids 2A-Dv1.xlsx (Available via Email)
1.10	Attachment 1.10 (Confidential)	2024 Attachment B- 2E.xlsx (Available via Email)
1.11	Attachment 1.11 (Confidential)	2023 Attachment C- 2Ev2.xlsx (Available via Email)
1.12	Attachment 1.12 (Confidential)	2024 Attachment C and D - Self Schedules Supporting Data.xlsx (Available via Email)

#	Attachment	Description
1.13	Attachment 1.13 (Confidential)	Attachment K - Energy Storage Operational Overview.ppt
1.14	Attachment 1.14 (Confidential)	Attachment B – 2023 Hydro and Pump Storage.xlsx (Available via Email)
1.15	Attachment 1.15 (Confidential)	2024 Attachment F- Annual Summary.xlsx (Available via Email)
1.16	Attachment 1.16 (Confidential)	Attachment H - ERRA 2023 Demand Response Metric 1.xlsx (Available via Email)
1.17	Attachment 1.17 (Confidential)	ERRA-2024-SDGE-Compliance-CalAdvocates-DR_04.pdf
1.18	Attachment 1.18 (Confidential)	Attachment G - ERRA 2024 Demand Response Metric 1.xlsx (Available via Email)
1.19	Attachment 1.19 (Confidential)	ERRA-2023-Compliance-CalAdvocates-DR_07

CHAPTER 2 : UTILITY-OWNED GENERATION (FOSSIL)

(Witness: Michael Yeo)

I. SUMMARY

In this chapter, the Public Advocates Office at the California Public Utilities Commission (Cal Advocates) reviews San Diego Gas & Electric Company's (SDG&E) filing on operations and activities of its natural gas utility-owned generation (UOG), including generation outage information from January 1, 2024 to December 31, 2024 (2024 Record Period).

After reviewing SDG&E's testimony and responses to data requests, Cal Advocates recommends the Commission:

(a) disallow cost recovery of $28,310 in SDG&E's Energy Resource Recovery Account (ERRA) Balancing Account for the 2024 Record Period because the Continuous Emissions Monitoring System (CEMS) Data Acquisition and Handling System (DAHS) computer's hard drive failed prematurely and its failure cost ratepayers $35,984 in replacement power costs during the October 10, 2024 outage; and

(b) order SDG&E to perform a Root Cause Analysis (RCA) as to why the CEMS DAHS computer's hard drive failed prematurely. SDG&E should submit the RCA Report in the next ERRA Compliance filing following the completion of the RCA.

II. FOSSIL FUEL FACILITIES[95]

SDG&E's UOG fossil fuel facilities consist of the 45 megawatt (MW)[96] Cuyamaca Peak Energy Plant (CPEP), the 480 MW[97] Desert Star Energy Center (Desert Star), the 92 MW[98] Miramar Energy Facility (MEF), and the 588 MW[99] Palomar Energy Center (Palomar).[100]

[95] Prepared Testimony by SDG&E Kevin M. Counts June 2, 2025 (Counts Testimony) at KMC-1 to KMC-3.

[96] Counts Testimony at KMC-2, line 21.

[97] Counts Testimony at KMC-2, line 9.

[98] Counts Testimony at KMC-2, line 16.

[99] Counts Testimony at KMC-2, line 4.

[100] Counts Testimony at KMC-1, line 20 to KMC-2, line 18.

Both the CPEP and the MEF are peaking plants.[101] These generation facilities are small power units that can reach full generating capacity within 10 to 15 minutes to meet immediate demand on the grid.[102] Peakers are typically called on when demand for power is highest, such as a hot summer day or at times when loads are changing rapidly.[103]

SDG&E provides a brief description of SDG&E's fossil generation facilities in its testimony.[104]

III. OUTAGE

For the 2024 Record Period, Cal Advocates selected, for further review and analyses, the forced outage at the CPEP from October 10, 2024 at 15:08[105] to October 16, 2024 at 14:15, a total of 5.963 days (5 days, 23 hours and 7 minutes).[106] In SDG&E's Direct Testimony, that outage is designated as Forced Outage #11.[107] The outage was caused by the failure of the CEMS computer.[108]

A. Cuyamaca Peak Energy Plant (CPEP) – Background

The CPEP, located in El Cajon,[109] northeast of San Diego, comprises two simple cycle gas turbines connected to one generator.[110] (See Figure 2.1 for the aerial view of

[101] Counts Testimony at KMC-1, line 13 to line 14.

[102] SDG&E Peaker Plants Fact Sheet https://webarchive.sdge.com/sites/default/files/newsroom/factsheets/SDG%26E%20Peakers%20Fact%20Sheet_0.pdf

[103] SDG&E Peaker Plants Fact Sheet https://webarchive.sdge.com/sites/default/files/newsroom/factsheets/SDG%26E%20Peakers%20Fact%20Sheet_0.pdf

[104] Counts Testimony at KMC-1 to KMC-3.

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

[106] Counts Testimony, Appendix A, and Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 20 and 21, 045 and 049.

[107] Counts Testimony, Appendix A, at KMC-A-4.

[108] Counts Testimony, Appendix A; at KMC-A-4.

[109] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 004: The location is 200 North Johnson Avenue, El Cajon, CA 92020.

[110] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 004.

CPEP and Figure 2.2 to 2.4 for the equipment layout of CPEP.) The Commission approved SDG&E's purchase and operation of CPEP in Decision (D.) 11-12-002[111] on December 1, 2011 in Application (A.) 11-01-004.[112,113] The Commission approved CPEP's rate recovery in D.11-12-002[114] and D.24-12-074[115,116].

Before SDG&E purchased CPEP, the generating facility was known as CalPeak El Cajon Energy Facility (CalPeak).[117] The commercial operating date for CPEP was May 20, 2002.[118] The previous owner, CalPeak, therefore commissioned the generating facility.[119]

CPEP underwent several upgrades since plant acquisition (see Table 2.1 Cuyamaca Peak Energy Plant Upgrades).[120] The CPEP upgrade projects are part of the SDG&E General Rate Case (GRC) process for capital budgets.[121]

[111] *Decision Granting San Diego Gas & Electric Company Authority to Acquire the CalPeak El Cajon Energy Facility.*

[112] *Application of San Diego Gas & Electric Company (U902E) for Authority to Acquire the CalPeak El Cajon Energy Facility*.

[113] SDG&E response to Cal Advocates Data Request 14, Question 001 and 003.

[114] *Decision Granting San Diego Gas & Electric Company Authority to Acquire the CalPeak El Cajon Energy Facility* issued in A.11-01-004.

[115] *Decision Addressing the 2024 Test Year General Rate Cases of Southern California Gas Company and San Diego Gas & Electric Company* issued in A.22-05-016.

[116] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 003.

[117] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 015 to 017.

[118] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 015.

[119] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 016 and 017.

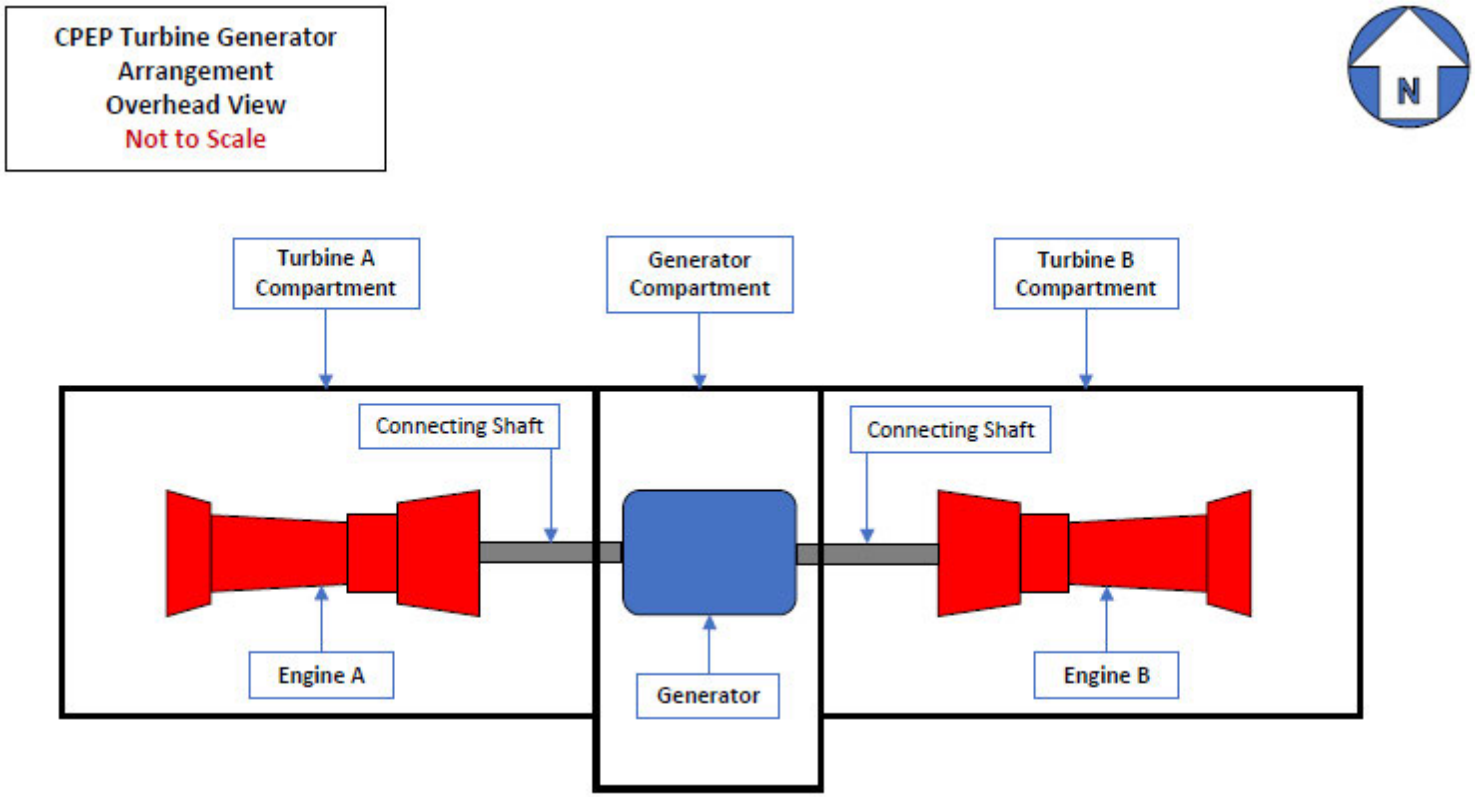
[120] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 004.

[121] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 002.

Figure 2.1 Cuyamaca Peak Energy Plant – Aerial View[122]

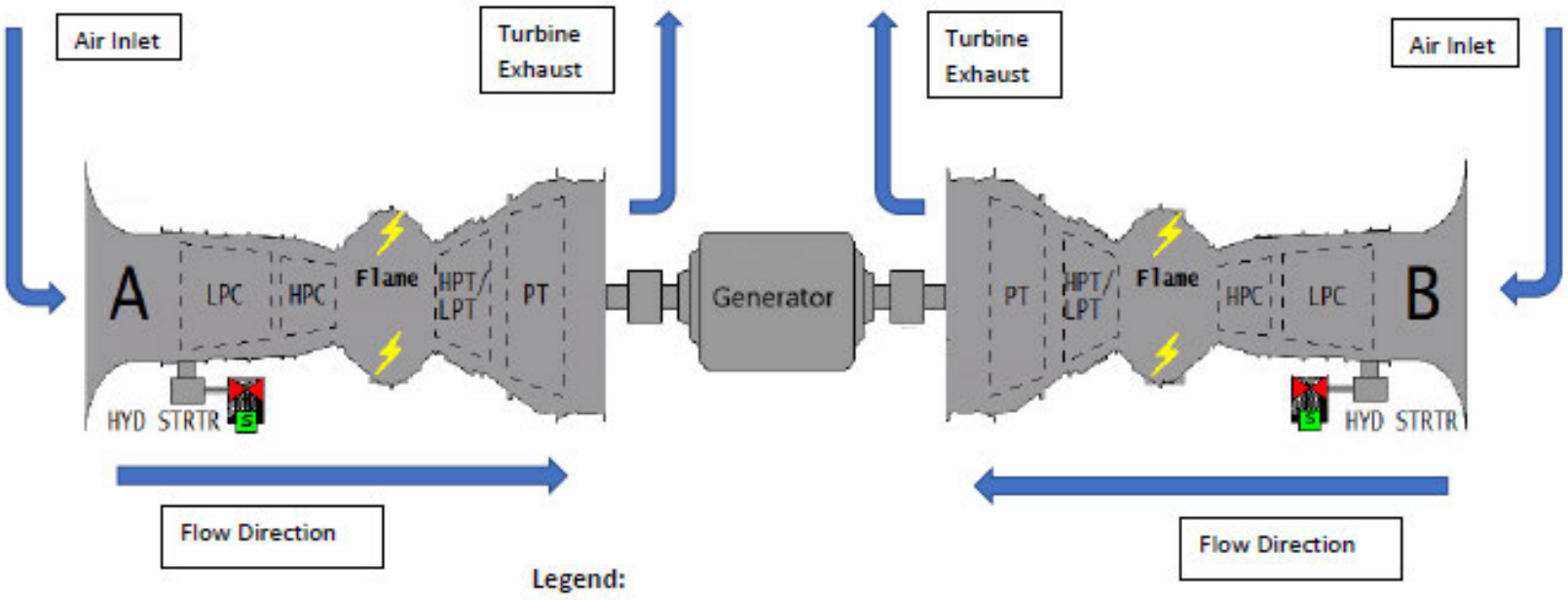
[122] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 005 and 009.

Figure 2.2 CPEP Turbine Generator Arrangement – Schematic Overhead View[123]



[123] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 005.

Figure 2.3 CPEP Turbine Generator Arrangement – Equipment Layout (Detailed View)[124]



Legend:

A - Engine A or Turbine A
B - Engine B or Turbine B
Generator – Electric Generator

LPC – Low Pressure Compressor
HPC – High Pressure Compresor
Flame – Combustor Section
HPT/LPT – High Pressure Turbine / Low Pressure Turbine
PT – Power Turbine

HYD STRTR – Hydraulic Starter

[124] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Questions 005.

Table 2.1 CPEP Plant Upgrades[125]

Cuyamaca Peak Energy Plant Upgrades

MOC Number	Description	Status	Description	Date
MOC C12-01	Install new fuel flow meters	Closed	Installed new Rosemount gas flow transmitter for monitoring	Nov-13
MOC C12-02	Plant Painting	Closed	Repainted unit to correct corrosions concerns	Oct-13
MOC C12-03	Safety Upgrades	Closed	Plant safety upgrades	Jun-12
MOC C12-04	Security Design for Control and BOP Systems	Closed	Installed Emerson security system during upgrade to Ovation	Apr-17
MOC C12-05	CEMS Upgrade	Implementation	Upgrade CEMS computers	IP
MOC C12-06	New Pad and Gate for Demin Ion Exchange Bottles	Closed	New pad installed for Ion exchanger bottles	Feb-13
MOC C12-07	Replace Batteries for Improved Performance and Life	Closed	Installed new batteries to improve UPS performance	Jan-20
MOC C12-08	Relocation and Upgrade of Tanks and Equipment	Not Used	Not used due to budget reallocation	
MOC C12-09	Upgrade of Emissions Reduction Unit	Closed	Mechanical improvements to improve operation of ERU	Jul-13
MOC C12-10	Protective Relays Settings Changes	Closed	Updated the settings to comply with NERC changes	Nov-12
MOC C12-11	Gas Compressor Lubrication System Upgrade	Closed	Installed new lubrication for gas compressors	Jan-13
MOC C12-12	Black Start Generator	Closed	Completed installation in 2020 waiting for certification test	May-21
MOC C13-01	MTS and Isolation Switch for DC Chargers and Batteries	Closed	Installed isolation switches for improved ability to perform maintenance	Feb-13
MOC C13-02	CBM Equipment for the GSU	Closed	Installed oil monitoring and bushing monitor system	Apr-14
MOC C13-03	Cuyamaca Mechanical Improvements	Implementation	Small capital project for mechanical improvements	IP
MOC C13-04	Cuyamaca Instrumentation Improvements	Implementation	Small capital project for instrumentation improvements	IP
MOC C13-05	Cuyamaca Electrical Improvements	Implementation	Small capital project for electrical improvements	IP
MOC C14-01	CPEP HMI Upgrade	Closed	Upgraded HMI to Windows 7 to comply with cyber security policy	Apr-17
MOC C14-02	Aurora Mitigation Modifictions	Closed	Added protective relays to prevent Aurora events therby protecting the Bulk Electrical System	Oct-15
MOC C14-03	Revise generator ckt breaker aux contacts for improved reliability	Cancelled	Not used due to repair of the breaker contact circuit	
MOC C14-04	CPEP TL6938 relay cabinet and equipment secondary control room	Closed	Installed new protective relays and cabinets to provide added circuit protection	
MOC C15-01	Micronet control system upgrade to Ovation	Closed	Upgraded the control system to Ovation to all for added operational flexability	Apr-17
MOC C15-02	Safety Improvements	Implementation	Project to improve safety at Cuyamaca	IP
MOC C15-03	CEMS Electrical Transfer Switch	Closed	Installed transfer switch to provide power to the CEMS system during outages	Jul-15
MOC C15-04	Sound Wall Modification	Implementation	Inprogress	IP
MOC C16-01	Eliminate the raw water tank at CPEP	Cancelled	Cancelled due to budget reallocation	
MOC C16-02	Replace Generator Protective Relays	Closed	Installed upgraded protective relays to ensure protection to the generator	Jul-16
MOC C16-03	Improve Engine A and B turbine sections	Closed	Upgraded the turbine sections to improve operational flexability	Oct-16
MOC C16-04	Raw water tank removal and control room install	Cancelled	Cancelled due to budgetary constraints	
MOC C19-01	Ovation Evergreen Upgrade	Closed	completed	Jan-21
MOC C19-02	AVR Upgrade	Closed	AVR upgrade completed and testes SAT	Jan-23
MOC C20-01	CEMS Gas Bottle System Upgrade	Closed	In design, installing new meters from CEMS bottle monitoring	23-Feb
MOC C20-02	CPEP Security System Camera Upgrade	Design	In design, installing security cameras for security monitoring	IP
MOC C20-03	CONTROL ROOM INSTALLATION	Design		
MOC C22-01	Air System Upgrade	Design		
MOC C22-02	PWCS Upgrade	Closed	Upgrade and merged with PEC PWCS	May-23
MOC C22-03	Battery Bank Replacement	Design		
MOC C22-04	Generator Syncronizer Upgrade	Design		
MOC C22-05	Battery Monitoring System	Closed	Completed	25-Jun
MOC C22-06	Fire System Upgrade	Closed	Completed	24-Sep
MOC C24-01	Safety Shower Piping Upgrade	Closed	Coimpleted	24-Sep

[125] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 004.

Table 2.1 CPEP Plant Upgrades (continued)[126]

MOC Number	Description	Status	Description	Date
MOC C24-02	Ovation Evergreen Upgrade	Implementation	Upgrade Ovation Hardware and Controls	

Notes:

1. Dates are approximate based on close out documents
2. MOC - Management of Change
3. IP - In Progress
4. Closed - completed
5. Design - in design phase

[126] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 004.

B. CPEP – Physical Properties

The plant can operate in either a one-turbine or a two-turbine configuration.[127] The currently rated California Independent System Operator (CAISO) dispatch is 40 MW to 45.42 MW for operation with both engines, or 18.2 MW to 23 MW with either single engine.[128] The power output varies with ambient conditions.[129] The terms "engine" and "turbine" are used interchangeability at CPEP.[130] The two gas turbines are identified as Engine A and Engine B (see Figure 2-2).[131]

The nameplate capacity of CPEP is 49 MW, which is the maximum output produced at ideal conditions. The actual output may be lower due to various factors.[132] The CPEP generating capacity, 40 MW to 45.42 MW, was determined by an operational test conducted with the CAISO.[133] In addition, there is a small energy loss when running in single engine configuration because the running engine must also turn the non-running Power Turbine (PT).[134]

CPEP is typically used for peak load operation, and is dispatched by the CAISO.[135] It may operate also with less than full capacity under the following circumstances:

a). if CAISO dispatches CPEP for single engine operation;[136]

b). if a technical issue prevents the operation of one of the engines, but the non-functioning engine PT can be safely spun by the running

[127] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 004.

[128] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Questions 004, 010 to 012 and 014.

[129] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 004 and 014.

[130] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 006.

[131] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 007.

[132] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 011.

[133] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 011.

[134] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 012.

[135] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 019.

[136] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 014.

engine.[137] CAISO is notified of the de-rate and the dispatch orders will be adjusted accordingly;[138]

c). when ambient conditions are such that the turbines cannot make full rated power;[139] and

d). when CAISO dispatch is less than full power rating but within the ratings of 40 MW to 45.42 MW for operation with both engines or 18.2 MW to 23 MW with either single engine.[140]

C. CPEP – Equipment and Operation Nomenclature

The following descriptions of the activities, parts, and systems affected or referenced in the forced outage are grouped under six broad categories: Continuous Emissions Monitoring System (CEMS), Distributed Control System (DCS), Emissions, North America Electric Reliability Corporation (NERC), Generating Availability Data System (GADS), and San Diego County Air Pollution Control District (SDAPCD).

1. Continuous Emissions Monitoring System (CEMS)

The CEMS consists of the total combined equipment and systems, including the sampling interface, analyzers, and data acquisition and handling system, required to continuously determine air contaminants and diluent gas concentrations and/or mass emission rate from an emission unit (as applicable).[141]

The CEMS is the overall system that includes analyzers, the sample probe, sample conditioning equipment, and other support components used to measure and record emissions data.[142] The CEMS also includes the Data Acquisition and Handling System

[137] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 014.

[138] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 014.

[139] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 004 and 014.

[140] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 004 and 014.

[141] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 079: Rule 19.2 of the San Diego County Air Pollution Control District's regulation for Continuous Emission Monitoring Systems (CEMS).

[142] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 030 and 032.

(DAHS)[143], which is the component within the system that collects, validates, stores, and handles the emissions data.[144]

CEMS is therefore a system that includes both hardware and software components working together to continuously monitor and record emissions data from industrial sources. The hardware and software components are as follows:

(a) The hardware portion consists of equipment such as gas analyzers, sample probes, sample conditioning units, and flow monitors, which are used to extract and measure stack exhaust.[145]

(b) The CEMS's software component is the DAHS, which collects, processes, stores, and reports the emissions data.[146] The DAHS is a dedicated computer within the CEMS[147] that processes and stores data for regulatory reporting.[148] It also performs data validation, calculations, and generates alarms in the event of system malfunctions or anomalies.[149]

Its primary function is to collect real-time data from CEMS instrumentation, such as analyzers and flow monitors, and to manage that data to support environmental compliance.[150] The DAHS enables the recording, storage, and regulatory reporting of emissions and operational data, ensuring that facilities can meet environmental standards and can provide required documentation to regulatory agencies.[151]

The CEMS DAHS computer stores data essential for environmental compliance, including real-time measurements of emissions,

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[143] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 116.

[144] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 030 and 032.

[145] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 080.

[146] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 080.

[147] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 117, 121 and 183.

[148] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 121.

[149] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 080, 097 and 098.

[150] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 117, 121 and 183.

[151] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 117 and 183.

calibration records, and quality assurance checks.[152] It also logs plant operational status, data validation routines, and substitution records for periods of missing or invalid data.[153] This information is stored and formatted to meet regulatory reporting requirements, and enable facilities to demonstrate compliance and effectively respond to audits or inspections.[154]

The DAHS records and organizes data collected from the CEMS, making it accessible for both operational monitoring and regulatory compliance.[155] It displays real-time emissions information, allowing operators to monitor system conditions.[156] Additionally, the DAHS can generate reports that summarize emissions data over specific time periods.[157] These reports are essential for submitting accurate information to regulatory agencies and demonstrating compliance with permit conditions.[158]

The original equipment manufacturer (OEM) of the CEMS is Custom Instrumentation Services Corporation, Inc. (SBS CiSCO).[159] The CEMS was installed as part of the original construction of the plant before its commercial operating date of May 20, 2002.[160] The DAHS is a Dell computer in the CEMS.[161] SBS CiSCO, Inc. provides

[152] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 122 and 133.

[153] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 122 and 133.

[154] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 122 and 133.

[155] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 123.

[156] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 123.

[157] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 123.

[158] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 123.

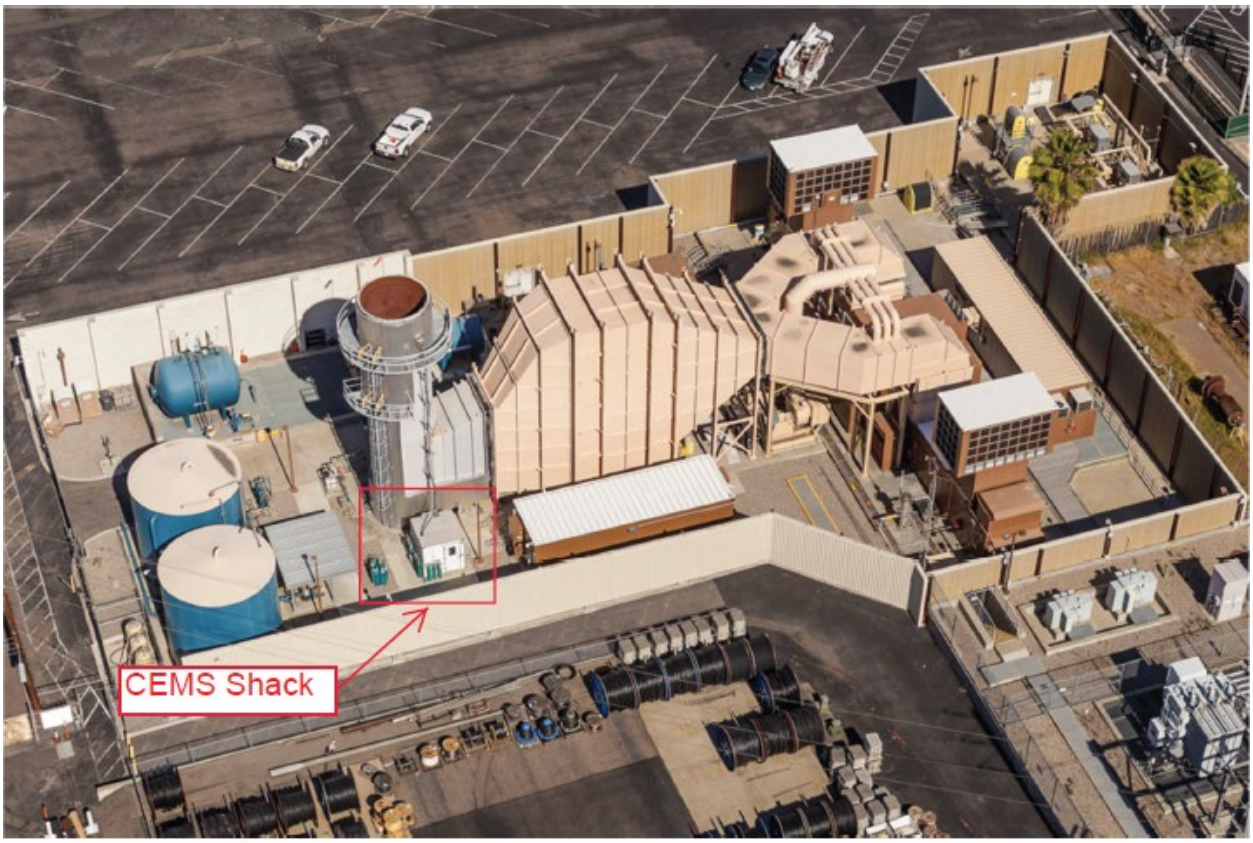
[159] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 071 and 081 and 118.

[160] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 015, 085 and 118.

[161] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 118 and 119.

the DAHS as part of the CEMS.[162] See Figure 2.4 to 2.7 for the location and major components of the CEMS computer.[163]

Figure 2.4 CPEP CEMS Location[164]

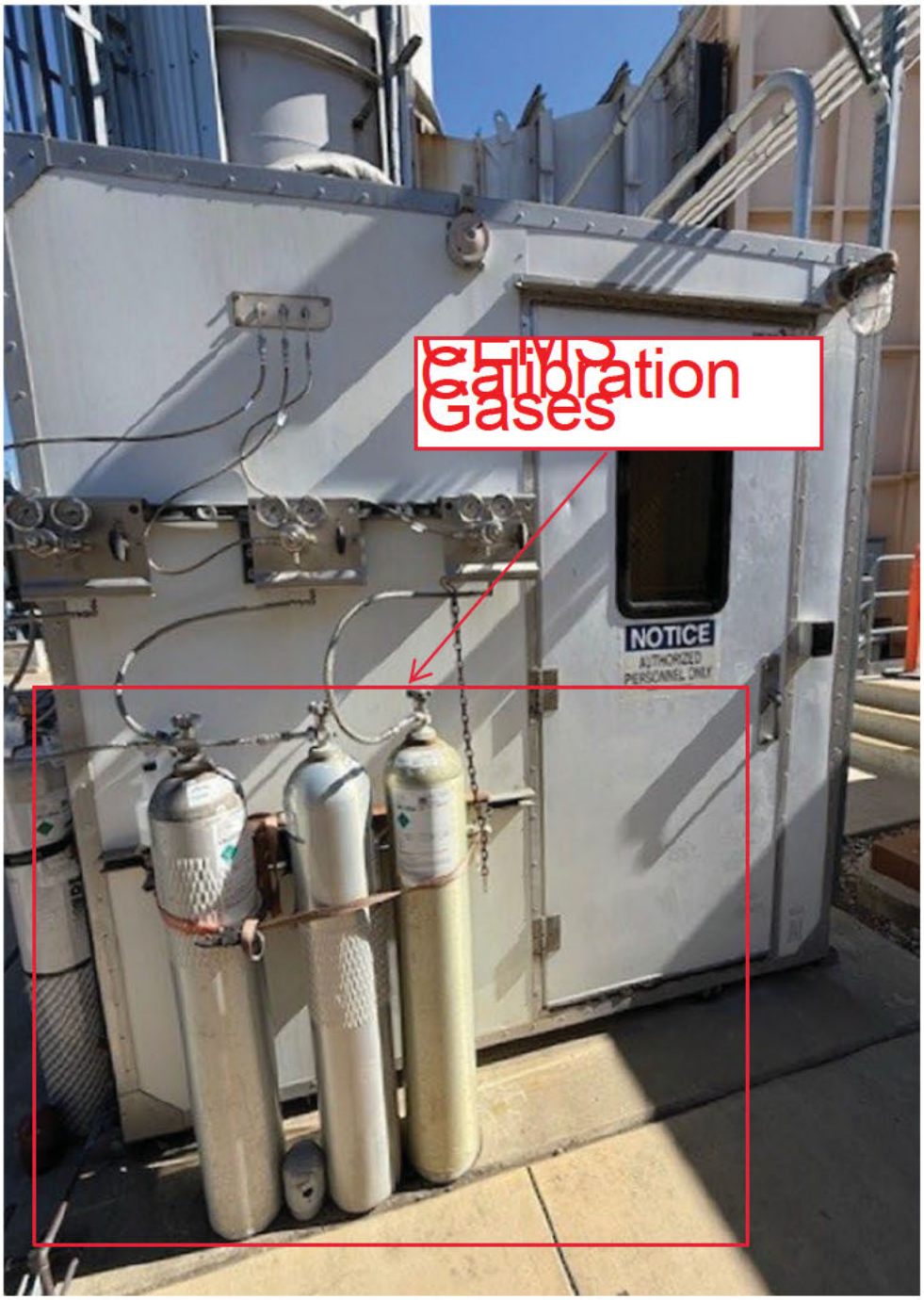


[162] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 118 and 119.

[163] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 064.

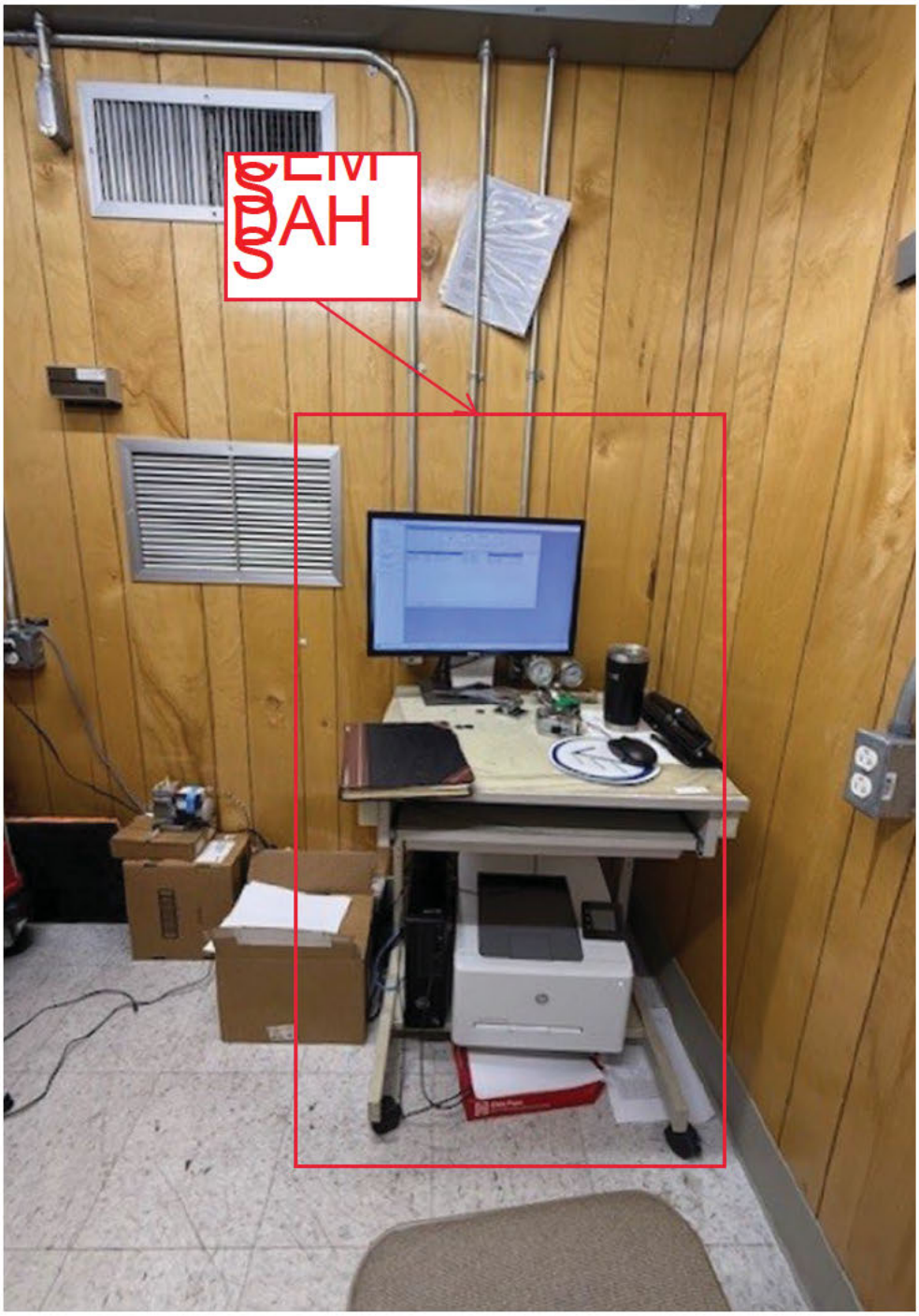
[164] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Questions 064 and 120.

Figure 2.5 CPEP CEMS Location of Calibration Gases[165]



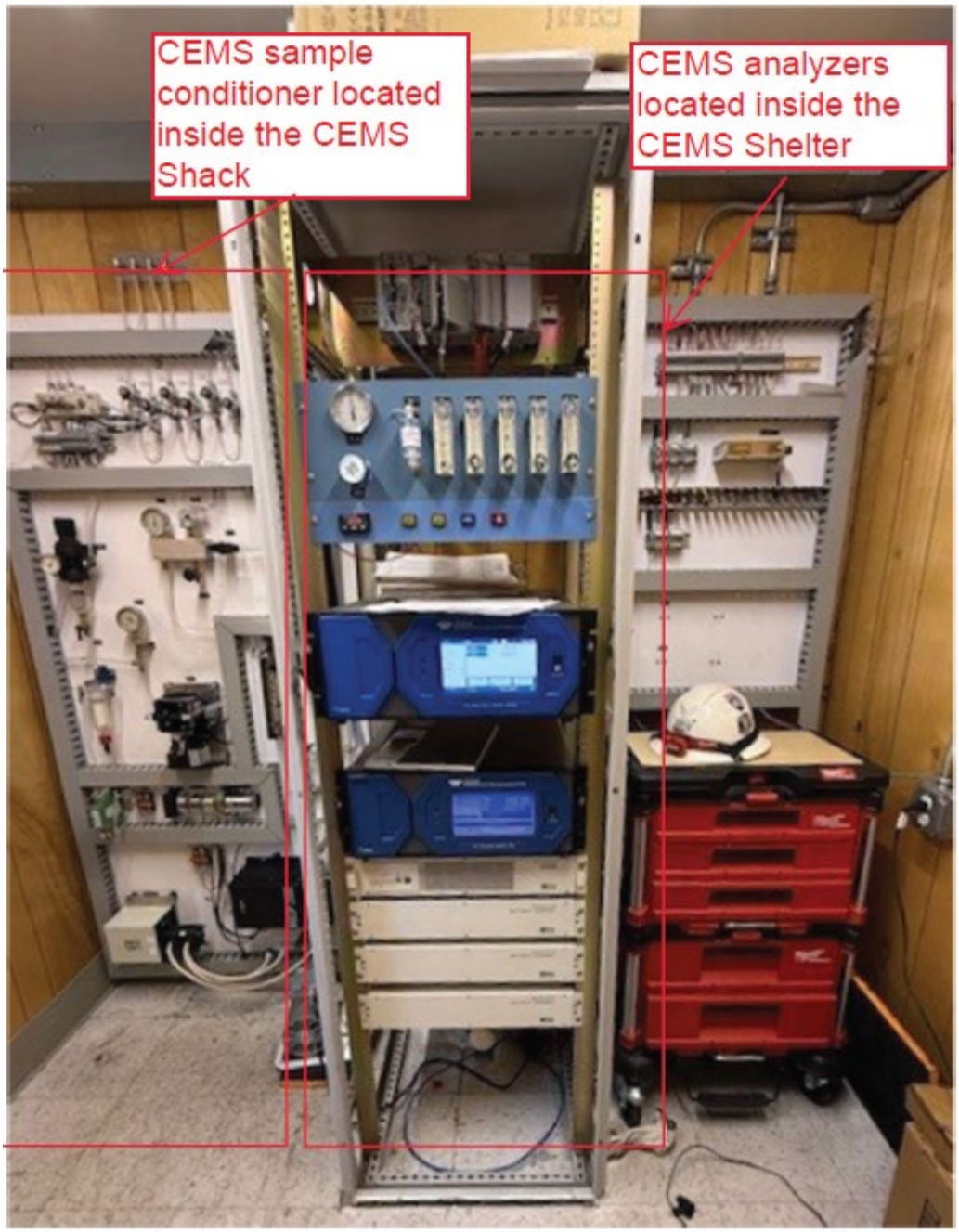
[165] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Questions 064 and 120.

Figure 2.6 CPEP Location of CEMS DAHS[166]



[166] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Questions 064 and 120.

Figure 2.7 CPEP CEMS - Location of Sample Conditioner and Analyzers[167]



[167] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Questions 064 and 120.

The CEMS computer, depicted in Figure 2.6, is not located in the control room.[168] As shown in Figures 2.4, 2.6, and 2.7, it is housed in the CEMS shack, where the system hardware and analyzers are installed.[169] However, emissions data from the CEMS is transmitted to and displayed on the plant control system computers, allowing operators in the control room to monitor emissions data in real time.[170] Additionally, operators can remotely access the CEMS computer via remote desktop protocol, enabling them to review data and view and respond to alarms without needing to be physically present at the CEMS shack.[171]

The CEMS computer contains the following software and information systems:[172]

(a) CiSCO CeDAR: The CeDAR software is a specialized data acquisition and reporting system used in CEMS. Its primary purpose is to manage and streamline the collection, display, storage, and reporting of emissions data.

(b) Windows 10: Serves as the operating system for the CEMS DAHS computer. Its primary function is to provide a stable, secure, and user-friendly platform for running the DAHS software and managing emissions data.

(c) Microsoft SQL Server: Used as the database backend for the CeDAR Software.

(d) Adobe Reader: Used for viewing PDF documents.

(e) Proficy Machine Edition: Used for editing, updating, troubleshooting, and viewing the Programmable Logic Controller (PLC) logic when needed.

(f) Breez75x: Used for creating XML reports for 40CFR75[173] reporting purposes.

[168] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Questions 065.

[169] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Questions 065.

[170] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Questions 065.

[171] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Questions 065.

[172] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Questions 069.

[173] Title 40, Code of Federal Regualations, Part 75 - Continuous Emission Monitoring.

SDG&E performs CEMS maintenance based on the following schedule:[174]

(a) Weekly Preventative Maintenance: The weekly preventative maintenance checks include a review of the calibration error (drift) test results, a check of the calibration gas cylinders, plus visual checks and verification of various general items.

(b) Monthly Preventative Maintenance: The monthly preventative maintenance checks include a functional inspection of the oxides of nitrogen (NO_X), carbon monoxide (CO), and oxygen (O_2) analyzers. The checks also include inspection of stack components.

(c) Quarterly Preventative Maintenance: The quarterly preventative maintenance checks include filter change out and component inspection of CEMS system equipment.

(d) Semi-Annual Preventative Maintenance: The semi-annual preventative maintenance checks include CO analyzer pump and Sample Conditioner pump rebuilds.

(e) Annual Preventative Maintenance: The annual preventative maintenance checks include NOx pump head rebuilds. It also includes cleaning and inspection of internal analyzer components with function testing.

As for information technology (IT) reliability of CEMS, SDG&E has implemented a hardware/software CEMS solution from SBS CiSCO.[175] The product incorporates the CEMS database and the software interface to the CEMS PLC.[176] The hardware undergoes a 72-hour burn-in test prior to delivery (usually run three to five days).[177] SBS CiSCO internally reviews the proprietary software code prior to publishing and implementing.[178] SDG&E does not have an internet connection for the system.[179] SDG&E has an anti-

[174] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Questions 091 and 114.

[175] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Questions 092 and 115.

[176] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Questions 092 and 115.

[177] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Questions 092 and 115.

[178] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Questions 092 and 115.

[179] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Questions 092 and 115.

virus software on the system that is updated monthly.[180] The DAHS also incorporates a Windows Defender firewall.[181]

The CEMS was installed as part of the original construction of the plant before its commercial operating date on May 20, 2002.[182]

The CEMS at the CPEP, Miramar Energy Facility, and the Palomar Energy Center are all SBS CiSCO CEMS.[183] There are no significant differences between the systems.[184]

ii.) Emissions: emitting byproducts resulting from the combustion of natural gas fuel.

Emissions Data

The CEMS and DAHS collect emissions data such as concentrations of NOx and CO, mass emission rates, and calibration records for regulatory reporting.[185] They also gather operational data including fuel flow, energy output, stack temperature, ammonia injection temperature, and operational hours.[186] Additionally, they record system status, alarms, and time-based aggregated data (hourly, daily, monthly, quarterly, and annual) for compliance, analysis, and reporting purposes.[187]

Primary emissions data is collected at the source, specifically from the stack via analyzers that are part of the CEMS.[188] The data is then transmitted through a PLC to

[180] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Questions 092 and 115.

[181] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Questions 092 and 115.

[182] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 015, 085 and 118.

[183] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Questions 093.

[184] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Questions 092.

[185] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 031 and 038.

[186] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 031 and 038.

[187] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 031 and 038.

[188] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 033.

the DAHS, where it is validated, stored, and prepared for reporting.[189] Backup data is collected within the DAHS system, which stores validated emissions and operational data.[190] In addition to internal storage, SDG&E also uses an external backup memory card where data is collected once a day.[191]

The CEMS, which is installed near the plant stacks, is the physical location where the emissions data is collected continuously (every second), as required by federal and state regulations.[192] Reports can be generated to observe the data in multiple time periods including, but not limited to, every minute, every hour, daily, monthly, quarterly, and annually.[193] The sensors and analyzers are positioned to measure continuously emissions from the exhaust stream.[194] The data from these sensors is transmitted to a DAHS, housed in the CEMS shack.[195] While there may be multiple sensors and analyzers involved, the data is consolidated and stored by the DAHS.[196]

The CEMS does not collect emissions data when the plant is shut down because no emissions are produced when there is no combustion or process activity.[197] However, the CEMS remains operational and continues to log system status information, such as when the plant is offline or the system is in standby or calibration mode.[198]

[189] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 033.

[190] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 034 and 037.

[191] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 034, 037 and 042.

[192] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 036, 082, 083 and 084.

[193] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question and 082.

[194] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 036.

[195] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 036.

[196] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 036.

[197] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 044.

[198] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 044.

The software SDG&E uses for the CEMS allows the user to select the unit of time to analyze.[199] Reports can be generated to observe the data in multiple time periods including, but not limited to, minutes, hours, and daily.[200]

There is no interlock system to shut down CPEP if the emission levels are above acceptable limits.[201] There is also no interlock system to shut down CPEP when the CEMS computer is not functioning, not collecting data, or not backing up the database.[202] At CPEP, interlocks and trips are reserved for events that could impact personnel or equipment safety.[203]

In lieu of interlock systems, alarms within the plant control system will alert the operator if emission levels are above acceptable limits.[204] When this alarm occurs, together with an audible alarm in the control room, an operator would need to check the DAHS to see what triggered the alarm.[205]

SDG&E submits emissions data and operations reports to the U.S. Environmental Protection Agency (EPA) and San Diego Air Pollution Control District (SDAPCD) on a quarterly basis.[206] In the event of breakdowns, testing and maintenance, the data collected by the DAHS is frequently requested by government agencies to ensure proper response and compliance.[207]

Emissions Data – SDG&E Operators' Actions When CPEP is Online

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[199] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 083.

[200] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 083.

[201] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 055.

[202] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 055, 056, 060 and 100.

[203] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 055, 056 and 060.

[204] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 057, 058 and 097.

[205] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 058, 097 and 098.

[206] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 124.

[207] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 124.

SDG&E operators in the control room monitor emissions data and can connect to the DAHS via a remote desktop session.[208] Through this connection, operators can view system status, data flow, and alarms to verify that emissions data is actively being recorded.[209] If the remote desktop connection fails, operators would have to physically visit the CEMS shack to assess any issues.[210] While SDG&E has no formal written policy requiring continuous monitoring, it is standard operational practice to check the system status regularly and respond promptly to any CEMS alarms or abnormal indications.[211]

SDG&E performs checks on the collection of emissions data when the plant is generating power.[212] During normal operations, the CEMS is fully active and continuously records emissions data in real time.[213] The system undergoes routine quality assurance checks, including daily calibration drift checks, periodic linearity checks, and quarterly audits in accordance with regulatory requirements.[214] These checks ensure that the data collected is accurate, reliable, and compliant with permit conditions.[215] Additionally, the DAHS monitors the integrity of the data and will generate alarms if any anomalies or failures occur, allowing for prompt corrective action.[216]

SDG&E performs daily checks of the CEMS as part of the operator rounds at CPEP that include performing data review in the DAHS.[217] In addition to these daily

[208] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 043.
[209] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 043.
[210] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 043.
[211] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 043.
[212] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 052.
[213] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 052.
[214] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 052.
[215] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 052.
[216] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 052.
[217] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 054, 063 and 185.

checks, SDG&E conducts preventative maintenance on a scheduled basis (weekly, monthly, quarterly, semiannually, and annually) in accordance with the CEMS Quality Assurance Plan.[218] SDG&E performs these checks when the CEMS system is in service regardless of the status of the plant, online or offline.[219]

Furthermore, the DAHS continuously monitors the integrity of emissions data and is programmed to generate alarms if any anomalies or system failures occur.[220]

Emissions Data – SDG&E Operators' Actions When CPEP is Offline

SDG&E performs checks on the emissions monitoring system even when the plant is shut down, although emissions data collection is not required during this time.[221] When the plant is not generating power and there is no combustion activity, no emissions are produced, and therefore no emissions data is collected.[222] Therefore, the operators do not monitor the emissions level.[223] The operators do continue to monitor the operational readiness of the CEMS and the DAHS to ensure these systems remain powered and active and are functioning properly and ready to resume accurate data collection when the unit returns to service.[224]

However, the CEMS remains operational and continues to log system status information when CPEP is offline, such as indicating that the plant is offline or that the system is in calibration mode.[225] Routine checks, including daily calibration and system diagnostics, are still performed in accordance with regulatory requirements.[226]

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[218] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 054, 063 and 185.

[219] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 063.

[220] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 052.

[221] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 053 and 059.

[222] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 053.

[223] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 059.

[224] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 059.

[225] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 053.

[226] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 053.

Additionally, the DAHS remains active and will generate alarms if any abnormal conditions or system failures occur, ensuring that the system is ready for accurate data collection when operations resume.[227]

SDG&E also performs the same daily checks and scheduled preventative activities as those when CPEP is online; those online checks and activities are described in the above section on the operators' online actions.[228]

Emissions Pollutants

SDG&E monitors the following emissions: ammonia, CO, NO_X, SO_X (oxides of sulfur), and VOC (volatile organic compounds).[229]

Emissions Pollutants – Measures established by SDG&E to reduce, eradicate, and mitigate emissions pollutants

To reduce NOx emissions, CPEP utilizes a Selective Catalytic Reduction (SCR) system.[230] In this system, ammonium hydroxide is vaporized and injected into the exhaust stream of the gas turbine upstream of a catalyst.[231] The catalyst provides a surface for a chemical reaction that converts NOx into nitrogen water vapor.[232] The ammonia flow rate is controlled to ensure NOx reduction while minimizing excess ammonia slip.[233]

To reduce carbon monoxide CO emissions, CPEP utilizes a CO catalyst system.[234] The exhaust gases from the gas turbine pass through the catalyst, which facilitates the oxidation of carbon monoxide into carbon dioxide.[235]

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[227] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 053.

[228] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 063.

[229] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 086.

[230] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 088 and 089.

[231] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 089.

[232] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 089.

[233] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 089.

[234] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 088 and 089.

[235] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 089.

There is no specific equipment used to control VOC and SOx.[236]

SDG&E typically operates within the permit limit for these two emission types.[237]

Emissions Pollutants – Sources of each pollutant type [238]

a. NO_X formation occurs by three fundamentally different mechanisms. The principal mechanism producing thermal NO_X is from turbines firing gas or distillate fuel; the NO_X arises from the thermal dissociation and subsequent reaction of N_2 and O_2 molecules in the combustion air. Most thermal NO_X is formed in high temperature stoichiometric flame pockets downstream of the fuel injectors where combustion air has mixed sufficiently with the fuel to produce the peak temperature fuel/air interface.

   The second mechanism, called prompt NO_X, occurs as a result of early reactions of nitrogen molecules in the combustion air and hydrocarbon radicals from the fuel. Prompt NO_X forms within the flame and is usually negligible when compared to the amount of thermal NO_X formed. The third mechanism, fuel NO_X, stems from the evolution and reaction of fuel-bound nitrogen compounds with oxygen. Natural gas has negligible chemically-bound fuel nitrogen (although some molecular nitrogen is present). Essentially all NO_X formed from natural gas combustion is thermal NO_X. Distillate oils have low levels of fuel-bound nitrogen. Fuel NO_X from distillate oil-fired turbines may become significant in turbines equipped with a high degree of thermal NO_X controls. Otherwise, thermal NO_X is the predominant NO_X formation mechanism in distillate oil-fired turbines.

b. CO and VOC emissions both result from incomplete combustion. CO results when there is insufficient residence time at high temperature for completion combustion or incomplete mixing to complete the final step in fuel carbon oxidation. The oxidation of CO to CO_2 at gas turbine temperatures is a slow reaction compared to most hydrocarbon oxidation reactions. In gas turbines, failure to achieve CO burnout may result from quenching by dilution air. With liquid fuels, this can be aggravated by carryover of larger droplets from the atomizer at the fuel injector. CO emissions are also dependent on the loading of the gas turbine. For example, a gas turbine operating under full load will experience greater fuel efficiencies which will reduce the formation of carbon monoxide. The opposite is also true— a gas turbine operating

[236] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 088.

[237] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 090.

[238] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 087.

under a light to medium load will experience reduced fuel efficiencies (incomplete combustion) which will increase the formation of CO.

c. The pollutants commonly classified as VOC can encompass a wide spectrum of volatile organic compounds, some of which are hazardous air pollutants. These compounds are discharged into the atmosphere when some of the fuel remains unburned or is only partially burned during the combustion process. With natural gas, some organics are carried over as unreacted, trace constituents of the gas, while others may be pyrolysis products of the heavier hydrocarbon constituents. With liquid fuels, large droplet carryover to the quench zone accounts for much of the unreacted and partially pyrolyzed volatile organic emissions.

d. SO_X will only appear in a significant quantity if heavy oils are fired 4/00 Stationary Internal Combustion Sources 3.1-3[239] in the turbine. Emissions of sulfur compounds, mainly SO_2 (sulfur dioxide), are directly related to the sulfur content of the fuel.

e. Ammonia slip refers to the emissions of unreacted ammonia that results from the incomplete reaction of the NOx and the reagent.

iii.) Distributed Control System (DCS):[240] computerized control system that manages the generation facility shutdown by using both automated logic and operator commands. Throughout the shutdown process, sensors and transmitters continuously monitor system parameters to ensure conditions remain within compliant limits. Operators oversee and guide the shutdown via the Human-Machine Interface (HMI), while the DCS executes the shutdown in the correct order.

iv.) North America Electric Reliability Corporation (NERC): a not-for-profit international regulatory authority whose mission is to assure the effective and efficient reduction of risks to the grid's reliability and security.[241] NERC develops and enforces Reliability Standards; annually assesses seasonal and long-term reliability; monitors the bulk power system through system awareness; and educates, trains, and certifies industry personnel.[242]

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[239] Page 3 of Section 3.1 of the U.S. Environmental Protection Agency's (EPA) *AP-42: Compilation of Air Pollutant Emission Factors.*

[240] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Questions 174.

[241] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 149.

[242] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 149.

NERC's area of responsibility spans the continental United States, Canada, and the northern portion of Baja California, Mexico.[243] NERC is the Electric Reliability Organization for North America, subject to oversight by the Federal Energy Regulatory Commission (FERC) and governmental authorities in Canada.[244] NERC's jurisdiction includes users, owners, and operators of the bulk power system, which serves nearly 400 million people.[245]

As of January 1, 2013, NERC mandated the Generating Availability Data System (GADS) program for conventional generating units 20 MW and larger.[246] SDG&E reports the NERC Event Type and GADS Cause Codes only to NERC.[247] SDG&E utilizes an intermediary company, Strategic Power System (SPS), for reporting the data to NERC.[248] SDG&E provides the data to SPS; SPS validates the data, converts the data into the NERC GADS format, and submits the data to NERC GADS.[249]

NERC Event Types are defined as follows:[250]

1. Outage: an event in which an active unit is not synchronized to the grid system and not in a reserve shutdown state.
2. Derating: a situation in which a unit is limited to a power level that is less than the unit's net maximum capacity.
3. Reserve Shutdown: an event where a unit is available for load but is not synchronized due to lack of demand.
4. Non-curtailing Event: an event that occurs whenever equipment or a major component is removed from service for maintenance, testing, or other purposes that do not result in a unit outage or derating.

v.) Generating Availability Data Systems (GADS):[251] a reporting system maintained by NERC for the generating industry. The GADS is a webpage on the NERC website.

[243] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 149.

[244] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 149.

[245] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 149.

[246] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 152.

[247] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 149.

[248] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 149.

[249] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 149.

[250] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 150.

[251] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 149.

The electric utility industry initiated GADS in 1982 to expand data collection activities that it began in 1963. Today, NERC's GADS maintains operating histories on more than 5,000 generating units in North America.

GADS is recognized as a valuable source of reliability information for total unit and major equipment groups, and is widely used by industry analysts in a variety of applications. Through GADS, NERC collects information about the performance of electric generating equipment and aids those researching information on power plant outages. GADS also supports equipment availability analyses and other decision-making processes in the industry. GADS data is also used in conducting assessments of generation resources and improving their performance.

GADS is a mandatory industry program for conventional generating units that are 20 MW and larger. GADS is open to any organization that operates electric generating facilities and is willing to follow the GADS reporting requirements specified in the GADS Data Reporting Instructions (DRI).

vi.) San Diego County Air Pollution Control District (SDAPCD): a government agency established in 1955 that strives to reduce air pollution within San Diego County.[252] The SDAPCD was established under the authority of the California Air Pollution Control Act of 1947. This act authorized the creation of air pollution control districts in every county of the state.

The Permit to Operate issued by the SDAPCD requires an operating log or for DAHS records to be maintained either on site or at a District-approved alternate location to record actual times and durations of all startups and shut-downs, quantity of fuel used (scf), and MWh of energy generated (monthly and annually by calendar year), hours of daily operation, and total cumulative hours of operation (monthly and annually by calendar year)[253]

The SDAPCD and the EPA are the only two entities to which SDG&E must report its emissions.[254] Those regulatory agencies require SDG&E to submit its quarterly, semi-annual, and annual reports.[255] Regular

[252] San Diego County Air Pollution Control District. Available at https://www.sdapcd.org/content/sdapcd/about.html [accessed December 16, 2025].

[253] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 037.

[254] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 136 and 137.

[255] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 138.

reports contain data on CEMS downtime during operational periods and any excess emissions during the reporting period.[256]

D. CPEP October 10, 2024 Outage (Outage #11)

CPEP was in operation from October 9, 2024 at 16:45 and was shut down on October 10, 2024 at 00:07.[257] During that period of operation, it generated 310.5 MWh of energy.[258] The CEMS computer was working and collecting emissions data.[259] The levels of the various emission types were in compliance with regulatory requirements.[260]

Before the shutdown, the CEMS computer did not experience any problems.[261] The DCS is configured to detect issues with the CEMS itself.[262] If a problem arises, such as a fault in the CEMS computer or a system malfunction, the DCS will trigger a dedicated alarm.[263]

CPEP was ordered to shut down following the instructions from the CAISO.[264] SDG&E did not know why the CAISO issued the shutdown instruction for CPEP.[265] SDG&E initiated the CPEP shutdown on October 9, 2024 at 23:58 and completed it on October 10, 2024 at 00:07.[266]

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[256] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 140.

[257] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 046 and 049.

[258] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 046.

[259] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 094 and 132da.

[260] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 107 and 108.

[261] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 101.

[262] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 101.

[263] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 101.

[264] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 048 and 051.

[265] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 048.

[266] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 047 and 049.

Right after initiating shutdown, when CPEP was not generating power, the CEMS computer was still collecting emissions data.[267]

At 13:04 on October 10, 2024, the operators received a CEMS trouble alarm.[268] The operators received only one alarm in the control room to indicate that there was a trouble condition with the CEMS system.[269] SDG&E discovered the failure of the CEMS computer and the resulting loss of emissions data during a routine remote connection to the CEMS computer utilizing a remote desktop session.[270] During this process, the computer (specifically the server) faulted.[271] The plant was not operating when SDG&E discovered that the CEMS computer was not collecting data or backing up to the database.[272]

Attempts to run an automatic diagnostic repair tool were unsuccessful.[273] Upon investigation, SDG&E found the CEMS DAHS computer had failed.[274] Without a functioning hard drive, the computer was unable to store the data collected by the sensors.[275] Since the hard drive is essential for saving and processing emissions data, its failure directly impacted the system's ability to log information.[276]

The system responsible for recording emissions information was not receiving or storing any data during that time because the DAHS failed and was unable to

[267] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 095.

[268] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 022, 023, 099, 170 and 172.

[269] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 172.

[270] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 024, 028, 029 and 099.

[271] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 024, 028 and 099.

[272] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 063.

[273] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 024 and 099.

[274] Counts Testimony, Appendix A at KMC-A-4, and Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 049.

[275] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 025.

[276] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 025.

communicate with the CEMS PLC.[277] As a result, even though the PLC may have continued to collect live emissions data from the analyzers, that data could not be transferred to the DAHS for validation, storage, or reporting.[278]

Once SDG&E determined that the unit could no longer meet permit conditions due to the DAHS failure, SDG&E decided to consign the plant into a forced outage.[279] SDG&E placed CPEP in a forced outage at 15:08 because the emissions data was not being collected due to the DAHS failure.[280]

The operators had to manually initiate a shutdown command from the plant control system.[281] This was done to follow the CAISO's instruction to shut down.[282] Subsequently, the SDG&E Control Room Operator submitted the forced outage status of CPEP to the CAISO.[283]

When the computer failed, it became completely unresponsive.[284] This unresponsiveness was the indicator to SDG&E that the CEMS DAHS computer required repair.[285]

By running diagnostics on the computer, SDG&E determined that the CEMS computer was the source of the problem that caused the emissions data not to be collected.[286] Subsequently, SDG&E replaced the CEMS computer; the failed hard drive was not replaced separately because it is an integral part of the computer.[287]

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[277] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 035.

[278] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 035.

[279] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 049, 050, 051 and 169.

[280] Counts Testimony, Appendix A at KMC-A-4, and Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Questions 028, 037, 045, 049 and 050.

[281] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 173.

[282] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 173.

[283] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 037.

[284] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 106.

[285] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 106.

[286] Counts Testimony, Appendix A at KMC-A-4, and Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Questions 028, 037, 045, 049, 050, 068 and 134.

[287] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Questions 066, 067

SDG&E performed the following actions when replacing the CEMS DAHS computer:[288]

(a) Operating System Setup: Install and configure Windows 10 to ensure the system is stable, secure, and compatible with DAHS software.

(b) Software Installation: Reinstall all necessary applications.

(c) Database Restoration: Restore the emissions and calibration data from backups to maintain historical continuity and compliance.

(d) Configuration Restoration: Reapply site-specific settings to match the previous system setup.

(e) Peripheral Setup: Reconnect and test external devices such as printers, calibration systems, and displays to ensure full operational capability.

(f) Communication and Integration: Re-establish network links to analyzers, the DCS, and remote access systems for data flow and monitoring.

(g) Testing and Validation: Perform system checks to confirm accurate data acquisition, alarm functionality, and report generation.

After SDG&E replaced the computer, the plant was released for operation.[289] SDG&E keeps spare CEMS computers in inventory to minimize outage time if a similar event were to occur.[290]

SDG&E recovered the CEMS DAHS database by first installing the DAHS software on the new drive.[291] Using a valid backup of the DAHS data stored on an external thumb drive, SDG&E employed the restoration utility to import the backup into the new system.[292] SDG&E was able to recover all the data pertaining to the levels of the

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and 103.

[288] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 070.

[289] Counts Testimony, Appendix A at KMC-A-4

[290] Counts Testimony, Appendix A at KMC-A-2, and Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Questions 077 and 113.

[291] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 109.

[292] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 109.

various emission types.[293] No data was lost; SDG&E was able to recover all data from the CPEP CEMS.[294]

During the October 10, 2024 incident, CPEP was not permitted to generate power from any of the functioning equipment because it could not operate within SDAPCD permit conditions on emissions monitoring and compliance due to the failure of the DAHS.[295] As a result, generation was not possible until the system was restored.[296]

SDG&E was not cited for its failure to collect the emissions data.[297] SDG&E was able to recover all data for the CPEP CEMS because the emissions data was recovered from information saved in the EPA database.[298] However, during the 2024 Record Period, SDG&E received one Notice of Violation from the SDAPCD on January 19, 2024, and the violation related to CPEP emissions.[299] CPEP emissions exceeded the acceptable levels for a period of two hours on that day. SDG&E did not elaborate on that incident in its data request responses.[300] The January 19, 2024 violation did not happen in any of the forced outages listed in SDG&E's Direct Testimony.[301]

E. Relationship between the October 10, 2024 outage (Outage #11) and the May 21, 2024 (Outage #5)

A similar CPEP outage occurred on May 21, 2024 (Outage #5).[302] In that outage, while the plant was shut down on May 21, 2024, a routine inspection of the CEMS noted

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[293] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 110.

[294] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Questions 111 and 112.

[295] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 189.

[296] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 189.

[297] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 039.

[298] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Questions 040 and 041.

[299] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Questions 062 and 145.

[300] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Questions 062 and 145.

[301] Counts Testimony, Appendix A at KMC-A-1 - KMC-A-4.

[302] Counts Testimony, Appendix A at KMC-A-2, and Appendix B, Attachment 2.1, SDG&E response to

that the database was not backing up, so SDG&E placed the plant in a forced outage.[303] The hard drive of the computer was changed out and the plant was cleared for operation.[304]

Outage #5 on May 21, 2024, and Outage #11 on October 10, 2024, are related in that both were caused by hard drive failures on the same system.[305] Outage #5 was addressed by replacing the failed hard drive, which temporarily resolved the issue.[306] During Outage #11, SDG&E experienced a similar failure, and it decided to replace the whole computer rather than just replacing the hard drive.[307]

In the outage on October 10, 2024 (Outage #11), the CEMS computer failed because it was not collecting emissions data.[308] The problem was similar to Outage #5; each outage was due to a failed CEMS DAHS computer.[309]

SDG&E explained that in the fault that occurred during Outage #5, the DAHS failure was due to a corrupted server database, which was further diagnosed as a hard drive failure.[310] SDG&E unsuccessfully attempted to recover the hard drive, and subsequently it replaced the hard drive.[311] The database was restored and the server was

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Cal Advocates Data Request 14, Question 113.

[303] Counts Testimony, Appendix A at KMC-A-2.

[304] Counts Testimony, Appendix A at KMC-A-2.

[305] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Questions 125 and 127.

[306] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Questions 125, 127, 130 and 131.

[307] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Questions 125, 128, 130 and 131.

[308] Counts Testimony, Appendix A at KMC-A-4, and Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Questions 028, 037, 045, 049, 050, 068 and 134.

[309] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 134.

[310] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 027.

[311] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 027.

placed back in operation.[312] However, the fault that occurred during Outage #11 was a server failure resulting in a complete failure of the DAHS.[313]

Outage #5 and Outage #11 were both caused by failures of the CEMS DAHS computer's hard drive.[314] Cal Advocates notes that the hard drive failed after approximately 145 days in service (from May 14, 2024 to October10, 2024).[315] When asked about the short service life of 145 days, SDG&E states, "The expectation of installing a new hard disk drive is that it will function reliably for the foreseeable future. However, as with any mechanical component, there is no absolute guarantee of longevity."[316]

SDG&E installed the CEMS DAHS computer in October of 2020; it was approximately 4 years old at the time of replacement.[317] That replacement in October 2020 was performed in order to upgrade to the Windows 10 operating system.[318] During Outage #11, SDG&E again replaced the CEMS DAHS computer.[319]

SDG&E did not determine the specific cause of the hard drive failure in either instance.[320] Nor did SDG&E contact the computer vendor to investigate the cause of the equipment's short lifespan.[321]

SDG&E did not include the two outage incidents in the regular reports to SDAPCD and EPA because they occurred while the plant was not operating.[322] Regular

[312] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 027.

[313] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 027.

[314] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 126 and 130.

[315] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 074.

[316] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 074.

[317] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 102.

[318] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 102.

[319] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 103.

[320] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 126.

[321] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 131.

[322] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 140.

reports contain data on CEMS downtime during operational periods and any excess emissions during the reporting period.[323] Since neither outage resulted in excess emissions or CEMS downtime under operating conditions, they are not included in the regular reports.[324]

SDG&E did not report the two outage incidents (Outage #5 and #11) to the regulatory authorities.[325] It was not cited for either incident.[326]

F. Regulatory and Procedural Compliance – NERC Classification and GADS Cause Code

According to SDG&E, the forced outage events on October 10, 2024 and May 21, 2024 were classified as a NERC Event Type U1.[327] A U1 outage requires immediate removal of a unit from service, another outage state, or a reserve shutdown state.[328] This type of outage usually results from automatic control system trips, operator-initiated manual shutdown, or "trip" of the unit in response to unit alarms, but can also occur while the unit is offline.[329] For both outages, CPEP was in a reserve shutdown state when it was placed into a forced outage.[330] SDG&E selected Type U1 because both failures required that the plant be removed from service immediately.[331]

SDG&E appropriately used the GADS Cause Code 8780 for the two outages.[332] GADS reporting instructions direct the use of the four-digit code from Appendix B of NERC that best identifies the system, major component, or piece of equipment that are

[323] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 140.

[324] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 143.

[325] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 143.

[326] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Questions 039 and 144.

[327] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 146.

[328] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 146.

[329] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 146.

[330] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 146.

[331] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 146.

[332] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 147.

being described.[333] The problem was identified within the CEMS DAHS.[334] In accordance with GADS instructions, SDG&E selected the four-digit code from NERC's Data Reporting Instructions, Appendix B that best identifies the piece of equipment.[335] The selected Cause Code 8780 is described as "Data acquisition system problems" related to CEMS in a pollution control equipment of a gas turbine.[336]

Currently, the only entity to which SDG&E reports the NERC Event Types and GADS Cause Codes is NERC.[337] SDG&E utilizes an intermediary company, Strategic Power System (SPS), for reporting the data to NERC.[338] SDG&E provides the data to SPS; SPS validates the data, converts the data into the NERC GADS format, and submits the data to NERC.[339] There is no requirement that SDG&E must identify and report the NERC classification and GADS Cause Code for the outage to other persons/ organizations.[340]

When asked by Cal Advocates whether it had prepared other types of reports either because of procedural/jurisdictional/regulatory requirements or because of follow-up data requests/inquiries from various entities, SDG&E responded that it had not provided any follow-up reports/information to the persons/organizations that receive the NERC and the GADS information.[341] Similarly, SDG&E had not provided follow-up

[333] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 148: Reference: Generating Availability Data System Data Reporting Instructions, page B09 -38. https://www.nerc.com/pa/RAPA/gads/DataReportingInstructions/Appendix_B09_Gas_Turbine_Jet_Engine_Unit_Cause_Codes_2024_DRI.pdf

[334] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 148.

[335] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 148.

[336] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 147.

[337] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 151.

[338] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 151.

[339] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 151.

[340] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 153.

[341] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 154.

reports/information to other entities that did not receive SDG&E reports of the NERC Event Types and GADS Cause Codes.[342]

SDG&E was not cited for its failure to collect the emissions data.[343] SDG&E was able to recover all data for the CPEP CEMS because the emissions data was recovered from information saved in the EPA database.[344] Data is collected on the backup memory card once a day.[345]

G. Unit Restoration

SDG&E explained that the amount of time (5.963 days) to repair the damages related to the October 10, 2024 outage was due to several factors.[346] At the time of the failure, SDG&E did not have spare CEMS DAHS computers in stock, although replacements were on order.[347] The system service provider did have a unit available, but additional time was required to load and test the necessary software before shipping the unit to SDG&E's location.[348] These steps contributed to the extended repair duration.[349]

[342] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 155.

[343] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 039.

[344] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Questions 040 and 041.

[345] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Questions 034 and 042.

[346] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 215.

[347] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 166.

[348] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 166.

[349] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 166.

The activities that ensued in the unit restoration are described in Table 2.2.

Table 2.2 Shutdown Activity Time[350]

Date	Time	Event
10/10/2024	1304	CPEP CEMS DAHS Trouble Alarm received. SDGE dispatched for investigation. DAHS could not be recovered at site and was relocated to Palomar.
10/10/2024	1508	CPEP is unavailable for operation. Forced outage started.
10/10/2024	1610	CEMS DAHS System service provider (SBS CISCO) informed of CEMS DAHS failure. Requested expedited setup and shipment of replacement computer.
10/10/2024	Approximately 1800	Our site technology specialist completed evaluation of the initial symptoms displayed by the DAHS and computer system diagnostics. Identified the issue as a hard drive failure that could not be recovered.
10/11/2024	0934	CEMS DAHS System service provider (SBS CISCO) informed SDGE of schedule for shipment of replacement computer.
10/16 /2024	1037	CEMS DAHS computer installed and was placed in service and CPEP restored to service. CEMS system calibration completed satisfactorily.
10/16 /2024	1415	OMS notification updated; CPEP restored to service.

While Table 2.2 shows the date and time for each activity, SDG&E did not provide the amount of time (hours) spent for each of the above activities, which included work with the contractors.[351]

SDG&E and its contractors spent approximately five hours performing testing and inspections at the conclusion of the repair to ensure the work was completed correctly.[352] The scope of work included installing a new computer at the site, collaborating with the CEMS DAHS computer service provider to restore data and system settings from daily backups, and conducting an offline calibration of the CEMS to confirm accurate data collection on the DAHS computer.[353]

[350] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Questions 166 and 215.

[351] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 166.

[352] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 167.

[353] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Questions 167 and 220.

The offline calibration activities included work on Analyzer Testing, CEMS Calibration Gases, CEMS Sample Conditioner, CEMS Analyzers, and CEMS DAHS.[354] The calibration results were compared against established reference values using certified calibration gases.[355] The DAHS computer was validated by confirming real-time data collection and communication with all CEMS analyzers.[356] Successful completion of this calibration demonstrated proper operation of the DAHS, allowing the unit to return to service.[357] These tests were similarly performed during Outage #5.[358]

SDG&E explained that the outage time of 5.963 days for Outage #11 was longer than the 2.90 days for Outage #5 due to the scope and nature of the repair.[359] In Outage #5, SDG&E resolved the issue by replacing the hard drive and restoring the CEMS DAHS computer, allowing for a quicker turnaround of 2.90 days.[360] However, Outage #11 required a more extensive response due to recurring issues with the CEMS DAHS computer noted approximately five months earlier.[361] As a result, SDG&E decided to replace the entire unit rather than perform another repair.[362] Although the service provider had a replacement unit available, additional time was required to load and test the necessary software and ship the unit to the site.[363] These steps contributed to the extended outage duration of 5.963 days.[364] Given the circumstances, the outage

[354] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 176.
[355] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 177.
[356] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 177.
[357] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 177.
[358] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 177.
[359] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 178.
[360] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 168.
[361] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 168.
[362] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 168.
[363] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 168.
[364] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 168.

duration for Outage #11 was appropriate and could not have been reasonably shortened.[365]

Given the information available, Cal Advocates finds the outage time to be reasonable.

H. Corrective and Post-Mortem Actions

SDG&E approved and replaced the CEMS DAHS computer as part of its corrective action.[366] The DAHS is an integral part within the CEMS system. Within the CEMS system, the DAHS was the only part that required repair during the October 10, 2024 outage.[367] When the computer failed, it became completely unresponsive, indicating to SDG&E that the CEMS DAHS computer required repair or replacement.[368]

During the October 10, 2024 outage, SDG&E replaced the CEMS DAHS computer in its entirety.[369] The computer was a new unit equipped with solid-state drives instead of traditional hard disk drives.[370] This upgrade eliminates mechanical wear and significantly reduces vulnerability to shock, vibration, and physical damage, thereby enhancing overall system reliability.[371] In addition, SDG&E has purchased spare CEMS DAHS computers to keep in inventory, allowing for expedited replacement in the event of a similar failure in the future.[372]

[365] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 168.

[366] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Questions 103, 208, 209 and 212.

[367] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Questions 104 and 105.

[368] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 106.

[369] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 210.

[370] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 135.

[371] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 103.

[372] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 103.

The parts installed during the repair were consistent with the original design specifications.[373] The replacement DAHS computer has the same processor, memory, hard drive size, network interface count, and speed as the original unit.[374] The only difference is the operating system, which is Windows 11 instead of Windows 10. This change does not affect the functionality or operation of the CEMS system.[375]

SBS CiSCO, the Original Equipment Manufacturer of the CEMS system, was the vendor/contractor who performed the repair work.[376] SBS CiSCO has previously provided service and equipment to support the CEMS system at the Palomar Energy Center, Miramar Energy Facility and the CPEP.[377] According to SDG&E, this vendor has delivered high-quality performance.[378] As the OEM and primary supplier of parts, they have been essential in helping SDG&E maintain excellent reliability and material condition of its emissions monitoring system.[379]

SDG&E has two CEMS computers in inventory to minimize outage time if a similar event were to occur.[380] SDG&E ordered three spare computers and used one during the October 10, 2024 outage, leaving two in inventory.[381] For each spare CEMS computer, SDG&E purchased the computer and accessories and also the SQL Server License, which is the required software license for the DAHS computer to function as required.[382]

The DAHS Computer accessories include:[383]

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[373] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 213.
[374] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 213.
[375] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 213.
[376] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 211.
[377] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 211.
[378] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 211.
[379] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 211.
[380] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 077.
[381] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 077.
[382] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 078.
[383] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 078.

(a) Dell Precision 3460 Small Form Factor Intel i7-12700, 8 Core Turbo Processor 32 GB RAM - included with the computer.

(b) One TB Solid State PCie NVMe[384] Hard Drive - included with the computer.

(c) Two GigE (Gigabit Ethernet) Network Interface Ports - included with the computer.

(d) Integrated Sound Card - included with the computer.

(e) USB Speakers - included with the computer.

(f) Windows 11 Professional 64-bit - included with the computer.

(g) Three-year Next Business Day Pro Support from Dell - included with the computer.

For Outage #5, SDG&E performed the inspections.[385] For the repair work, SDG&E was assisted by the CEMS DAHS Manufacturer, Dell, and by the CEMS DAHS service provider, SBS CiSCO, Inc.[386] The CEMS hard drive was replaced while the CEMS DAHS computer was not.[387] CEMS DAHS Computer Manufacturer (Dell) provided remote diagnostic services and determined that the hard drive required replacement.[388] Dell tech was dispatched to install new hard drive and SDG&E worked with SBS CiSCO to load software and configure for operation.[389]

For the October 10, 2024 outage, SDG&E performed the inspections and hired SBS CiSCO to assist in the repair.[390] The work included the installation and assembly of a new CEMS computer.[391] SDG&E installed the new computer and worked with

[384] PCie stands for Peripheral Component Interconnect Express; NVMe stands for Non-Volatile Memory Express.

[385] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 156.

[386] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 157.

[387] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Questions 158 and 159.

[388] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 158.

[389] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Questions 158 and 160.

[390] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Questions 161 and 162.

[391] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 163.

SBS CiSCO to restore the data and settings from backups.[392] SDG&E installed the new computer for operation.[393]

There are no postmortem inspection reports or root cause analysis (RCA) reports prepared by SDG&E or any other party for the October 10, 2024 incident.[394] The reason is that the tests performed after the repair were operational checks only, intended to confirm proper functionality of the CEMS DAHS computer and associated systems.[395] These tests included restoring system settings, verifying data collection, and performing offline calibration of the CEMS system.[396] Since these were routine functional verifications and not formal inspections, no separate inspection or postmortem documents were developed.[397] In addition, the failure was straightforward and conclusively identified during troubleshooting.[398] In SDG&E's opinion, for IT hardware, the corrective action is typically replacement rather than an in-depth investigation; the cost and time of an RCA report outweigh the benefit.[399] Cal Advocates contends that, if implementing the RCA report's corrective actions can obviate an outage recurrence or repeated recurrences, then the monetary benefit of avoiding replacement power cost can outweigh the cost of an RCA report.

SDG&E performs daily checks on the CEMS as part of the operator rounds at CPEP that include performing data review in the DAHS.[400] During those checks,

[392] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 164.

[393] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 165.

[394] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Questions 180, 181 and 214.

[395] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Questions 180 and 214.

[396] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Questions 180 and 220.

[397] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Questions 180, 214 and 220

[398] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 181.

[399] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 181.

[400] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Questions 054, 063 and 185.

however, the failure that SDG&E experienced may not show signs of fault prior to failure. In addition to these daily checks, SDG&E conducts preventative maintenance on a scheduled basis (weekly, monthly, quarterly, semiannually, and annually) in accordance with the CEMS Quality Assurance Plan.[401] .[402] Instead of changing maintenance practices, SDG&E decided to purchase spare computers to reduce outage time if a similar failure was experienced in another area or unit.[403]

Other post-mortem actions included SDG&E proactively purchasing spare DAHS computers to minimize outage time in the event of similar failures in other areas or units.[404] These spare computers are equipped with solid-state drives instead of traditional hard disk drives, eliminating mechanical wear and reducing vulnerability to shock, vibration, and physical damage, thereby improving overall reliability.[405]

SDG&E did not explain why it did not consider the early failure of the server as warranting an incident report. It failed after 145 days (approximately five months) while the Commission-approved depreciation life is five years.[406] SDG&E could not determine any specific cause of the CEMS computer or hard drive failure during troubleshooting and repair activities.[407] Neither SDG&E nor any other party/ organization performed any analyses to determine why the outage occurred.[408] Regarding the server failure, SDG&E's stated, "…as with any mechanical component, there is no absolute guarantee of longevity."[409] The fact that SDG&E, in its data

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[401] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Questions 054, 063 and 185.

[402] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 185.

[403] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 185.

[404] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 221.

[405] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 221.

[406] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 076.

[407] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 184.

[408] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 182.

[409] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 074.

request response[410], admitted that it did not determine the cause of the failures could be interpreted that SDG&E accepted the server failure as fait accompli, an accomplished event without any remedy. While there may be no guarantee of technical longevity, there is always a reason that a piece of hardware fails and it is the utility's responsibility to determine that reason in order to take measures that it does not recur.

As for all other corrective actions, SDG&E will continue to perform scheduled maintenance per the CEMS Quality Assurance Plan.[411] SDG&E has also purchased spare computers for inventory that can be utilized as replacements if there were to be a failure in the future.[412]

Following the outage, SDG&E did not inspect for similar-related issues pertaining to CEMS and DAHS in other areas and other units.[413]

I. Depreciation Life and Life Expectancy

CPEP's depreciation life was approved in D.24-12-074[414] in SDG&E's 2024 GRC, A.22-05-016.[415]

Computer equipment has a depreciation life of five years, 20% per year; a five-year life is the company standard for equipment of this nature.[416] In its data request response, SDG&E did not provide, as requested by Cal Advocates, the life expectancy for its computer equipment.[417]

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[410] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 074.

[411] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 219.

[412] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 219.

[413] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 218.

[414] D.24-12-074, *Decision Addressing the 2024 Test Year General Rate Cases of Southern California Gas Company and San Diego Gas & Electric Company*, December 23, 2024.

[415] Appendix B, Attachment 2.1, Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 201.

[416] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Questions 075 and 201.

[417] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 076.

J. Cost of Outage

The cost of the outage consists of two components: the cost of energy that SDG&E had to purchase to replace the unavailable generation from CPEP and the cost of the repair work at CPEP.

According to SDG&E, the replacement power cost was $30,884 for the October 10, 2024 CPEP forced outage.[418] SDG&E did not receive revenue from the Day Ahead awards as the unit was not dispatched during the outage.[419] The replacement power costs are due to Resource Adequacy Availability Incentive Mechanism (RAAIM) penalties SDG&E incurred during October for not meeting the availability threshold for Resource Adequacy resources.[420]

The cost of the replacement DAHS was $3,550, and the SQL Server License was $1,550.[421] Therefore, SDG&E's direct cost in repairing and replacing the damaged parts was $5,100.[422]

SDG&E has not requested, and does not intend to request, reimbursement from the vendor for either the cost of replacement power nor the cost of the repair.[423] This manufacturer has no history of manufacturing and/or service mistakes that have led to forced outages at SDG&E facilities.[424]

SDG&E does not have sufficient justification to seek replacement power costs or other repair costs from any manufacturer/vendor.[425] SDG&E did not have a contract with

[418] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 190.
[419] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 190.
[420] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 190.
[421] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 201.
[422] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 206.
[423] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 205.
[424] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 207.
[425] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 205.

the vendor for replacement power cost.[426] SDG&E has no basis to seek replacement power costs or equipment repair costs for this event.[427]

SDG&E did not have a contract or warranty covering other repair costs for this outage.[428] SDG&E did not state whether this warranty exclusion includes the server that failed only after 145 days in service.

SDG&E failed to provide information about the warranty period and Contractual Services Agreement (CSA) for the server that was installed on May 21, 2024 and that subsequently failed on October 10, 2024 after 145 days in service. It was the premature server failure that caused the October 10, 2024 outage and SDG&E's decision to replace the entire computer on October 16, 2024. SDG&E's data request responses on the warranty and CSA issues only addressed the CEMS DAHS computer but not the server. Lacking the information about the server liability, Cal Advocates could not state who is responsible for the outage cost and how this cost could be apportioned among parties.

Unfortunately, no RCA report was performed to help explain the reasonableness of the server failure. Also, SDG&E did not contact the computer vendor to investigate the cause of the server's short lifespan.[429] On the server failure, SDG&E's stated, "…as with any mechanical component, there is no absolute guarantee of longevity. The fact that SDG&E, in its data request response[430], admitted that it did not determine the cause of the failures could be interpreted that SDG&E accepted the server failure as fait accompli, an accomplished event without any remedy. While there may be no guarantee of technical longevity, there is always a reason that a piece of hardware fails and it is the utility's responsibility to determine that reason in order to take measures that it does not recur.

[426] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Questions 191 and 205.

[427] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 194.

[428] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 205.

[429] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 131.

[430] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Question 074.

Absent the information on warranty and CSA, Cal Advocates is recommending a disallowance cost based on the expected depreciation life of the server. The server was in service for 145 days, or approximately 5 months. Since the Commission-approved depreciation life is five years, there were 55 months of depreciation life left.[431] Cal Advocates is recommending a 91.67% (55 months/5 years) disallowance of the replacement power cost of $30,884, or $28,310.

SDG&E does not intend to seek cost recovery for the repair and the utility considers this repair to be part of normal plant maintenance costs covered in its GRC.[432]

SDG&E did not consider purchasing the extended coverage on replacement power cost, such as analyzing on cost effectiveness, or other metrics.[433]

The total cost of this outage from both replacement power and SDG&E's direct cost is estimated to be $35,984 ($30,884 plus $5,100).

IV. CONCLUSIONS AND RECOMMENDATIONS

After reviewing SDG&E's testimony and responses to data requests, Cal Advocates recommends the Commission:

(a) disallow cost recovery of $28,310 in SDG&E's ERRA Balancing Account for the 2024 Record Period because the CEMS DAHS computer's hard drive failed prematurely and its failure cost ratepayers $35,984 in replacement power cost during the October 10, 2024 outage; and

(b) order SDG&E to perform an RCA as to why the CEMS DAHS computer's hard drive failed prematurely. SCE should submit the RCA Report in the next ERRA Compliance filing following the completion of the RCA.

[431] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Questions 075 and 201.

[432] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Questions 203.

[433] Appendix B, Attachment 2.1, SDG&E response to Cal Advocates Data Request 14, Questions 199.

LIST OF ATTACHMENTS FOR CHAPTER 2

#	Attachment	Description
2.1	Attachment 2.1	ERRA-2024-SDGE-Compliance-CalAdvcocates-DR_14

CHAPTER 3 : COMPLIANCE REVIEW OF THE ENERGY RESOURCE RECOVERY ACCOUNT (ERRA) AND OTHER BALANCING / MEMORANDUM ACCOUNTS

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

I. INTRODUCTION AND SUMMARY

This chapter presents the Public Advocates Office at the California Public Utilities Commission's (Cal Advocates) review of San Diego Gas & Electric Company's (SDG&E) Energy Resource Recovery Account (ERRA) balancing account (BA) and 15 other balancing and memorandum accounts for the Record Period January 1, 2024 through December 31, 2024.

In Application (A.) 25-06-002, SDG&E requests the Commission find that:

- The transactions recorded to its ERRA BA, Portfolio Allocation Balancing Account (PABA), Transition Cost Balancing Account (TCBA), Local Generation Balancing Account (LGBA), Modified Cost Allocation Mechanism Balancing Account (MCAMBA), and Tree Mortality Non-Bypassable Charge Balancing Account (TMNBCBA) during the Record Period were correctly stated, in compliance with Commission directives, and are recoverable.[434]
- Amounts transferred from the Independent Evaluator Memorandum Account (IEMA) to the ERRA BA in 2024 and the transactions recorded in the Litigation Cost Memorandum Account (LCMA) for the 2024 Record Period were in compliance with the Commission's directives.[435]
- The transactions recorded in the Green Tariff Marketing Education & Outreach Memorandum Account (GTME&OMA), Green Tariff Shared Renewables Administrative Cost Memorandum Account (GTSRACMA), Enhanced Community Renewable ME&O Memorandum Account (ECRME&OMA), Green Tariff Shared Renewables Balancing Account (GTSRBA), Disadvantaged

[434] *Application of San Diego Gas & Electric Company (U 902-E) for Approval of: (i) Contract Administration, Least-Cost Dispatch and Power Procurement Activities in 2024, (ii) Costs Related to Those Activities Recorded to the Energy Resource Recovery Account, Portfolio Allocation Balancing Account, Transition Cost Balancing Account, Local Generating Balancing Account, and Modified Cost Allocation Mechanism Balancing Account in 2024, and (iii) Costs Recorded in related Regulatory Accounts in 2024,* Prepared Direct Testimony of Brenda Hua (Hua Testimony), at BH-2.

[435] Hua Testimony, at. BH-2.

Communities – Single Family Solar Homes (DAC-SASH) Balancing Account (DACSASHBA), Disadvantaged Community-Green Tariff Balancing Account (DACGTBA), and Community Solar Green Tariff Balancing Account (CSGTBA) during the Record Period were correctly stated and in compliance with Commission directives.[436]

- The 2024 transactions in the New Environmental Regulatory Balancing Account (NERBA) Assembly Bill (AB) 32 electric subaccount (NERBA AB 32) costs are appropriate and correctly stated.[437]

Cal Advocates does not object to SDG&E's requests during the 2024 Record Period regarding the disposition of balancing and memorandum accounts submitted for review in this proceeding.

II. AUDITS OBJECTIVES, SCOPE, AND PROCEDURES

The objective of Cal Advocates' review was to determine whether entries recorded in the ERRA BA and the 15 other balancing and memorandum accounts were appropriate, correctly stated, and in compliance with applicable Commission decisions. Cal Advocates' audit procedures included, but were not limited to, the following:

- Review of SDG&E's application testimony, exhibits, workpapers, and data request responses.
- Review of pertinent advice letters and Commission decisions.
- Review of monthly entries recorded in each of the balancing and memorandum accounts.
- Sampling and testing of monthly/tariff-line items to verify the accuracy of the recorded line items and to determine whether adequate support exists. Cal Advocates' sample was judgmentally selected based on the auditors' knowledge, judgment, and opinion.
- Examination of invoices, ledger entries, and related documents for amounts recorded in the balancing and memorandum accounts.
- Virtual meetings with SDG&E to review selected account entries in detail.

[436] Hua Testimony, at BH-2.

[437] Hua Testimony, at BH-3.

- Review of monthly interest rates used for the accounts and the interest amount calculations.
- Review to determine whether revenues and costs recorded were appropriate and correctly stated.

III. DISCUSSION

A. ERRA BA

Pursuant to Decision (D.) 02-10-062 and D.02-12-074, the purpose of the ERRA BA is to provide full recovery of SDG&E's energy procurement costs associated with serving SDG&E's electric bundled service customers. SDG&E's ERRA BA costs include:

- Fuel and purchased power;
- Utility retained generation;
- California Independent System Operator (CAISO) related costs;
- Greenhouse Gas (GHG) costs for compliance instrument transactions under California's Cap-and-Trade program pursuant to AB 32; and
- Costs associated with SDG&E's residual net short procurement requirements.

The ERRA BA includes revenues from SDG&E's Electric Energy Commodity Cost (EECC) rate schedule, adjusted to exclude non-fuel generation revenues allocated to the Non-fuel Generating Balancing Account (NGBA), and other Commission-approved regulatory accounts.

The ERRA BA compares the energy procurement costs described above with the revenue from Schedule EECC (excluding NGBA revenue and other revenues) on a monthly basis. Any overcollection or undercollection balance earns interest at the three-month Commercial Paper rate.[438] The ERRA activities for the 2024 Record Period are summarized below in Table 3-1:

[438] Hua Testimony, at BH-3.

Table 3-1: Excerpt from ERRA BA, Summary of 2024 Record Period Activity[439]

Description	Under/(Over) Collection
December 31, 2023 ERRA Balance	$0
Revenue	$(361,376,007)
Expenses	$462,690,776
Other net expenses[440]	$(103,719,153)
Interest	$2,404,384
December 31, 2024 ERRA Balance	**$0**

B. PABA

The PABA records the "above-market" costs and revenues associated with all generation resources that are eligible for cost recovery through the Power Charge Indifference Adjustment (PCIA) rates, including SDG&E's Utility-Owned Generation (UOG). The PABA has a subaccount for each vintaged portfolio of resources corresponding to a Resource Vintage year. SDG&E's vintaged portfolio of resources are from 2002 through the current calendar year. Costs recorded in each vintage subaccount include, but are not limited to: (1) fuel, (2) GHG costs, (3) third party power purchase contracts, and (4) SDG&E's UOG's revenue requirement. PABA accounting entries for the 2024 Record Period are summarized below in Table 3-2:

Table 3-2: Excerpt from PABA, Summary of 2024 Record Period Activity[441]

Description	Under/(Over) Collection
December 31, 2023 PABA Balance	$(218,648,393)
Revenue	$(133,519,792)
Expenses and Operations & Maintenance (O&M)	$(1,964,127)
Capital Related Costs	$57,587,974
Interest	$(9,733,260)
Rounding/Transfers from/to ERRA	$(103,897,700)
December 31, 2022 PABA Balance	**$(202,379,898)**

[439] Hua Testimony, at BH-4, Table 1.

[440] Includes "carrying costs related to hedging, transfers from IEMA, and transfers to PABA." Hua Testimony, at. BH-4, footnote 3.

[441] Hua Testimony, at BH-6, Table 2.

C. TCBA

The TCBA records eligible above-market power costs and revenues received from SDG&E's Competition Transition Charge (CTC) rate. TCBA accounting entries for the 2024 Record Period are summarized below in Table 3-3:

Table 3-3: Excerpt from TCBA, Summary of 2024 Record Period[442]

Description	Under/(Over) Collection
December 31, 2023 TCBA Balance	$2,704,695
Revenue	$(9,523,554)
Expenses	$9,816,099
Interest	$143,747
December 31, 2024 TCBA Balance	**$3,140,987**

D. LGBA

The purpose of the LGBA is to record revenues and costs of generation, where the Commission has determined that the resource is subject to the cost allocation mechanism (CAM) means of recovery. The balance in the LGBA as of December 31, 2024 was an [redacted] overcollection.[443] LGBA accounting entries for the 2024 Record Period are summarized below in Table 3-4:

Table 3-4: Excerpt from LGBA, Summary of 2024 Record Period[444]

Description	Under/(Over) Collection
[redacted]	[redacted]

[442] Hua Testimony, at BH-7, Table 3.

[443] Hua Testimony, at BH-9.

[444] Hua Testimony, at BH-9, Table 5.

E. MCAMBA

The purpose of the MCAMBA is to record the costs and revenues SDG&E incurs related to the procurement of energy resources on behalf of load-serving entities (LSE) that opt out of self-procurement and/or backstop procurement-related costs for LSEs that fail to provide capacity required by D.19-011-016 and/or D.21-06-035.[445]

The balance in the MCAMBA as of December 31, 2024 was a $961,560 undercollection.[446] MCAMBA accounting entries for the 2024 Record Period are summarized below in Table 3-5:

Table 3-5: Excerpt from MCAMBA, Summary of 2024 Record Period[447]

Description	Under/(Over) Collection
December 31, 2023 MCAMBA Balance	$**690,313**
Revenue	$(1,060,535)
Expenses	$1,291,987
Interest	$39,795
December 31, 2024MCAMBA Balance	**$961,560**

F. NERBA AB 32 ELECTRIC SUBACCOUNT

The NERBA consists of three subaccounts that record the operating and maintenance costs and capital related costs associated with certain new and proposed federal and state GHG programs, polychlorinated biphenyls programs, and the Municipal Separate Storm Sewer System. The NERBA AB 32 Admin Fees subaccount records actual administrative fees paid to the California Air Resources Board (CARB) and the associated authorized cost in base rates.

[445] Costs include incremental administrative costs of the LSEs that have either opted-out or failed to provide backstop capacity. Hua Testimony, at BH-9.

[446] Hua Testimony, at BH-10, Table 6.

[447] Hua Testimony, at BH-10, Table 6.

The activity of the AB 32 electric subaccount in NERBA as of December 31, 2024 resulted in a $612,666 undercollection.[448] The NERBA AB 32 electric subaccount accounting entries for the 2024 Record Period are summarized below in Table 3-6:

Table 3-6: Excerpt from NERBA, AB 32 Electric subaccount, Summary of 2024 Record Period[449]

Description	Under/(Over) Collection
NERBA AB 32 Beginning Balance 1/01/24	$603,107
Total Revenues	$(665,000)
Total Costs	$652,150
Subtotal (Revenues + Costs)	$(12,850)
Interest	$22,408
Net Activity (Subtotal + Interest)	$9,558
NERBA AB 32 Ending Balance 12/31/24	**$612,666**

G. IEMA

The purpose of the IEMA is to record third-party costs associated with the use of Independent Evaluators in the utility's long-term procurement activities and Renewables Portfolio Standard (RPS) programs. Pursuant to D.11-10-029, SDG&E transferred the IEMA 2024 undercollection balance of $178,538 to ERRA.[450] IEMA accounting entries for the 2024 Record Period are summarized below in Table 3-7:

Table 3-7: Excerpt from IEMA, Summary of 2024 Record Period[451]

Description	Under/(Over) Collection
IEMA Beginning Balance 1/01/24	$0
Total Revenues	$0
Total Costs	$174,700
Interest	$3,838
Transfer to ERRA 12/24	$(178,538)
IEMA Ending Balance 12/31/24	**$0**

[448] Hua Testimony, Attachment F.

[449] Hua Testimony, Attachment F.

[450] Hua Testimony, at BH-13 and Attachment G.

[451] Hua Testimony, Attachment G.

H. LCMA

The purpose of the LCMA is to record litigation costs associated with refunds resulting from the energy price crisis in October 2000 through January 2001, pursuant to Resolution E-3893. LCMA tracks the difference between incurred litigation costs and settlement proceeds received.[452] The balance of LCMA as of December 31, 2024 was an undercollection of $2,253; SDG&E is not requesting recovery of this undercollection in this proceeding.[453] Table 3-8 summarizes LCMA accounting entries for the 2024 Record Period:

Table 3-8: Excerpt from LCMA, Summary of 2024 Record Period[454]

Description	Under/(Over) Collection
LCMA Beginning Balance 01/01/24	$2,140
Total Revenues	$0
Total Costs	$0
Interest	$113
LCMA Ending Balance 12/31/24	**$2,253**

I. GTME&OMA

Pursuant to D.15-01-051, the purpose of the GTME&OMA is to record the difference between the revenues collected through the "GT-ME&O Charge" and the initial and ongoing incremental Marketing Education & Outreach (ME&O) costs incurred to implement the Green Tariff (GT) Shared Renewables Program (GTSRP). The balance of GTME&OMA as of December 31, 2024 was a $161,276 overcollection.[455] Table 3-9 summarizes GTME&OMA accounting entries for the 2024 Record Period:

[452] Hua Testimony, at BH-13.

[453] Hua Testimony, at BH-13.

[454] Hua Testimony, Attachment H.

[455] Hua Testimony, Attachment I.

Table 3-9: Excerpt from GTME&OMA, Summary of 2024 Record Period[456]

Description	Under/(Over) Collection
GTME&OMA Beginning Balance 1/01/24	$(153,212)
Total Revenues	$2
Total Costs	$0
Interest	$(8,064)
GTME&OMA Ending **Balance 12/31/24**	**$(161,2276)**

J. GTSRACMA

Pursuant to D.15-01-051, the purpose of the GTSRACMA is to record the difference between the revenues collected through the GTSR Administrative Charge and initial and ongoing incremental administrative costs incurred to implement the GTSRP. The balance of GTSRACMA as of December 31, 2024 was an undercollection of $1,750,733.[457] The GTSRACMA accounting entries for the 2024 Record Period are summarized below in Table 3-10:

Table 3-10: Excerpt from GTSRACMA, Summary of 2024 Record Period[458]

Description	Under/(Over) Collection
GTSRACMA Balance 1/01/24	$1,661,886
Total Revenue	$2
Total Costs	$1,298
Interest	$87,548
GTSRACMA Balance 12/31/24	**$1,750,733**

K. ECRME&OMA

Pursuant to D.15-01-051, the purpose of the ECRME&OMA is to record the difference between the revenues collected through the ECR-ME&O Charge and the initial and ongoing incremental ME&O costs incurred to implement the GTSRP. The

[456] Hua Testimony, Attachment I.

[457] Hua Testimony, Attachment J.

[458] Hua Testimony, Summary of Attachment J.

balance of ECRME&OMA as of December 31, 2024 was a $3,387 undercollection.[459] The ECRME&OMA accounting entries for the 2024 Record Period are summarized below in Table 3-11:

Table 3-11: Excerpt from ECRME&OMA, Summary of 2024 Record Period[460]

Description	Under/(Over) Collection
ECRME&OMA Beginning Balance 1/01/24	$3,217
Total Revenue	$0
Total Costs	$0
Interest	$169
ECRME&OMA Balance 12/31/24	**$3,387**

L. GTSRBA

The purpose of the GTSRBA is to record the difference between the revenues collected from individual customers electing to participate in the GTSRP and the incremental costs incurred to serve customers participating in the GTSRP. The balance of the GTSRBA as of December 31, 2024 was a $3,022,040 undercollection.[461] The GTSRBA accounting entries for the 2024 Record Period are summarized below in Table 3-12:

Table 3-12: Excerpt from GTSRBA, Summary of 2024 Record Period[462]

Description	Under/(Over) Collection
GTSRBA Beginning Balance 1/01/24	$2,870,857
Total Revenues	$32
Total Costs	$0
Interest	$151,151
GTSRBA Balance 12/31/24	**$3,022,040**

[459] Hua Testimony, Attachment K.

[460] Hua Testimony, Summary of Attachment K.

[461] Hua Testimony, Attachment L.

[462] Hua Testimony, Summary of Attachment L.

M. TMNBCBA

The purpose of the TMNBCBA is to provide full recovery of the net costs for tree mortality-related biomass energy procurement contracts required by Resolutions E-4770 and E-4805. The current activity and interest of the TMNBCBA for 2024 was a [redacted] undercollection but an ending balance of [redacted] overcollection.[463] The TMNBCBA accounting entries for the 2024 Record Period are summarized below in Table 3-13:

Table 3-13: Excerpt from TMNBCBA, Summary of 2024 Record Period[464]

Description	Under/(Over) Collection
TMNBCBA Beginning Balance 1/01/24	[redacted]
Total Revenues	[redacted]
Total Costs	[redacted]
Interest	$(1,080,789)
Net Activity (Revenues + Cost + Interest)	[redacted]
TMNBCBA Balance 12/31/24	[redacted]

IV. DAC-SASH BALANCING ACCOUNT (DACSASHBA)

The purpose of the DACSASHBA is to record costs related to the operation of the DAC-SASH program, including up-front incentive payments to low-income single-family homeowners in disadvantaged communities for solar installation, as authorized in D.18-06-027, Ordering Paragraph 8. The DACSASHBA will also record SDG&E's proportionate share (10.3%) of the $10 million annual budget starting in 2019 through the end of the program in 2030.[465] The balance of the DACSASHBA as of December 31, 2024 was a $5,840,263 overcollection.[466] The DACSASHBA accounting entries for the 2024 Record Period are summarized below in Table 3-14:

[463] Hua Testimony, at BH-16.

[464] Hua Testimony, Confidential Version. Summary of Attachment M.

[465] Hua Testimony, at BH-16.

[466] Hua Testimony, Attachment N.

Table 3-14: Excerpt from DACSASHBA, Summary of 2024 Record Period[467]

Description	Under/(Over) Collection
DACSASHBA Beginning Balance 1/01/24	$(5,051,752)
Total Revenues	$0
Total Costs	$558,299
Interest	$(251,810)
Transfers	$(1,095,000)
DACSASHBA Balance 12/31/24	**$(5,840,263)**

A. DACGTBA

The DACGTBA was established pursuant to D.18-06-027 to record all costs related to program implementation and operation of the DAC-GT program. Pursuant to D.24-05-065, SDG&E filed AL 4522-E to discontinue procurement activities and close the DAC-GT tariff for its bundled customers.[468] However, the DACGTBA remains open to record SDG&E's administrative costs in support of the DAC-GT programs for Community Choice Aggregators (CCAs) in SDG&E's service territory.[469] The balance of the DACGTBA as of December 31, 2024 was a $3,103,862 overcollection.[470] The DACGTBA accounting entries for the 2024 Record Period are summarized below in table 3-15:

Table 3-15: Excerpt from DACGTBA, Summary of 2024 Record Period[471]

Description	Under/(Over) Collection
DACGTBA Beginning Balance 1/01/24	$(3,020,281)
Total Revenues	$(344,310)
Total Costs	$425,548
Interest	$(154,601)
Transfers	$(10,218)
DACGTBA Balance 12/31/24	**$(3,103,862)**

[467] Hua Testimony, Summary of Attachment N.

[468] Hua Testimony, at BH-17.

[469] Hua Testimony, at BH-17.

[470] Hua Testimony, Attachment O.

[471] Hua Testimony, Summary of Attachment O.

B. CSGTBA

The CSGT program is a GT/Shared Renewables Program that allowed all CSGT eligible customers in disadvantaged communities to benefit from the development of solar generation projects located in their own or nearby disadvantaged communities. Like DACGTBA, and pursuant to D.24-05-065, SDG&E filed AL 4522-E to discontinue the CSGT program, but also to close the CSGTBA.[472] The balance of the CSGTBA as of December 31, 2024 was $0 as the $1,642,301 overcollection was transferred to the Greenhouse Gas Revenue Balancing Account (GHGRBA).[473] The CSGTBA accounting entries for the 2024 Record Period are summarized below in table 3-16:

Table 3-16: Excerpt from CSGTBA, Summary of 2024 Record Period[474]

Description	Under/(Over) Collection
CSGTBA Beginning Balance 1/01/24	$(1,627,633)
Total Revenues	$(302,768)
O&M Costs	$325,500
Capital Related Costs	$0
Interest	$(81,914)
Transfers	$1,642,633
CSGTBA Balance 12/31/24	**$0**

V. RECOMMENDATIONS AND CONCLUSION

In its 2024 Record Period ERRA Compliance Application, SDG&E's requests to the Commission are as follows:

- Transactions recorded to its ERRA, PABA, TCBA, LGBA, MCAMBA, and TMNBCBA, during the Record Period were correctly stated, in compliance with Commission decisions and directives and should be recoverable.
- Transfers recorded in the IEMA and the transactions recorded in the LCMA were in compliance with the Commission's directives.

[472] Hua Testimony, at BH-18.

[473] Hua Testimony, at BH-18.

[474] Hua Testimony, Summary of Attachment P.

- Transactions recorded in the GTME&OMA, GTSRACMA, ECRME&OMA, GTSRBA, DACSASHBA, DACGTBA, and CSGTBA, during the Record Period were correctly stated and in compliance with Commission directives.
- Transactions in the NERBA AB 32 costs were appropriate and correctly stated.

Cal Advocates does not object to SDG&E's requests during the 2024 Record Period.

APPENDIX A
QUALIFICATION OF WITNESSES

PREPARED TESTIMONY AND QUALIFICATIONS
OF
SARAH CORNETT

Q1. Please state your name, business address, and position with the California Public Utilities Commission ("Commission").

A1. My name is Sarah Cornett 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 Whitman College with a B.A. in History. I also obtained a Masters of Public Policy degree from UC Berkeley. I have been employed by Cal Advocates on the Procurement Cost Recovery team of the Electricity Planning and Policy Branch since July, 2024. Before that, I was the energy and climate analyst for the California Legislative Analyst's Office, where I advised the Legislature on energy, electricity, and climate policy. I have also worked as a climate policy advocate for nonprofit organizations in Seattle, Washington. In total, I have worked on climate, energy, and electricity policy issues for seven years.

Q3. What is your responsibility in this proceeding?

I was the Project Coordinator for Cal Advocates and completed the Executive Summary.

Q4. Does this conclude your prepared direct testimony?

A4. Yes.

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 five (5) 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) and ERRA and PCIA Update and Reform Rulemaking (R.25-02-005), 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: Least Cost Dispatch and Demand Response.

Q4. Does this conclude your prepared direct testimony?

A4. Yes.

QUALIFICATIONS AND PREPARED TESTIMONY
OF
MICHAEL YEO

Q.1 Please state your name and business address.

A.1 My name is Michael Yeo. My business address is 505 Van Ness Avenue, San Francisco, California.

Q.2 By whom are you employed and in what capacity?

A.2 I am employed by the California Public Utilities Commission as a Senior Utilities Engineer in the Public Advocates Office.

Q.3 Briefly state your educational background and experience.

A.3 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.4 What is the scope of your responsibility in this proceeding?

A.4 I am responsible for Chapter 2, Utility-Owned Generation of Public Advocates Office's Intervenor Testimony in San Diego Gas & Electric's Energy Resource Recovery Account Review of Operations, 2024 proceeding (A.25-06-002).

Q.5 Does this complete your testimony currently?

A.5 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 13 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 co-sponsor of Chapter 3, 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's of Science in Applied Mathematics and a Bachelor's 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 have provided analysis in ERRA Forecast and Compliance proceedings, focused on reviews of balancing accounts, load forecasting, and least-cost dispatch.

Q.4 What is the scope of your responsibility in this proceeding?

A.4 I am responsible for:

- Chapter 3, 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
MICHAEL AMMERMULLER

Q.1 Please state your name and business address.

A.1 My name is Michael Ammermuller. 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 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 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, Energy Resource Recovery Account (ERRA) Forecast and Compliance, and Diablo Canyon Power Plant Extended Operations. My other relevant experience includes three years in the financial industry (trade settlement, risk management) and 19 months at an electric and gas utility (accounting).

Q.4 What is the scope of your responsibility in this proceeding?

A.4 I am co-sponsor for Chapter 3: 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.

APPENDIX B

SUPPORTING ATTACHMENTS

LIST OF ATTACHMENTS FOR CHAPTER 1

#	Attachment	Description
1.1	Attachment 1.1 (Confidential)	2022_ERRA - CONFIDENTIAL SDG&E Response to Cal Advocates Data Request 09.
1.2	Attachment 1.2 (Confidential)	2024 Attachment A - Summary Load Data and LMP Price Forecasts.xlsx (Available via Email)
1.3	Attachment 1.3 (Confidential)	CalAdv - 2024_ERRA-C_SDG&E_Attachment A - Summary Load Data and LMP Price Forecasts_CONF.xlsx (Available via Email)
1.4	Attachment 1.4 (Confidential)	CalAdv - 2023_ERRA-C_SDG&E_CalAdv_Load-Forecast-Atch_CONF - Attch A.xlsx (Available via Email)
1.5	Attachment 1.5 (Confidential)	ERRA-2023-SDGE-Compliance-CalAdvocates-DR_03.pdf
1.6	Attachment 1.6 (Confidential)	CalAdv - 2022 Attachment A - Summary Load Data and LMP Price Forecasts (CONF).xlsx (Available via Email)
1.7	Attachment 1.7 (Confidential)	CalAdv - 2024 Attachment A - Summary Load Data and LMP Price Forecasts-Revised.xlsx (Available via Email)
1.8	Attachment 1.8 (Confidential)	Attachment E - 2024 Master File (RDT) Change Exceptions.xlsx (Available via Email)
1.9	Attachment 1.9 (Confidential)	2024 Attachment B - Incremental Bids 2A-Dv1.xlsx (Available via Email)
1.10	Attachment 1.10 (Confidential)	2024 Attachment B- 2E.xlsx (Available via Email)
1.11	Attachment 1.11 (Confidential)	2023 Attachment C- 2Ev2.xlsx (Available via Email)
1.12	Attachment 1.12 (Confidential)	2024 Attachment C and D - Self Schedules Supporting Data.xlsx (Available via Email)

#	Attachment	Description
1.13	Attachment 1.13 (Confidential)	Attachment K - Energy Storage Operational Overview.ppt
1.14	Attachment 1.14 (Confidential)	Attachment B – 2023 Hydro and Pump Storage.xlsx (Available via Email)
1.15	Attachment 1.15 (Confidential)	2024 Attachment F- Annual Summary.xlsx (Available via Email)
1.16	Attachment 1.16 (Confidential)	Attachment H - ERRA 2023 Demand Response Metric 1.xlsx (Available via Email)
1.17	Attachment 1.17 (Confidential)	ERRA-2024-SDGE-Compliance-CalAdvocates-DR_04.pdf
1.18	Attachment 1.18 (Confidential)	Attachment G - ERRA 2024 Demand Response Metric 1.xlsx (Available via Email)
1.19	Attachment 1.19 (Confidential)	ERRA-2023-Compliance-CalAdvocates-DR_07

Attachment 1.1

2022_ERRA - CONFIDENTIAL SDG&E Response to Cal Advocates Data Request 09

(Confidential)

Attachment 1.2

2024 Attachment A - Summary Load Data and LMP Price Forecasts.xlsx

(Available via Email)

(Confidential)

Attachment 1.3

CalAdv - 2024_ERRA-C_SDG&E_Attachment A - Summary Load Data and LMP Price Forecasts_CONF.xlsx

(Available via Email)

(Confidential)

Attachment 1.4

CalAdv - 2023_ERRA-C_SDG&E_CalAdv_Load-Forecast-Atch_CONF - Attch A.xlsx

(Available via Email)

(Confidential)

Attachment 1.5

ERRA-2023-SDGE-Compliance-CalAdvocates-DR_03.pdf

(Confidential)

Attachment 1.6

CalAdv - 2022 Attachment A - Summary Load Data and LMP Price Forecasts (CONF).xlsx

(Available via Email)

(Confidential)

Attachment 1.7

CalAdv - 2024 Attachment A - Summary Load Data and LMP Price Forecasts-Revised.xlsx

(Available via Email)

(Confidential)

Attachment 1.8

Attachment E - 2024 Master File (RDT) Change Exceptions.xlsx

(Available via Email)

(Confidential)

Attachment 1.9

2024 Attachment B - Incremental Bids 2A-Dv1.xlsx

(Available via Email)

(Confidential)

Attachment 1.10

2024 Attachment B- 2E.xlsx

(Available via Email)

(Confidential)

Attachment 1.11

2023 Attachment C- 2Ev2.xlsx

(Available via Email)

(Confidential)

Attachment 1.12

2024 Attachment C and D - Self Schedules Supporting Data.xlsx

(Available via Email)

(Confidential)

Attachment 1.13

Attachment K - Energy Storage Operational Overview.ppt

(Confidential)

Attachment 1.14

Attachment B – 2023 Hydro and Pump Storage.xlsx

(Available via Email)

(Confidential)

Attachment 1.15

2024 Attachment F- Annual Summary.xlsx

(Available via Email)

(Confidential)

Attachment 1.16

Attachment H - ERRA 2023 Demand Response Metric 1.xlsx

(Available via Email)

(Confidential)

Attachment 1.17

ERRA-2024-SDGE-Compliance-CalAdvocates-DR_04.pdf

(Confidential)

Attachment 1.18

Attachment G - ERRA 2024 Demand Response Metric 1.xlsx

(Available via Email)

(Confidential)

Attachment 1.19

ERRA-2023-Compliance-CalAdvocates-DR_07

(Confidential)

San Diego Gas & Electric Response to
Public Advocates Office Data Request 07
Date Received: September 5, 2024
Date Responded: September 20, 2024

San Diego Gas & Electric Response to
Public Advocates Office Data Request 07
Date Received: September 5, 2024
Date Responded: September 20, 2024

Public Advocates Office
California Public Utilities Commission
505 Van Ness Avenue
San Francisco, California 94102
Tel: 415-703-1584
www.publicadvocates.cpuc.ca.gov

PUBLIC ADVOCATES OFFICE DATA REQUEST

A.24-06-001 SAN DIEGO GAS & ELECTRIC COMPANY

SDG&E ERRA Compliance Application for 2023 Record Period

Date: September 6, 2024	
To: Zackary Hughes Regulatory Case Administrator San Diego Gas & Electric Company 8330 Century Park Court, CP32F San Diego, CA 92123 Roger Cerda, Attorney for SDG&E	Phone: 858-444-6073 Email: zhughes@sdge.com Phone: 858-654-1781 Email: rcerda@sdge.com
From: Sarah Cornett, Project Coordinator Public Advocates Office 505 Van Ness Avenue San Francisco, CA 94102-3298 Ritta Merza, Attorney for Public Advocates Office	Email: Sarah.Cornett@cpuc.ca.gov Phone: 415-703-1493 ex. 5-1493 Email: Ritta.Merza@cpuc.ca.gov Phone: 213-620-6454

Re: Public Advocates Office Data Request A.24-06-001 SDGE-DR No. #07

Response Due: September 20, 2024

INSTRUCTIONS

Pursuant to California Public Utilities Code §§ 309.5 and 314, and Rules 1.1 and 10.1 of the California Public Utilities Commission's Rules of Practice and Procedure, you are instructed to answer the following Data Requests in the above-captioned proceeding, with written, verified responses. Restate the text of each request prior to providing the response. For any questions, email the Public Advocates Office contact(s) above with a copy to the Public Advocates Office attorney(s).

Each Data Request is continuing in nature. Provide your response as it becomes available but not later than the due date noted above. If you are unable to provide a response by this date, notify the Public Advocates Office at least 48 hours prior to the stated deadline, with a written explanation as to why the response date cannot be met and a best estimate of when the information can be provided. If you acquire additional information after providing an answer to any request, you must supplement your response following the receipt of such additional information.

Identify the person providing the answer to each data request and their contact information. Responses should be provided both in the original electronic format, if available, and in hard copy. (If available in Word format, send the Word document and do not send the information as a PDF file.) All electronic documents submitted in response to this data request should be in readable, downloadable, printable, and searchable formats, unless use of such formats is infeasible. Each page should be numbered. If any of your answers refer to or reflect calculations, provide a copy of the supporting electronic files that were used to derive such calculations, such as Excel compatible spreadsheets or computer programs, with data and formulas intact and functioning. Documents produced in response to the data requests should be Bates-numbered and indexed, if voluminous. Responses to data requests that refer to or incorporate documents should identify the particular documents referenced by Bates numbers or Bates-range.

Please answer the request to the fullest extent possible, specifying the reason for your inability to answer the remaining portion of the Data Request. **If you believe a request, definition, or an instruction, is unclear, email the Project Coordinator immediately, so that the Public Advocates Office can attempt to resolve the claimed ambiguity**. If SDG&E has objections to any of the data requests, please contact the assigned Public Advocates Office attorney Ritta Merza (Ritta.Merza@cpuc.ca.gov) as soon as possible.

Rule 10.1 of the California Public Utilities Commission's Rules of Practice and Procedure recognizes that the Public Advocates Office has a right to general discovery that goes beyond the discovery limitations applicable to those not employees of the Commission. Thus, discovery requests of the Public Advocates Office made to utilities or their affiliates must be complied with unless some valid claim of a legally recognized privilege has been properly made and demonstrated.

Please provide responses as follows:

- **In serial form as they are completed along with the name of the author.**
- **Separate responses to each question on a new page. If the response to a question is very short, please provide no more than two responses per sheet of paper.**
- **Avoid pronouns: State the name of the person and/or organization, and/or the name of the vendor/manufacturer.**
- **Provide responses to all requests and multi-part questions.**
- **Provide all responses in electronic format (e.g., e-mail).**
- **Mark confidential information in gray highlight.**

San Diego Gas & Electric Response to
Public Advocates Office Data Request 07
Date Received: September 5, 2024
Date Responded: September 20, 2024

SDG&E 2023 ERRA Compliance: Data Request #07

Question 1

1. In Andrew Scates' Direct Testimony (Scates Testimony),[1] SDG&E notes that it performed a post-market assessment to review market results and validate that the CAISO process resulted in LCD of SDG&E's portfolio (Bid Evaluator report).
    a. Provide the Bid Evaluator report and a brief description of how it analyzes and compares expected day-ahead awards with actual DAM results.
    b. Explain how the Bid Evaluator report and SDG&E conclude that Least Cost Dispatch (LCD) of its dispatchable generation portfolio was achieved.
    c. Provide an explanation of each of the substantive deviations between CAISO market solutions and Bid Evaluator optimization that SDG&E investigated, and SDG&E's conclusion/resolution of each investigation.

SDG&E Response to Question 1

The attachment referenced in this response contains "Protected Materials" (i.e., trade secret, market sensitive, or other confidential and/or proprietary information) as determined by SDG&E in accordance with the provisions of D. 06-06-066 and subsequent decisions and subject to a Nondisclosure Agreement.

a. See attached confidential zip file of 2023 Bid Evaluator Reports titled "Data Request Zip_09172024.zip." PCI's Bid Evaluator module analyzes projected unit market awards based on bid prices (which represents variable costs) and market Day Ahead (DA) clearing prices while considering all of the operating characteristics of SDG&E units bid into the CAISO Day Ahead Market (DAM). If the DAM clearing prices are high enough that a unit can be profitable over a 24 hour time horizon, the Bid Evaluator report will display a unit award within a tolerance band of error.
b. Bid Evaluator reports and SDG&E do not represent whether Least Cost Dispatch (LCD) of its dispatchable generation portfolio was achieved. The CAISO may dispatch units below their costs to provide an overall LCD solution to the entire CAISO system footprint or to address system reliability needs. If a SDG&E unit is dispatched below cost and qualifies, the resource may receive Bid Cost Recovery (BCR) to be revenue neutral.
c. In years past, SDG&E reviewed substantive deviations between CAISO market solutions and the Bid Evaluator optimization solution. SDG&E does not currently pursue each substantive deviation today because the CAISO's solution considers all units bid into the CAISO and produces clearing prices at all generating locations and prices nodes in the CAISO system. Bid Evaluator only considers clearing prices and whether a unit should be awarded. Deviations occur frequently and the CAISO market solution has proven to always be more optimal for CAISO system LCD while Bid Evaluator is a more isolated solution.

[1] Prepared Direct Testimony of Andrew Scates on Behalf of SDG&E (Scates Testimony), p. AS – 21.

Question 2

2. In Scates Testimony, SDG&E states that its Convergence Bidding activity for the third quarter is pending approval and fourth quarter activity is being audited.[2]
    a. Please provide the relevant reports and/or findings of the Convergence Bidding activity audits for the third and fourth quarters of 2023.

SDG&E Response to Question 2

The QCR Q3 2023 was approved on May 23, 2024 and effective as of November 29, 2023: SDGE_ELEC_Advice-4309-E-A_Approved. There were no findings or relevant reports of the Convergence Bidding activity in the third quarter of 2023.

QCR Q4 2023 is still pending approval. When approved, it will be effective 02/29/2024: SDGE_ELEC_Advice-4380-E-B_Pending. There were no audit findings or relevant reports of Convergence Bidding activity in the fourth quarter of 2023.

Question 3

3. In *2023 Attachment A - Summary Load Data and LMP Price Forecasts* (Attachment A) to Scates Testimony, SDG&E provides data showing significant under-forecast of load in the month of April 2023 in hours 9 through 15. The Mean Average Percentage Error (MAPE) for these specific hours in April 2023 is, on average, 126%.
    a. Please explain any issues or external events that accounted for such large percentage errors for this specific time period.

SDG&E Response to Question 3

As stated in the response to Cal Advocates DR03, question 1, prior to July 19, 2023, SDG&E was calculating their bundled load by taking the System Load forecast (produced by PRT), subtracting System losses, and also subtracting CCA's/Direct Access customer forecast. In order to eliminate the multiple variables in calculating bundled load, SDG&E began using historical actual (metered) bundled load from customer meters. The historical bundled load actuals allow for better control of inputs by eliminating unnecessary inputs to the prior bundled load forecast. Although SDG&E addressed the load forecasting deviations by eliminating multiple inputs to the model, there will need to be an adjustment period as load migration has impacted the historical bundled load inputs to the model and ultimately will have an impact on the forecast. SDG&E's goal is continuing to work with PRT and evaluate additional model changes in the future to reduce significant load deviations.

[2] Scates Testimony, p. AS – 17.

Question 4

4. Cal Advocates has provided a screenshot from Attachment A to Scates Testimony (below), showing the top 35 trading dates and hours with the highest percentage errors. Please address the following:
    a. Explain the reasons for these large percentage discrepancies.
    b. If certain events or issues are only applicable to a specific subset of trading hours, please identify and explain them.
    c. If there is another explanation that applies to the full set of trading hours with large percentage errors, please provide it.
    d. Specify whether your explanation is specific to certain hours or applies broadly to high-error periods.

	A	B	C	D	E	F	G	H
1	Month	TradingDate	TradingHour	DA Load (MW)	DA-RT Load (MW)	RT Load (MW)	DA Price ($/MW	Absolute Difference (MW)
2	5	5/14/2023	12	[redacted]			-$13.24	[redacted]
3	5	5/14/2023	13				-$13.33	
4	4	4/29/2023	12				$4.03	
5	6	6/24/2023	12				$0.58	
6	4	4/23/2023	12				-$5.73	
7	4	4/29/2023	14				$9.21	
8	5	5/6/2023	12				-$12.39	
9	8	8/6/2023	1				$65.53	
10	4	4/23/2023	14				-$6.76	
11	4	4/15/2023	14				-$5.88	
12	5	5/8/2023	13				-$10.56	
13	4	4/15/2023	13				-$5.40	
14	6	6/25/2023	11				-$6.28	
15	4	4/29/2023	13				$4.80	
16	5	5/7/2023	11				-$6.48	
17	4	4/23/2023	13				-$6.63	
18	6	6/25/2023	15				-$3.32	
19	5	5/16/2023	13				$38.88	
20	5	5/7/2023	16				-$17.01	
21	6	6/4/2023	15				$8.50	
22	6	6/18/2023	13				-$11.10	
23	5	5/21/2023	13				$10.65	
24	6	6/24/2023	13				$0.68	
25	5	5/6/2023	13				-$13.49	
26	6	6/27/2023	13				$12.54	
27	6	6/25/2023	12				-$6.30	
28	5	5/8/2023	12				-$9.05	
29	5	5/13/2023	14				-$6.32	
30	5	5/16/2023	14				$42.68	
31	4	4/28/2023	14				$26.14	
32	5	5/12/2023	13				-$1.10	
33	4	4/28/2023	13				$19.95	
34	6	6/26/2023	13				$2.20	
35	6	6/4/2023	14				$5.83	
36	5	5/12/2023	14				$0.01	

SDG&E Response to Question 4

a. Please see our response to question 3.
b. In respect to the table above, solar hours can be volatile depending on the accuracy of weather forecast and rooftop solar generation. 34 of the 35 top trading dates/hours in the table represent solar hours.

c. Please see our response to question 3.
d. SDG&E's explanation in (b) related to the table above is specific to solar hours.

Question 5

5. In Attachment A, tab "Top 100." Please provide a description and explanation of the data on that tab (see screenshot below). In the explanation, please clarify whether data in column D "RT Load" should be in dollars, and how the "Sum of DA Price" and "RT Load" are calculated.

SDG&E Response to Question 5

Please refer to the revised Attachment A, tab "Top 100" as the data for this tab wasn't currently updated in the original Attachment A that was submitted on June 1, 2024. No other Tabs in Attachment A were impacted by the revision. Column D is the daily sum of the hourly realtime load minus the realtime behind the meter production and can be found in Tab "ZE-DA vs RT Load." This data shouldn't be in dollars and has been corrected in the revised Attachment A. Column C is the daily sum of the Day Ahead prices and can be found on Tab "ZE-DA LMP Forecast vs Actual". These numbers have been accurately updated in the revised Attachment A and are expressed in dollars.

The attachment referenced in this response contains "Protected Materials" (i.e., trade secret, market sensitive, or other confidential and/or proprietary information) as determined by SDG&E in accordance with the provisions of D. 06-06-066 and subsequent decisions and subject to a Nondisclosure Agreement.

Question 6

6. In Attachment A, tab "ZE-DA vs RT Load," column E is labeled ""rt.ebtmp." Explain what this column represents (see below).
    a. Explain the reason(s) for the wide range in values in column E and what impact, if any, this has on forecasting accuracy.

SDG&E Response to Question 6

The rt.ebtmp represents the reatltime estimated behind the meter productions and is subtracted from column rt.load to get the actual metered bundled load. The wide range of values are because most of the production is solar and the numbers will be higher during solar hours vs non-solar hours. Accounting for rt.ebtmp to accurately calculate actual metered bundled load will increase the forecasting accuracy.

APPENDIX B
CHAPTER 2

LIST OF ATTACHMENTS FOR CHAPTER 2

#	Attachment	Description
2.1	Attachment 2.1	ERRA-2024-SDGE-Compliance-CalAdvcocates-DR_14

Attachment 2.1

ERRA-2024-SDGE-Compliance-CalAdvcocates-DR_14

2025 ERRA DATA REQUEST NO. 14

Public Advocates Office *California Public Utilities Commission* 505 Van Ness Avenue
San Francisco, California 94102 Tel: 415-703-1584
www.publicadvocates.cpuc.ca.gov

PUBLIC ADVOCATES OFFICE DATA REQUEST

A.25-06-002 SAN DIEGO GAS & ELECTRIC COMPANY

SDG&E ERRA Compliance Application for 2024 Record Period

Date: October 22, 2025	
To: Nick Santos Regulatory Case Administrator San Diego Gas & Electric Company 8330 Century Park Court, CP32F San Diego, CA 92123 Cameron Biscay, Attorney for SDG&E	Phone: 619-964-0601 Email: nsantos@sdge.com Phone: 858-654-1781 Email: cbiscay@sdge.com
From: Sarah Cornett, Project Coordinator Public Advocates Office 505 Van Ness Avenue San Francisco, CA 94102-3298 Ritta Merza, Attorney for Public Advocates Office	Email: Sarah.Cornett@cpuc.ca.gov 916- Phone: 340-5163 Email: Ritta.Merza@cpuc.ca.gov 213- Phone: 620-6454

Re: Public Advocates Office Data Request A.25-06-002 SDGE-DR No. 14 Response Due: November 5, 2025 (Extension November 14, 2025)

INSTRUCTIONS

You are instructed to answer the following Data Requests in the above-captioned proceeding, with written, verified responses per Public Utilities Code §§ 309.5, 314, 315, 581, 582 and 584, and Rules 1.1 and 10.1 of the California Public Utilities Commission's Rules of Practice and Procedure. Restate the text of each request prior to providing the response. For any questions, email the Public Advocates Office contact(s) above with a copy to the Public Advocates Office attorney(s).

Each Data Request is continuing in nature. Provide your response as it becomes available but not later than the due date noted above. **If you are unable to provide a response by this date, notify the Public Advocates Office at least 48 hours prior to the stated deadline**, with a written explanation as to why the response date cannot be met and a best estimate of when the information can be provided. If you acquire additional information after providing an answer to any request, you must supplement your response following the receipt of such additional information.

Please answer the Data Request to the fullest extent possible, specifying the reason for your inability to answer the remaining portion of the Data Request. **If you believe a request, definition, or an instruction, is unclear, email the Project Coordinator immediately, so that the Public Advocates Office can attempt to resolve the claimed ambiguity.**

If SDG&E has objections, please contact the assigned Public Advocates Office's attorney as soon as possible. Any objections not received by the due date for response are waived, notwithstanding any qualifying or conditional responses.

The response should mark confidential information in grey highlight and direct that all claims of confidentiality comport with D.17-09-023, D.16-08-024, and General Order 66-D. Specifically, any documents for which SDG&E seeks confidential treatment must be marked as confidential, the basis for confidential treatment must be specified, and the request for confidentiality must be accompanied by a declaration signed by an officer of the requesting entity or by an employee or agent designated by an officer.

Identify the person providing the answer to each data request and his/her contact information. Avoid pronouns when referring to people, organizations, vendors, and manufacturers.

Separate responses to each question on a new page. If the response to a question is very short, please provide no more than two responses per sheet of paper.

Responses should be provided in the original electronic format, if available (If available in Word format, send the Word document and do not send the information as a PDF file). Provide sketches, photos, and diagrams in color (if available) and label the sketches, photos, and

diagrams, as well as relevant parts/pieces of equipment. The sketches, photos, and diagrams should be provided in electronic format in either PDF or Word.

All electronic documents submitted in response to this data request should be in readable, downloadable, printable, and searchable formats, unless use of such formats is infeasible. Each page should be numbered. If any of your answers refer to or reflect calculations, provide a copy of the supporting electronic files that were used to derive such calculations, such as Excel compatible spreadsheets or computer programs, with data and formulas intact and functioning. Documents produced in response to the data requests should be Bates-numbered and indexed, if voluminous. Responses to data requests that refer to or incorporate documents should identify the particular documents referenced by Bates numbers or Bates-range.

California Public Utilities Commission's Rules of Practice and Procedure 10.1 recognizes that the Public Advocates Office has a right to general discovery that goes beyond the discovery limitations applicable to those not employees of the Commission. Thus, discovery requests of the Public Advocates Office made to utilities or their affiliates must be complied with unless some valid claim of a legally recognized privilege has been properly made and demonstrated.

Please email responses to the Public Advocates Office's Project Coordinator and Attorney as provided on page one.

Regarding the Direct Testimony of SDG&E Kevin M. Counts – Utility-Owned Generation

Special Instructions:

1. In your DR response, if you are referring to a previous testimony/document not found in this instant application, please repeat or attach the entire narrative of the appropriate pages in your reply. This is to avoid having the ALJ and any party/individual from requesting documents not found in this instant application.
2. Your DR responses may be used as Exhibits during hearings or attached as part of Public Advocates Office (Cal Advocates) Testimony. Therefore,
   - when answering each question or sub-question, please display what the question is at the beginning of the answer sheet.
   - if the response is identical to a previous question either in whole or in part, please repeat the response in the question asked. Do not state "see response to question xxx" without repeating the response in the question being answered: the purpose of each question is different even though the response may be identical to other questions.
3. Please use the active voice; state who the doer is. For example, the vendor, Trans Canada Turbines, repaired the turbine. Do not state that the turbine was repaired without mentioning the name of the vendor.

Cuyamaca Peak Energy Plant

Question 1

1. What was the Application and Commission Decision that approved the purchase/ construction of the Cuyamaca Peak Energy Plant (CPEP)?

SDG&E Response to Question 1

Decision 11-12-002 effective December 1, 2011
Application 10-12-005 and Application 11-01-004

Question 2

2. What was, if any, the Application and Commission Decision that approved the upgrades to CPEP?

SDG&E Response to Question 2

CPEP upgrade projects are part of the SDG&E General Rate Case process for capital budgets.

Question 3

3. What was the Application and Commission Decision that approved the rate recovery of CPEP?

SDG&E Response to Question 3

Decision 11-12-002 effective December 1, 2011
Application 10-12-005 and Application 11-01-004
SDG&E's final 2024 General Rate Case Application 22-05-016
SDG&E's final 2024 General Rate Case Decision 24-12-074

Question 4

4. Please provide the following information and verify its correctness:
   a. the location of CPEP: 200 North Johnson Ave, El Cajon, CA 92020.
   b. the type of fuel used to run CPEP: natural gas only.
   c. the number of units: two simple cycle gas turbines connected to one generator. The plant can be run in either a one turbine or a two-turbine configuration with an output of either 23 MW or 45.42 MW respectively (from 1.4_Cuyamaca_2024.docx).
   d. upgrades to CPEP since the original construction. Please describe the upgrades, and provide the dates the upgrade was made, Commission application numbers that considered the upgrades, and decisions that approved the updates.

SDG&E Response to Question 4

a. The location of CPEP is 200 North Johnson Ave, El Cajon, CA 92020.
b. The type of fuel used to run CPEP is natural gas only.
c. CPEP two simple cycle gas turbines connected to one generator. The plant can be run in either a one turbine or a two-turbine configuration. The currently rated CAISO dispatch is:
   - 40 – 45.42 MW for operation with both engines
   - 18.2 – 23 MW with either single engine

   The power output varies due to ambient conditions.
d. Please see "Attachment 01 – CPEP List of Upgrades" for the list of upgrades.

Question 5

5. Please provide color diagrams, cross-sectional views, and photos showing the layout of the two gas turbines and the generator of CPEP.

SDG&E Response to Question 5

Please see "Attachment 02 - CPEP Turbine Generator Arrangement Diagram," "Attachment 03 - CPEP Equipment Locations," "Attachment 04 - CPEP Turbine Generator Arrangement Photo," and "Attachment 05 - CPEP Arrangement Diagram with Details."

Question 6

6. Is the gas turbine at CPEP also called an engine?
   a. If yes, please explain the usage of the two terms.
   b. If not, please explain the differences.

SDG&E Response to Question 6

Yes, a gas turbine is a combustion engine.

a. The terms engine and turbine are used interchangeably at CPEP.
b. Not applicable.

Question 7

7. Is there a designation to distinguish between the two gas turbines? If so, please identify how they are labeled.

SDG&E Response to Question 7

Yes, the gas turbines are identified as Engine A and Engine B.

Question 8

8. Please provide a schematic diagram of the CPEP, similar in style to that provided for the Marchwood Power Plant (reference: https://www.marchwoodpower.com/ccgt/).

SDG&E Response to Question 8

Please see "Attachment 06 - CPEP Schematic Diagram"

Question 9

9. Please provide a diagram and color photos for each of the gas turbines and the generator. Such illustrations should show the layout and physical location of each piece of equipment and the number of pieces of each equipment.

SDG&E Response to Question 9

Please see "Attachment 03 - CPEP Equipment Locations and Attachment 04 - CPEP Turbine Generator Arrangement Photo"

Question 10

10. The generating capacity with one gas turbine running is 23MW. Does this 23MW depend on which of the two turbines is running? Please explain why there are differences, ifany.

SDG&E Response to Question 10

No, with either engine A or engine B running, the CAISO dispatch rating is the same at 18.2 -23 MW.

Question 11

11. The generating capacity of CPEP is 45.42 MW, and the nameplate capacity is 49 MW (reference: 1.7_MDR_2024.xlsx). Please explain the difference between the two MW numbers, and why they differ.

SDG&E Response to Question 11

Nameplate capacity is the maximum output that a plant can produce at ideal conditions, while the actual output may be lower due to various factors. The generating capacity of CPEP is determined by an operational test conducted with the CAISO.

Question 12

12. The sum of the operating capacity of each gas turbine of 23 MW does not equal the operating capacity of 45.42 MW or the nameplate capacity of 49 MW when the two gas turbines are running simultaneously. Please explain the reasons for the MW variances.

SDG&E Response to Question 12

When running in single engine configuration, the running engine must also turn the non-running Power Turbine ("PT"). The difference in power is due to the energy loss in turning the non-running PT

Question 13

13. Under what circumstances would CPEP operate with only one gas turbine? Please explain.

SDG&E Response to Question 13

CPEP will operate with only one gas turbine if:

- It is dispatched for single engine operation by CAISO; or
- If a technical issue prevents the operation of one of the engines, the non-functioning engine PT can be safely spun by the running engine. CAISO is notified of the de-rate, and the dispatch orders will be adjusted accordingly.

Question 14

14. Under what circumstances would each gas turbine operate at less than full capacity? Please explain.

SDG&E Response to Question 14

CPEP gas turbines would operate at less than full capacity under the following circumstances:

- If it is dispatched for single engine operation by CAISO.
- If a technical issue prevents the operation of one of the engines, the non-functioning engine PT can be safely spun by the running engine. CAISO is notified of the de-rate, and the dispatch orders will be adjusted accordingly.
- When ambient conditions are such that the turbines cannot make full rated power.
- When CAISO dispatch is less than full power rating, but within the ratings of 40 to 45.42 MW for operation with both engines or 18.2 to 23 MW with either single engine.

Question 15

15. Was the commercial operating date for CPEP (formerly known as CalPeak El Cajon EnergyFacility) May 29, 2002?

SDG&E Response to Question 15

Commercial Operation Date for CPEP is May 20, 2002.

Question 16

16. Please provide the commissioning date of CPEP.

SDG&E Response to Question 16

SDG&E does not have this date. CPEP was commissioned by CalPeak circa 2002; the commission date was not part of the turnover documentation when SDG&E purchased the plant.

Question 17

17. Was SDG&E responsible for the commissioning of CPEP? If not, who else holds responsibility for accepting work for commercial readiness? Please explain.

SDG&E Response to Question 17

No. CPEP was commissioned prior to the purchase of the plant by SDG&E. Commissioning would have been performed under the previous owner CalPeak.

Question 18

18. What is the CPEP capacity factor for each of the last five Record Periods? Please explain the variances among the five years.

SDG&E Response to Question 18

Year	Capacity Factor
2024	1.4%
2023	2.9%
2022	3.0%
2021	1.9%
2020	1.6%

There are no notable variances of Net Capacity Factor within the last five record periods.

Question 19

19. What is CPEP typically used for (e.g., base load, ancillary services, peak load, etc.)? Please explain their usages and who makes the decision on the usages.

SDG&E Response to Question 19

CPEP is typically used for peak load operation. The unit is dispatched by the California Independent System Operator (CAISO).

Outage #11: Cuyamaca Peak Energy Plant Forced Outage (Appendix page KMC-A-4) – October 10 through October 16, 2024 – 5.963 Days (5 days, 23 hours and 7 minutes)

Question 20

20. For the October 10, 2024 Cuyamaca Peak Energy Plant outage (CPEP outage), please verify that the following information (from 1.12_MDR_2024.xlsx and 1.13_MDR_2024.xlsx) is correct:
    a. The beginning date and time of the forced outage – October 10, 2024 at 15:08.
    b. The end date and time of the forced outage – October 16, 2024 at 14:15.

SDG&E Response to Question 20

a. The beginning date and time, indicated above, are correct.
b. The end date and time indicated above, are correct.

Question 21

21. If there are changes to the above dates and times, please explain why.

SDG&E Response to Question 21

There are no changes to the above time and dates.

Question 22

22. What was the time on October 10, 2024 that the operators received the alarms?

SDG&E Response to Question 22

A CEMS Trouble alarm was received at 13:04.

Question 23

23. If the operators did not receive the alarms, please explain why.

SDG&E Response to Question 23

Not applicable.

Question 24

24. How was SDG&E alerted to the fact that the emissions data were not being collected?

SDG&E Response to Question 24

During routine connection to the DAHS utilizing a remote desktop session, the server faulted. Attempts to run an automatic diagnostic repair tool were unsuccessful.

Question 25

25. SDG&E Testimony states that the Continuous Emissions Monitoring System (CEMS) computer failed. Please explain what aspects or components of the computer failed.

SDG&E Response to Question 25

The hard drive failed, and without a functioning hard drive, the computer was unable to store the data collected by the sensors. Since the hard drive is essential for saving and processing emissions data, its failure directly impacted the system's ability to log information.

Question 26

26. What did the CEMS computer fail to perform? Please explain.

SDG&E Response to Question 26

The CEMS computer failed to perform its primary function of collecting and storing emissions data. This failure was due to a malfunctioning hard drive, which prevented the system from saving the information gathered by the sensors. Without a working hard drive, the computer could not log or retain any emissions data.

Question 27

27. Was it the same hard drive that failed previously in the May 21, 2024 forced outage (Outage #5 in Exhibit SDGE-6, page KMC-A-2)? Please explain.

SDG&E Response to Question 27

The fault that occurred on the previous DAHS failure (5/21/2024) was due to a corrupted server database that was further diagnosed as a hard drive failure. Attempts to recover the hard drive were unsuccessful and the hard drive was replaced. The database was restored and the server placed back in operation. The fault that occurred during the failure (10/10/2024) was a server failure resulting in complete failure of the DAHS.

Question 28

28. What actions did SDG&E perform that led SDG&E to realize that the CEMS computer failed and that the emissions data were not being collected? If it was performed by an outside vendor, please provide the name and address of the vendor.

SDG&E Response to Question 28

SDG&E discovered the failure of the CEMS computer and the resulting loss of emissions data during a routine remote connection to the CEMS computer via a remote desktop session. During this process, the computer faulted.

Question 29

29. Who discovered that the emissions data was not being collected? If it was an outside vendor, please provide the name and address of the vendor.

SDG&E Response to Question 29

SDG&E discovered that the emission data was not being collected.

Question 30

30. Does SDG&E utilize a CEMS computer and a Data Acquisition and Handling System (DAHS) computer? What are their differences? Please explain the function of each equipment system.

SDG&E Response to Question 30

The CEMS is the overall system that includes analyzers, the sample probe, sample conditioning equipment, and other support components used to measure and record emissions data. The CEMS also includes the DAHS, which is the component within the system that collects, validates, stores, and handles the emissions data.

Question 31

31. What information was the CEMS and the DAHS collecting in its database? Please enumerate and explain.

SDG&E Response to Question 31

The CEMS and DAHS collected emissions data such as concentrations of NOx and CO, mass emission rates, and calibration records for regulatory reporting. They also gathered operational data including fuel flow, energy output, stack temperature, ammonia injection temperature, and operational hours. Additionally, they recorded system status, alarms, and time-based aggregated data (hourly, daily, monthly, quarterly, and annual) for compliance, analysis, and reporting purposes.

Question 32

32. Was it the CEMS or the DAHS, or both, that were collecting emissions data? Please explain.

SDG&E Response to Question 32

The CEMS is the overall system that includes analyzers, the sample probe, sample conditioning equipment, and other support components used to measure and record emissions data. It also includes the DAHS, which is the component within the CEMS that collects, validates, stores, and handles the emissions data.

Question 33

33. Where is the primary data collected?

SDG&E Response to Question 33

Primary emissions data is collected at the source, specifically from the stack via analyzers that are part of the CEMS. These analyzers measure concentrations of pollutants such as NOx and CO. The data is then transmitted through a Programmable Logic Controller (PLC) to the Data Acquisition and Handling System (DAHS), where it is validated, stored, and prepared for reporting.

Question 34

34. Where is the backup data collected?

SDG&E Response to Question 34

Backup data is collected within the DAHS system, which stores validated emissions and operational data. In addition to internal storage, SDG&E also uses an external backup memory card.

Question 35

35. Please explain what is meant by "the emissions data [were] not being collected" (Exhibit SDGE-6, page KMC-A-4). Please identify where the emissions data was supposed to be collected.

SDG&E Response to Question 35

"The emissions data [were] not being collected" means that the system responsible for recording emissions information was not receiving or storing any data during that time. The DAHS failed and was unable to communicate with the CEMS PLC. As a result, even though the PLC may have continued to collect live emissions data from the analyzers, that data could not be transferred to the DAHS for validation, storage, or reporting.

Question 36

36. Where is/are the physical location(s) that the emissions data is being collected? Are there multiple different devices or locations where the data is being collected? Please explain.

SDG&E Response to Question 36

Emissions data is collected at the physical location of the CEMS, which is installed near the plant stacks. The sensors and analyzers are positioned to continuously measure emissions from the exhaust stream.

The data from these sensors is transmitted to a DAHS, housed in the CEMS shack. While there may be multiple sensors and analyzers involved, the data is consolidated and stored by the DAHS.

Question 37

37. CPEP was placed in a forced outage because the emissions data was not being collected.
    a. Who authorized the forced outage?
    b. When was the forced outage authorized?
    c. Is it a requirement that the plant needs to be in a forced outage when the emissions data is not collected? If so, who established this requirement?
    d. Is there backup emissions data elsewhere when the emissions data was not being collected?

SDG&E Response to Question 37

a. The forced outage was submitted to the CAISO by SDG&E at the request of the Control Room Operator.
b. The forced outage started on 10/10/2024 at 15:08.
c. No. The site could be in another type of outage such as a Planned, Maintenance or Extended outage. The Permit to Operate issued by the SDAPCD (San Diego County Air Pollution Control District) section 21 requires an operating log or data acquisition and handling system (DAHS) records shall be maintained either on site or at a District-approved alternate location to record actual times and durations of all startups and shut-downs, quantity of fuel used (scf) and energy generated (MW-hr), (monthly and annually by calendar year), hours of daily operation and total cumulative hours of operation (monthly and annually by calendar year).
d. Backup data is collected within the DAHS system, which stores validated emissions and operational data. In addition to internal storage, SDG&E also uses an external backup memory card.

Question 38

38. Please describe the emissions data being collected. Please explain and enumerate the equipment where the emissions data are being collected.

SDG&E Response to Question 38

The DAHS collects emissions data such as concentrations of NOx and CO, mass emission rates, and calibration records for regulatory reporting. It also records operational data including fuel flow, energy output, stack temperature, ammonia injection temperature, and operational hours. Additionally, it records system status, alarms, and time-based aggregated data (hourly, daily, monthly, quarterly, and annual) for compliance, analysis, and reporting purposes.

Question 39

39. Was SDG&E cited for its failure to collect the emissions data? Who issued the citations?

SDG&E Response to Question 39

No.

Question 40

40. Was any data lost as a result of the CEMS computer failure? Please explain.

SDG&E Response to Question 40

No. SDG&E was able to recover all data for the CPEP CEMS.

Question 41

41. If data were lost, how did SDG&E recover the lost data?

SDG&E Response to Question 41

Data was recovered from information saved in the EPA database.

Question 42

42. Is the backup data collected continuously? Please explain.

SDG&E Response to Question 42

Data is collected on the backup memory card once a day.

Question 43

43. Do SDG&E operators in the control room have access to know whether the emissions data is being collected? If so, is there a policy to monitor whether data is being collected? Please explain.

SDG&E Response to Question 43

SDG&E operators in the control room have access to monitor emissions data and to connect to the DAHS via a remote desktop session. Through this connection, operators can view system status, data flow, and alarms to verify that emissions data is actively being recorded. If the remote desktop connection fails, operators would have to physically visit the CEMS shack to assess issue. While there may not be a formal written policy requiring continuous monitoring, it is standard operational practice to check system status regularly and respond promptly to any CEMS alarms or abnormal indications.

Question 44

44. Are any emissions data being collected when the plant is shut down? Please explain.

SDG&E Response to Question 44

When the plant is shut down, no emissions are produced because there is no combustion or process activity occurring. As a result, the CEMS does not collect emissions data during this time. However, the CEMS remains operational and continues to log system status information, such as the plant being offline or the system being in standby or calibration mode.

Question 45

45. What are all the reasons that CPEP was in a forced outage?

SDG&E Response to Question 45

From October 10, 2024 through October 16, 2024 CPEP was in a forced outage due to the DAHS failure.

Question 46

46. Please provide the beginning/end date and the MW power generated when CPEP was in operation just before the shutdown that was noted in SDG&E Testimony.

SDG&E Response to Question 46

CPEP was started 10/9/2024 at 16:45 and was shut down on 10/10/2024 at 00:07. During that run the plant generated 310.5 MWH.

Question 47

47. Please provide the date and time when CPEP began its shutdown.

SDG&E Response to Question 47

The plant shutdown was initiated at 23:58 on 10/9/2024.

Question 48

48. Who authorized SDG&E to shut down CPEP and why?

SDG&E Response to Question 48

CPEP is dispatched by the CAISO. SDG&E followed the dispatch instruction from the CAISO to shut down. SDG&E does not know why the CAISO dispatched the shutdown instruction for CPEP.

Question 49

49. Are the date and time of the shutdown the same as the forced outage date and time? Please explain.

SDG&E Response to Question 49

No. CPEP shutdown was completed at 00:07 on 10/10/2024 and the forced outage started on 10/10/2024 at 15:08 when the issue with the CEMS DAHS was discovered.

Question 50

50. Is the starting outage date and time, October 10, 2024 at 15:08, pertinent to SDG&E's or its vendor's discovery that the emissions data was not being collected? Please explain the choice of the outage date and time.

SDG&E Response to Question 50

The forced outage began on October 10, 2024, at 15:08, when an issue with the CEMS DAHS was discovered by SDG&E. Once SDG&E determined that the unit could no longer meet permit conditions due to the DAHS failure, the plant was placed into a forced outage.

Question 51

51. Is the starting outage date and time, October 10, 2024 at 15:08, pertinent to the CPEP shut down? Please explain the choice of the CPED outage date and time.

SDG&E Response to Question 51

No. CPEP shutdown was completed at 00:07 on 10/10/2024 following the shutdown instructions from the CAISO. The forced outage was started once SDG&E determined that the unit could no longer meet permit conditions due to the DAHS failure.

Question 52

52. Does SDG&E perform a check on the collection of the emissions data when it is generating power? Please explain.

SDG&E Response to Question 52

Yes, SDG&E performs checks on the collection of emissions data when the plant is generating power. During normal operations, the CEMS is fully active and continuously records emissions data in real time. The system undergoes routine quality assurance checks, including daily calibration drift checks, periodic linearity checks, and quarterly audits, in accordance with regulatory requirements. These checks ensure that the data collected is accurate, reliable, and compliant with permit conditions. Additionally, the DAHS monitors the integrity of the data and will generate alarms if any anomalies or failures occur, allowing for prompt corrective action.

Question 53

53. Does SDG&E perform a check on the collection of the emissions data when it is shut down? Are these checks in conformance with SDG&E's operating procedure and the manufacturer's instructions? If not, please explain.

SDG&E Response to Question 53

Yes, SDG&E performs checks on the emissions monitoring system even when the plant is shut down, although emissions data collection is not required during this time. When the plant is not generating power and there is no combustion activity, no emissions are produced, and therefore no emissions data is collected. However, the CEMS remains operational and continues to log system status information, such as indicating that the plant is offline or that the system is in calibration mode. Routine checks, including daily calibration and system diagnostics, are still performed in accordance with regulatory requirements. Additionally, the DAHS remains active and will generate alarms if any abnormal conditions or system failures occur, ensuring that the system is ready for accurate data collection when operations resume.

Question 54

54. How often does SDG&E perform a check on the collection of the emissions data when CPEP is generating power? Are these checks in conformance with SDG&E's operating procedure and the manufacturer's instructions? If not, please explain.

SDG&E Response to Question 54

SDG&E performs daily checks of the CEMS as part of the operator rounds at CPEP that includes performing data review in the DAHS. In addition to these daily checks, preventative maintenance is conducted on a scheduled basis (weekly, monthly, quarterly, semiannually, and annually) in accordance with the CEMS Quality Assurance Plan. Furthermore, the DAHS continuously monitors the integrity of emissions data and is programmed to generate alarms if any anomalies or system failures occur.

Question 55

55. Is there an interlock system to shut down CPEP if the emission levels are above acceptable limits? Please explain.

SDG&E Response to Question 55

No. Typically interlocks and trips are reserved for events that could impact personnel or equipment safety.

Question 56

56. Is there an interlock system to shut down CPEP if the CEMS computer is not collecting data or if the CEMS computer is not backing up the database? Please explain.

SDG&E Response to Question 56

No. Typically interlocks and trips are reserved for events that could impact personnel or equipment safety.

Question 57

57. If there is no interlock system to shut down the unit, please explain how the operators know when the emission levels are above acceptable limits.

SDG&E Response to Question 57

Emission levels can be displayed on the Human Machine Interface (HMI) computers in the control room. Alarms within the plant control system also will alert the operator to emission levels that are above acceptable limits.

Question 58

58. If there is no interlock system to shut down the unit, please explain how the operators know when the CEMS computer is not collecting data or when the CEMS computer is not backing up to the database.

SDG&E Response to Question 58

The plant control system has an alarm that indicates CEMS DAHS trouble. When this alarm is received, an operator would need to check the DAHS to see what has brought in the alarm.

Question 59

59. When the unit is offline, do SDG&E operators monitor the emission levels and the operational readiness of CEMS and DAHS? Please explain.

SDG&E Response to Question 59

When the unit is offline, SDG&E operators do not monitor emissions levels because no combustion is occurring and therefore no emissions are being produced. However, they do continue to monitor the operational readiness of the CEMS and the DAHS. When the plant is available but not online these systems remain powered and active to ensure they are functioning properly and ready to resume accurate data collection when the unit returns to service. If anomalies or failures occur the system will generate alarms.

Question 60

60. Is there an interlock system to shut down CPEP if either or both CEMS or DAHS is not functioning? Please explain.

SDG&E Response to Question 60

No. Typically interlocks and trips are reserved for events that could impact personnel or equipment safety.

Question 61

61. How long was CPEP generating power before SDG&E discovered that the CEMS computer was not collecting data or not backing up the database?

SDG&E Response to Question 61

The plant was not operating when SDG&E discovered that the CEMS computer was not collecting data or backing up the database.

Question 62

62. Does SDG&E have any records as to the number of days when the emissions exceed acceptable levels? If so, provide those records. Please explain if no records are available.

SDG&E Response to Question 62

For the record year, emissions exceed acceptable levels for 2 hours at Cuyamaca Peak Energy Plant.

See “Attachment 24 - CPEP Excess Emissions Data_Jan 2024 Thru Dec 2024”

Question 63

63. How often does SDG&E perform a check on the CEMS computer when CPEP is not generating power or is on shutdown? Are these checks in conformance with SDG&E's operating procedure and the manufacturer's instructions? If not, please explain.

SDG&E Response to Question 63

SDG&E performs daily checks of the CEMS as part of the operator rounds at CPEP that includes performing data review on the CEMS computer. In addition to these daily checks, preventative maintenance is conducted on a scheduled basis (weekly, monthly, quarterly, semiannually, and annually) in accordance with the CEMS Quality Assurance Plan. These checks are performed when the CEMS system is service regardless of the status of the plant.

Question 64

64. What are the major components of the CEMS computer? Please enumerate them and provide a diagram and color photos of the computer and its major components. The illustrations should show the layout and physical location of the computer and its components. Show where the equipment is located in relationship to other equipment and to one another.

SDG&E Response to Question 64

Please see "Attachment 13 - CPEP CEMS Pictures" and "Attachment 17 - CEMS System Drawing"

Question 65

65. Is the CEMS computer in the control room for the operators to observe?

SDG&E Response to Question 65

No, the CEMS computer is not located in the control room. It is housed in the CEMS shack, where the system hardware and analyzers are installed. However, emissions data from the CEMS is transmitted to and displayed on the plant control system computers, allowing operators in the control room to monitor emissions data in real time. Additionally, operators have the ability to remotely access the CEMS computer via remote desktop protocol, enabling them to review data and view and respond to alarms without needing to be physically present at the CEMS shack.

Question 66

66. Why was the CEMS computer replaced but not the hard drive?

SDG&E Response to Question 66

The hard drive was not replaced separately because it is an integral part of the computer. When the computer was replaced, the hard drive was replaced along with it.

Question 67

67. For the failed CEMS computer, please enumerate the components that failed.

SDG&E Response to Question 67

1. Hard Drive

Question 68

68. How did SDG&E and/or its vendor make the determination that the CEMS computer was the problem that caused the emissions data to not be collected?

SDG&E Response to Question 68

SDG&E determined that the CEMS computer was the source of the issue by running diagnostics on the computer.

Question 69

69. What information and systems are in the CEMS computer? Please enumerate them and their functions.

SDG&E Response to Question 69

1. CiSCO CeDAR - The CeDAR software is a specialized data acquisition and reporting system used in CEMS. Its primary purpose is to manage and streamline the collection, display, storage, and reporting of emissions data.
2. Windows 10 - serves as the operating system for the CEMS DAHS computer. Its primary function is to provide a stable, secure, and user-friendly platform for running the DAHS software and managing emissions data.
3. Microsoft SQL Server – used as the database backend for the CeDAR Software.
4. Adobe Reader – used for viewing PDF documents
5. Proficy Machine Edition – Used for editing/updating/troubleshooting/viewing the PLC logic (when needed).
6. Breez75x – used for creating XML reports for 40CFR75 reporting purposes.

Question 70

70. When the CEMS computer was replaced, does it necessitate other actions, such as software installation, data restoration and other peripheral activities? Please enumerate and explain.

SDG&E Response to Question 70

Yes, replacing a CEMS DAHS computer requires several follow-up actions. Below is a summary of the typical steps involved in the replacement process.

1. Operating System Setup: Install and configure Windows 10 to ensure the system is stable, secure, and compatible with DAHS software.
2. Software Installation: Reinstall all necessary applications.
3. Database Restoration: Restore the emissions and calibration data from backups to maintain historical continuity and compliance.
4. Configuration Restoration: Reapply site-specific settings to match the previous system setup.
5. Peripheral Setup: Reconnect and test external devices such as printers, calibration systems, and displays to ensure full operational capability.
6. Communication and Integration: Re-establish network links to analyzers, the DCS, and remote access systems for data flow and monitoring.
7. Testing and Validation: Perform system checks to confirm accurate data acquisition, alarm functionality, and report generation.

Question 71

71. Who was the CEMS computer vendor? Please provide the name and address of the vendor.

SDG&E Response to Question 71

SBS CISCO, INC
7841 S. Wheeling CT
Englewood, CO 80112

Question 72

72. Does the replaced CEMS computer contain the same hard drive that was installed during the May 21, 2024 outage (Outage #5)?

SDG&E Response to Question 72

Yes.

Question 73

73. What other parts that were replaced in the October 10, 2024 outage (Outage #11) pertained to those installed in the May 21, 2024 outage (Outage #5)?

SDG&E Response to Question 73

The whole DAHS computer that had the hard drive replaced in the May 21, 2024 outage was replaced during the October 10, 2024 outage.

Question 74

74. Is it reasonable for those parts to fail after approximately 145 days in service (from May 14, 2024 to October10, 2024)? Please explain, and provide the causes of failures.

SDG&E Response to Question 74

The expectation of installing a new hard disk drive is that it will function reliably for the foreseeable future. However, as with any mechanical component, there is no absolute guarantee of longevity. SDG&E did not determine the cause of the failures.

Question 75

75. What is the Commission-approved depreciation life of the CEMS computer?

SDG&E Response to Question 75

Computer equipment has a depreciation life of 5 years, 20% per year. 5 years is the company standard for equipment of this nature.

Question 76

76. What is the Commission-approved life expectancy of the CEMS computer?

SDG&E Response to Question 76
Computer equipment has a depreciation life of 5 years, 20% per year. 5 years is the company standard for equipment of this nature.

Question 77

77. How many spare CEMS computers does SDG&E have in inventory to minimize outage time if a similar event were to occur? Please explain.

SDG&E Response to Question 77

SDG&E has two CEMS computers in inventory to minimize outage time if a similar event were to occur. SDG&E ordered three spare computers and used one during the October 10, 2024 outage leaving two in inventory.

Question 78

78. For each spare CEMS computer, what are the major components that SDG&E purchased? Please enumerate and explain their purchases. For example, are monitors part of the equipment purchase and why?

SDG&E Response to Question 78

1. DAHS Computer - replacement for the computer with the failed hard drive.
    a. Dell Precision 3460 Small Form Factor Intel i7-12700, 8 Core Turbo Processor 32 GB RAM - included with the computer.
    b. 1 TB Solid State PCie NVMe Hard Drive - included with the computer.
    c. Two GigE Network Interface Ports (NIC's) - included with the computer.
    d. Integrated Sound Card- included with the computer.
    e. USB Speakers - included with the computer.
    f. Windows 11 Professional 64-bit- included with the computer.
    g. 3-year Next Business Day Pro Support from Dell - included with the computer.
2. SQL Server License – required software license for the DAHS computer to function as required.

Continuous Emissions Monitoring System (CEMS)

Question 79

79. What is the Continuous Emissions Monitoring System (CEMS) as used in CPEP? Please explain its function and purpose.

SDG&E Response to Question 79

"Continuous Emission Monitoring System (CEMS)" means the total combined equipment and systems, including the sampling interface, analyzers, and data acquisition and handling system, required to continuously determine air contaminants and diluent gas concentrations and/or mass emission rate from an emission unit (as applicable).
https://www.sdapcd.org/content/dam/sdapcd/documents/rules/current-rules/Rule-19.2.pdf

Question 80

80. Is CEMS a software or hardware? Please explain.

SDG&E Response to Question 79

CEMS is a system that includes both hardware and software components working together to continuously monitor and record emissions data from industrial sources. The hardware portion consists of equipment such as gas analyzers, sample probes, sample conditioning units, and flow monitors, which are used to extract and measure stack exhaust. The software component of the CEMS, known as the DAHS, collects, processes, stores, and reports the emissions data. It also performs data validation, calculations, and generates alarms in the event of system malfunctions or anomalies.

Question 81

81. Please provide the information about the CEMS Original Equipment Manufacturer (OEM) such as the name and address.

SDG&E Response to Question 79

SBS CISCO, INC
7841 S. Wheeling CT
Englewood, CO 80112

Question 82

82. How often does the CEMS monitor the levels of the various emission types: is it every second, minute, hour, or daily? Please explain.

SDG&E Response to Question 82

A Continuous Emissions Monitoring System (CEMS) monitors emission levels continuously (every second). Reports can be generated to observe the data in multiple time periods including but not limited to minute, hour, daily, monthly, quarterly and annual.

Question 83

83. Does SDG&E have the flexibility to change the frequency of the monitoring such as from every second to every hour? Please explain, and state whether SDG&E needs permission to make such changes.

SDG&E Response to Question 83

The monitoring sequence cannot be changed, as it is required at both federal and state level for the system to monitor continuously (every second).

The software SDG&E uses for the CEMS allows the user to select the unit of time to analyze. Reports can be generated to observe the data in multiple time periods including but not limited to minute, hour, and daily.

Question 84

84. How often have SDG&E made changes to the monitoring frequency? Please explain the nature of those changes.

SDG&E Response to Question 84

The monitoring sequence cannot be changed, as it is required at both federal and state level for the system to monitor continuously (every second).

Question 85

85. When was the CEMS installed?

SDG&E Response to Question 85

The CEMS was installed as part of the original construction of the plant.

Question 86

86. Please enumerate the types of emissions that the CEMS is monitoring.

SDG&E Response to Question 86

1. Nitrogen oxides
2. Carbon monoxide
3. Volatile organic compounds
4. Oxides of sulfur
5. Ammonia

Question 87

87. Please explain the source(s) of each emission type.

SDG&E Response to Question 87

1. Nitrogen oxides formation occurs by three fundamentally different mechanisms. The principal mechanism with turbines firing gas or distillate fuel is thermal NOX, which arises from the thermal dissociation and subsequent reaction of nitrogen (N2) and oxygen (O2) molecules in the combustion air. Most thermal NOX is formed in high temperature stoichiometric flame pockets downstream of the fuel injectors where combustion air has mixed sufficiently with the fuel to produce the peak temperature fuel/air interface.

   The second mechanism, called prompt NOX, is formed from early reactions of nitrogen molecules in the combustion air and hydrocarbon radicals from the fuel. Prompt NOX forms within the flame and is usually negligible when compared to the amount of thermal NOX formed. The third mechanism, fuel NOX, stems from the evolution and reaction of fuel-bound nitrogen compounds with oxygen. Natural gas has negligible chemically-bound fuel nitrogen (although some molecular nitrogen is present). Essentially all NOX formed from natural gas combustion is thermal NOX. Distillate oils have low levels of fuel-bound nitrogen. Fuel NOX from distillate oil-fired turbines may become significant in turbines equipped with a high degree of thermal NOX controls. Otherwise, thermal NOX is the predominant NOX formation mechanism in distillate oil-fired turbines.

2. CO and VOC emissions both result from incomplete combustion. CO results when there is insufficient residence time at high temperature or incomplete mixing to complete the final step in fuel carbon oxidation. The oxidation of CO to CO2 at gas turbine temperatures is a slow reaction compared to most hydrocarbon oxidation reactions. In gas turbines, failure to achieve CO burnout may result from quenching by dilution air. With liquid fuels, this can be aggravated by carryover of larger droplets from the atomizer at the fuel injector. Carbon monoxide emissions are also dependent on the loading of the gas turbine. For example, a gas turbine operating under a full load will experience greater fuel efficiencies which will reduce the formation of carbon monoxide. The opposite is also true, a gas turbine operating under a light to medium load will experience reduced fuel efficiencies (incomplete combustion) which will increase the formation of carbon monoxide.

3. The pollutants commonly classified as VOC can encompass a wide spectrum of volatile organic compounds some of which are hazardous air pollutants. These compounds are discharged into the atmosphere when some of the fuel remains unburned or is only partially burned during the combustion process. With natural gas, some organics are carried over as unreacted, trace constituents of the gas, while others may be pyrolysis products of the heavier hydrocarbon constituents. With liquid fuels, large droplet carryover to the quench zone accounts for much of the unreacted and partially pyrolized volatile organic emissions

4. Oxides of sulfur (SOX) will only appear in a significant quantity if heavy oils are fired 4/00 Stationary Internal Combustion Sources 3.1-3 in the turbine. Emissions of sulfur

compounds, mainly SO2, are directly related to the sulfur content of the fuel

Reference: https://www3.epa.gov/ttnchie1/ap42/ch03/final/c03s01.pdf

5. Ammonia slip refers to the emissions of unreacted ammonia that results from the incomplete reaction of the NOx and the reagent.

   Reference: https://www3.epa.gov/ttncatc1/dir1/fscr.pdf

Question 88

88. What equipment is SDG&E using to control/reduce/eradicate each emission type.

SDG&E Response to Question 88

NOx emissions are reduced/controlled at CPEP using a Selective Catalytic Reduction (SCR) system in the turbine exhaust duct.

To reduce CO emissions MEF2 utilizes a CO catalyst in the turbine exhaust duct.

There is no specific equipment used to control Volatile organic compounds (VOC) and Oxides of sulfur (SOX)

Question 89

89. Has SDG&E established measures to reduce or eradicate those emissions? Please explain the measures implemented for each emission type.

SDG&E Response to Question 89

To reduce nitrogen oxide (NOx) emissions, CPEP utilizes a Selective Catalytic Reduction (SCR) system. In this system, ammonium hydroxide is vaporized and injected into the exhaust stream of the gas turbine upstream of a catalyst. The catalyst provides a surface for a chemical reaction in which NOx is converted into nitrogen water vapor. The flow rate of ammonia is controlled to ensure NOx reduction while minimizing excess ammonia slip.

To reduce carbon monoxide (CO) emissions, CPEP utilizes a CO catalyst system. The exhaust gases from the gas turbine pass through the catalyst, which facilitates the oxidation of carbon monoxide into carbon dioxide.

Question 90

90. Has SDG&E been successful in establishing measures to reduce or eradicate those emissions? Please explain.

SDG&E Response to Question 90

Yes, SDG&E typically operates within the permit limit for each emission type.

Question 91

91. How often does SDG&E check the CEMS? Please provide records of those inspections.

SDG&E Response to Question 91

The following maintenance is performed on the CEMS.

- Weekly Preventative Maintenance: The weekly preventative maintenance checks include a review of the calibration error (drift) test results, a check of the calibration gas cylinders, plus visual checks and verification of various general items.

- Monthly Preventative Maintenance: The monthly preventative maintenance checks include a functional inspection of the NOx, CO & O_2 analyzers. The check also includes inspection of stack components.

- Quarterly Preventative Maintenance: The quarterly preventative maintenance checks include filter change out and component inspection of CEMS system equipment.

- Semi-Annual Preventative Maintenance: The semi-annual preventative maintenance checks include CO analyzer pump and Sample Conditioner pump rebuilds.

- Annual Preventative Maintenance: The Annual preventative maintenance checks include NOx pump head rebuilds. It also includes clean and inspection of internal analyzer components with function testing.

Please see "Attachment 06 - CPEP Preventative CEMS Maintenance" for record of maintenance activities.

Question 92

92. Does SDG&E have a software reliability program to test CEMS?
    a. If so, please provide that program.
    b. If not, please explain why not.

SDG&E Response to Question 92

SDGE has implemented a hardware/software CEMS solution from SBS CISCO, INC. The product incorporates the CEMS database and the software interface to the CEMS PLC. The hardware undergoes a 72 hour burn-in test prior to delivery (usually run 3 to 5 days). The proprietary software code reviewed internally by SBS CISCO prior to publishing and implementing. We do not have an internet forward facing connection for the system. We have anti-virus software on the system that is updated monthly. The DAHS also incorporates a Windows Defender firewall

Question 93

93. Please explain the differences, such as its manufacturer, and functions, between the CEMS in CPEP and those in other SDG&E units.
    a. Is one CEMS better than the other? If so, does SDG&E have plans to upgrade the units with less functionality and/or reliability? Please explain.

SDG&E Response to Question 93

The CEMS at the Miramar Energy Facility, Cuyamaca Peak Energy Plant and the Palomar Energy Center are all Cisco CEMS. No significant differences between the systems.

a. Not applicable.

Question 94

94. When CPEP was generating power before the shutdown, was the CEMS computer collecting emissions data? Please explain how SDG&E knew it was or was not collecting data when it was online before CPEP went offline.
    a. If yes, how does SDG&E know that the CEMS computer was collecting emissions data?
    b. If not, please explain why not.

SDG&E Response to Question 94

Yes.

a. See “Attachment 15 - CPEP CEMS Emissions Data 2025_10_09” for emissions data.
b. Not applicable.

Question 95

95. Right after the beginning of shutdown when CPEP was not generating power, was the CEMS computer collecting emissions data?
    a. If yes, how does SDG&E know that the CEMS computer was collecting emissions data?
    b. If not, please explain why not.

SDG&E Response to Question 95

Yes.

a. See "Attachment 16 - CPEP CEMS Emissions Data 2025_10_18" for emissions data.
b. Not applicable.

Question 96

96. When CPEP was placed in a forced outage, was the CEMS computer collecting emissions data?
    a. If yes, how does SDG&E know that the CEMS computer was collecting emissions data?
    b. If not, please explain why not.

SDG&E Response to Question 96

No.

a. Not applicable.
b. When the plant is shut down, no emissions are produced because there is no combustion or process activity occurring. As a result, the CEMS does not collect emissions data during this time.

Question 97

97. Is there any alarm system to alert plant personnel and/or control room operators of CEMS computer problems? Please explain that alarm system.

SDG&E Response to Question 97

Yes. The plant control system has an alarm to indicate trouble with the CEMS. This alarm could include a problem with the CEMS computer. Alarms on the plant control system indicate on an alarm screen and are accompanied by an audible alarm in the control room.

Question 98

98. Is there any visual/audio alarm system on the equipment to alert plant personnel of the CEMS computer problem? Please explain that alarm system.

SDG&E Response to Question 98

Yes. The plant control system has an alarm to indicate trouble with the CEMS. This alarm could include a problem with the CEMS computer. Alarms on the plant control system indicate on an alarm screen and are accompanied by an audible alarm in the control room.

Question 99

99. How was SDG&E alerted of the CEMS computer problem?
    a. Was the operator in the control room alerted through an alarm system? Please explain if there is no alarm system in the control room.
    b. Did plant personnel accidentally discover the problem because of the visual/audio alarm system on the equipment?

SDG&E Response to Question 99

During routine connection to the DAHS utilizing a remote desktop session, the server faulted. Attempts to run an automatic diagnostic repair tool were unsuccessful.

a. The plant control system has an alarm to indicate trouble with the CEMS. The operator did receive a CEMS Trouble Alarm at 13:04.
b. No personnel did not accidentally discover the problem.

Question 100

100. Was there an interlock system to shut down equipment when there is a CEMS computer problem? Please explain.

SDG&E Response to Question 100

No. There is no interlock system to shut down equipment when there is a CEMS computer problem.

Question 101

101. Before shutdown, did the CEMS computer experience any problem? Please explain how SDG&E knew the operating status of the CEMS computer at any time, online and offline.

SDG&E Response to Question 101

No. To monitor the operating status the operators monitor emissions in real time using the Continuous Emissions Monitoring System (CEMS), with data displayed on screens in the control room. This allows for continuous observation of key environmental parameters. In addition to the CEMS, the plant's Distributed Control System (DCS) also tracks emissions levels and provides alerts for any abnormalities. These alerts are communicated through both visual indicators on the alarm screen and audible alarms in the control room. The DCS is also configured to detect issues with the CEMS itself. If a problem arises, such as a fault in the CEMS computer or a system malfunction, the DCS will trigger a dedicated alarm.

Question 102

102. How old is the CEMS computer when the problem arose? When was it previously replaced and why?

SDG&E Response to Question 102

The CEMS DAHS Computer was installed in October of 2020 it was approximately 4 years old at the time of replacement. This was performed to upgrade to Windows 10 operating system.

Question 103

103. How did SDG&E repair the CEMS computer? Please elaborate.

SDG&E Response to Question 103

SDG&E replaced the CEMS DAHS computer during October 10, 2024, outage.

Question 104

104. Did CEMS need to be repaired? Please explain.

SDG&E Response to Question 104

The DAHS is an integral part within the CEMS system. The DAHS was the only part within the CEMS system that required repair.

Question 105

105. If so, how did SDG&E repair the CEMS?

SDG&E Response to Question 105

The DAHS is an integral part within the CEMS system. The DAHS was the only part within the CEMS system that required repair.

Question 106

106. How did SDG&E know what needed to be repaired for both the DAHS and CEMS? Please explain. If contractors were used, list and name the contractors with their addresses.

SDG&E Response to Question 106

The CEMS DAHS computer is an integral component of the CEMS system. When the computer failed, it became completely unresponsive. This unresponsiveness was the indicator to SDG&E that the CEMS DAHS computer required repair or replacement.

Question 107

107. For the period when CPEP was operating and just before shutting down to offline status, what were the levels of the various emission types?

SDG&E Response to Question 107

Please see "Attachment 15 - CPEP CEMS Emissions Data 2025_10_09" for emissions levels for the period when CPEP was operating and just before shutting down to offline status.

Question 108

108. Were they in compliance with the regulatory requirements?

SDG&E Response to Question 108

Yes

Question 109

109. How did SDG&E recover the data base?

SDG&E Response to Question 109

SDG&E recovered the CEMS DAHS database by first installing the DAHS software on the new drive. Using a valid backup of the DAHS data stored on an external thumb drive, SDG&E employed the restoration utility to import the backup into the new system.

Question 110

110. Was SDG&E able to recover all the data pertaining to the levels of the various emission types?
a. If so, explain how it was accomplished.
b. If not, please explain why not.

SDG&E Response to Question 110

Yes.

a.

b. Not applicable.

Question 111

111. How much data was lost? Please cite dates and time.

SDG&E Response to Question 111

No data was lost. SDG&E was able to recover all data for the CPEP CEMS.

Question 112

112. How much data was recovered? Please cite dates and time.

SDG&E Response to Question 112

All data was recovered.

Question 113

113. When was the last time that the CEMS computer had the same problem, if any? Please enumerate the occurrences.
   a. What were SDG&E actions at that time?
   b. What measures did SDG&E take to prevent its recurrence?

SDG&E Response to Question 113

In the record year prior to the October 10, 2024, outage the CPEP CEMS system had a similar issue on May 21, 2024.

c. During this outage SDG&E replaced the hard drive within the CEMS DAHS computer.
d. SDG&E has purchased spare CEMS DAHS computers to keep in inventory, allowing for expedited replacement in the event of a similar failure in the future. SDG&E purchased these spare computers to reduce outage time if a similar failure was experienced in the future.

Question 114

114. How often does SDG&E check the CEMS computer? Please provide records of those inspections.

SDG&E Response to Question 114

The following maintenance is performed on the CEMS.

- Weekly Preventative Maintenance: The weekly preventative maintenance checks include a review of the calibration error (drift) test results, a check of the calibration gas cylinders, plus visual checks and verification of various general items.
- Monthly Preventative Maintenance: The monthly preventative maintenance checks include a functional inspection of the NOx, CO & O_2 analyzers. The check also includes inspection of stack components.
- Quarterly Preventative Maintenance: The quarterly preventative maintenance checks include filter change out and component inspection of CEMS system equipment.
- Semi-Annual Preventative Maintenance: The semi-annual preventative maintenance checks include CO analyzer pump and Sample Conditioner pump rebuilds.
- Annual Preventative Maintenance: The Annual preventative maintenance checks include NOx pump head rebuilds. It also includes clean and inspection of internal analyzer components with function testing.

Please see “Attachment 06 - CPEP Preventative CEMS Maintenance” for record of maintenance activities.

Question 115

115. Does SDG&E have a hardware reliability program to test CEMS?
    a. If so, please provide that program.
    b. If not, please explain why not.

SDG&E Response to Question 115

SDG&E has implemented a hardware/software CEMS solution from SBS CISCO, INC. The product incorporates the CEMS database and the software interface to the CEMS PLC. The hardware undergoes a burn-in test prior to delivery (usually run 3 to 5 days). The proprietary software code reviewed internally by SBS CISCO prior to publishing and implementing. We do not have an internet forward facing connection for the system. We have anti-virus software on the system that is updated monthly. The DAHS also incorporates a Windows Defender firewall.

Data Acquisition and Handling System (DAHS)

Question 116

116. Does DAHS (page KMC-A-4) stand for Data Acquisition and Handling System? If not, please explain what the acronym is.

SDG&E Response to Question 116

Yes.

Question 117

117. What is the Data Acquisition and Handling System (DAHS) as used in CPEP? Please explain its function and purpose.

SDG&E Response to Question 117

The Data Acquisition and Handling System (DAHS) is a dedicated computer within the CEMS. Its primary function is to collect data from CEMS instrumentation, such as analyzers and flow monitors, and manage that data to support environmental compliance. The DAHS enables the recording, storage, and regulatory reporting of emissions and operational data, ensuring that facilities can meet environmental standards and can provide required documentation to regulatory agencies.

Question 118

118. Please provide the name and address of the DAHS OEM.

SDG&E Response to Question 118

The DAHS is a Dell computer in the CEMS. SBS CISCO, INC provided the DAHS as part of the CEMS.

SBS CISCO, INC
7841 S. Wheeling CT
Englewood, CO 80112

Question 119

119. When was the DAHS installed?

SDG&E Response to Question 119

A DAHS is part of the CEMS and was initially installed as part of the original construction of the plant.

Question 120

120. Please provide a diagram and color photos of the DAHS and its main equipment. The illustrations should show the layout and physical location of the equipment and the number of pieces of each equipment. Show where the parts and equipment are located in relationship to other equipment and to one another.

SDG&E Response to Question 120

Please see “Attachment 13 - CPEP CEMS Pictures”,

Question 121

121. Please explain how DAHS interacts with CEMS.

SDG&E Response to Question 121

The DAHS is a dedicated computer within the CEMS. It collects real-time emissions data from various monitoring instruments such as gas analyzers, flow meters, and temperature sensors. Once gathered, the DAHS processes and stores data for regulatory reporting.

Question 122

122. What data was collected in DAHS? Please elaborate and provide the data collected immediately after the restoration of the DAHS and the data collected while the unit was online.

SDG&E Response to Question 122

The CEMS DAHS computer stores data essential for environmental compliance, including real-time measurements of emissions, calibration records, and quality assurance checks. It also logs plant operational status, data validation routines, and substitution records for periods of missing or invalid data. This information is stored and formatted to meet regulatory reporting requirements, enabling facilities to demonstrate compliance and effectively respond to audits or inspections.

Please see "Attachment 16 - CPEP CEMS Emissions Data 2025_10_18"

Question 123

123. What does DAHS do with the data collection?

SDG&E Response to Question 123

The DAHS records and organizes data collected from the CEMS , making it accessible for both operational monitoring and regulatory compliance. It displays real-time emissions information, allowing operators to monitor system conditions. Additionally, the DAHS can generate reports that summarize emissions data over specific time periods. These reports are essential for submitting accurate information to regulatory agencies and demonstrating compliance with permit conditions.

Question 124

124. What does SDG&E do with the DAHS data collection?

SDG&E Response to Question 124

SDG&E uses the data to submit quarterly emissions and operations reports to EPA and San Diego Air Pollution Control District. In the event of breakdowns, testing and maintenance, the data collected by the DAHS is frequently requested by government agencies to ensure proper response and compliance.

Relationship between the May 21, 2024 (Outage #5) and the October 10, 2024 outage (Outage #11)

Question 125

125. There was an approximate 145-day duration (4 months and 22 days) between Outage #5 (May 21, 2024) and the beginning of Outage #11 (October 10, 2024). Are the two outages related to the same problems or issues? Please explain.

SDG&E Response to Question 125

Outage #5 on May 21, 2024, and Outage #11 on October 10, 2024, are related in that both were caused by hard drive failures on the same system. The initial outage was addressed by replacing the failed hard drive, which temporarily resolved the issue. During the second outage SDG&E decided to replace the whole computer rather than just replacing the hard drive.

Question 126

126. Was the repair work on the May 21, 2024 outage related to the October 10, 2024 outage? Please explain.

SDG&E Response to Question 126

Outage #5 on May 21, 2024, and Outage #11 on October 10, 2024, were both caused by failures of the CEMS DAHS computer's hard drive. The specific cause of the hard drive failure was not determined in either instance.

Question 127

127. In the May 21, 2024 outage, what were the computer components that failed?

SDG&E Response to Question 127

The computer hard drive.

Question 128

128. After the May 21, 2024 outage, which computer components required replacement?

SDG&E Response to Question 128

In the October 10, 2024, outage SDG&E experienced a similar failure. Durin this outage SDG&E decided to replace the whole computer rather than just replacing the hard drive.

Question 129

129. Was the replaced hard drive after the May 21, 2024 outage in the same computer that was replaced in the October 10, 2024 outage? If so, please explain the reasons for the short useful life of the equipment.

SDG&E Response to Question 129

Yes

Question 130

130. Did the computer components replaced in the May 21, 2024 outage fail in the October 10, 2024 outage? Please explain.

SDG&E Response to Question 130

Outage #5 on May 21, 2024, and Outage #11 on October 10, 2024, were both caused by failures of the CEMS DAHS computer's hard drive. In the first instance, SDG&E addressed the problem by replacing only the failed hard drive. However, when a similar failure occurred in October, SDG&E chose to replace the entire computer, including the hard drive, rather than performing another partial fix.

Question 131

131. Are the computer components replaced in the May 21, 2024 outage different from the ones replaced in the May 21, 2024 outage? Please explain the differences. Was the computer vendor contacted to investigate the cause of the short useful life of the equipment?

SDG&E Response to Question 131

During Outage #5 on May 21, 2024, the hard drive in the CEMS DAHS computer was replaced. Later, during Outage #11 on October 10, 2024, the entire computer, including the hard drive, was replaced. No, the computer vendor was not contacted to investigate the cause of the equipment's short lifespan.

Question 132

132. Before CPEP went offline in Outage #5 and #11, was SDG&E cognizant of the emission levels while CPEP was generating power? Please explain how SDG&E operators monitor the emission levels while online.

SDG&E Response to Question 132

Yes, SDG&E was cognizant of emission levels while CPEP was generating power prior to Outages #5 and #11. Operators monitor emissions in real time through the CEMS, with data displayed in the control room for observation. In addition to the CEMS, the plant's Distributed Control System (DCS) also tracks emissions levels and alerts operators to any abnormalities through alarms.

Question 133

133. For the outage on May 21, 2024 (Outage #5), the CEMS noted that the database was not backing up.
a. What information was the CEMS storing in its database?
b. What information was the CEMS not backing up?

SDG&E Response to Question 133

a. The CEMS DAHS computer stores data essential for environmental compliance, including real-time measurements of emissions, calibration records, and quality assurance checks. It also logs plant operational status, data validation routines, and substitution records for periods of missing or invalid data. This information is stored and formatted to meet regulatory reporting requirements, enabling facilities to demonstrate compliance and effectively respond to audits or inspections.
b. When the CEMS DAHS computer failed, it was completely non-functional, meaning there was no way to confirm whether it was actively recording or backing up any data.

Question 134

134. For the outage on October 10, 2024 (Outage #11), the CEMS computer failed because it was not collecting emissions data. Is this problem similar to Outage #5? Please explain.

SDG&E Response to Question 134

Yes, the problem in each outage was similar. Each outage was due to a failed CEMS DAHS computer.

Question 135

135. If the two outages are related, please explain what steps SDG&E has taken to prevent its recurrence, and why the outage recurred after only 145 days.

SDG&E Response to Question 135

SDG&E has replaced the CEMS DAHS computer with a new unit equipped with solid-state drives (SSDs) instead of traditional hard disk drives (HDDs). This upgrade eliminates mechanical wear and significantly reduces vulnerability to shock, vibration, and physical damage, thereby enhancing overall system reliability. In addition, SDG&E has purchased spare CEMS DAHS computers to keep in inventory, allowing for expedited replacement in the event of a similar failure in the future.

Regulatory Requirements

Question 136

136. Please list all the regulatory entities to which SDG&E reports its emissions.

SDG&E Response to Question 136

San Diego Air Pollution Control District (SDAPCD)
Environmental Protection Agency (EPA)

Question 137

137. Please list all other entities to which SDG&E reports its emissions.

SDG&E Response to Question 137

SDG&E does not report emissions to other entities.

Question 138

138. Are these reports prepared on a regular basis? Please explain.

SDG&E Response to Question 138

Yes. Agencies require quarterly, semiannual, and annual reports.

Question 139

139. Please provide the latest report(s).

SDG&E Response to Question 139

Please see "Attachment 10 - USEPA_SDGE_MEF CPEP_2024_Annual Semi-Annual_Title V Report", "Attachment 11 - CPEP_SDAPCD_Q3_2025_Excess Emissions and CEMS Downtime Reports" and "Attachment 12 - CPEP - Title V SA_January 2025 thru June 2025"

Question 140

140. Are incident reports such as those pertaining to the May 21, 2024 (Outage #5) and the October 10, 2024 (Outage #11) included in regular reports? Please explain.

SDG&E Response to Question 140

No, these incidents would not be included in the regular reports because they occurred while the plant was not operating. Regular reports contain data on CEMS downtime during operational periods and any excess emissions during the reporting period. Since neither outage resulted in excess emissions or CEMS downtime under operating conditions, they are not included on regular reports.

Question 141

141. Please enumerate the statues and regulations with which SDG&E must comply regarding emissions.

SDG&E Response to Question 141

Please see “Attachment 07 - Cuyamaca - CPEP 2021 - 2026 Title V - Exp. Dec-1.2026”, “Attachment 08 - APCD2020-PTO-003552_CPEP_BSG” and “Attachment 09 - APCD2008-PTO-976021_CPEP_Gas Turbine”

Question 142

142. Please enumerate the acceptable limits of each type of emissions.

SDG&E Response to Question 142

Please see “Attachment 07 - Cuyamaca - CPEP 2021 - 2026 Title V - Exp. Dec-1.2026”, “Attachment 08 - APCD2020-PTO-003552_CPEP_BSG” and “Attachment 09 - APCD2008-PTO-976021_CPEP_Gas Turbine” for permit conditions.

Question 143

143. Did SDG&E report the two outage incidents (Outage #5 and #11) to the regulatory authorities?
a. If so, please provide those report(s).
b. Do the reports show the dates and time when data of emissions levels were lost and/not recorded?

SDG&E Response to Question 143

No.
a. Not Applicable.
b. Not Applicable.

Question 144

144. Was SDG&E cited by the regulatory authorities for the two incidents (Outage #5 and #11)?
a. If so, please provide all such citations. Also list what penalties, if any, the regulatory authorities imposed on SDG&E.
b. If not, please provide the responses provided by the regulatory authorities.

SDG&E Response to Question 144

No.
a. Not applicable
b. There were no responses provided by the regulatory authorities.

Question 145

145. How many times have the regulatory authorities imposed emissions-related penalties on SDG&E? Please list them and provide the dates and specifics, and SDG&E's corrective actions.

SDG&E Response to Question 145

During the record period, SDG&E received one Notice of Violation from the SDAPCD on January 19, 2024, related to CPEP emissions.

NERC Classification and GADS Cause Code – May 21, 2024 Outage (Outage #5) and October 10, 2024 Outage (Outage #11)

Question 146

146. Why did SDG&E use North American Electric Reliability Corporation (NERC) Event Type U1 for the two outages (Reference: MDR #1.1.13 response)? Please explain the U1 designation and cite appropriate sources.

SDG&E Response to Question 146

This is an outage that requires immediate removal of a unit from service, another outage state, or a reserve shutdown state. This type of outage usually results from automatic control system trips or operator initiated manual trips of the unit in response to unit alarms but can also occur while the unit is offline.

CPEP was in a reserve shutdown state when it was placed into a forced outage. Type U1 was selected because the failure required that the plant be removed from service immediately.

Reference: Generating Availability Data System Data Reporting Instructions, Effective - January1, 2024, page III-8.
https://www.nerc.com/pa/RAPA/gads/DataReportingInstructions/GADS_DRI_2024.pdf

Question 147

147. Please explain the Generating Availability Data System (GADS) Cause Code 8780, "Data acquisition system problems", as used by SDG&E for the two CPEP outages. (Reference:MDR #1.1.13 response)? Please cite any appropriate sources.

SDG&E Response to Question 147

NERC GADS defines Cause Code 8780 as follows:

UNIT TYPE	Gas Turbine/Jet Engine (Simple Cycle Operation)
SYSTEM	Pollution Control Equipment
COMPONENT	Continuous Emissions Monitoring Systems (CEMS)
CAUSE CODE	8780
DESCRIPTION	Data acquisition system problems

Reference: Generating Availability Data System Data Reporting Instructions, page B09 -38.
https://www.nerc.com/pa/RAPA/gads/DataReportingInstructions/Appendix_B09_Gas_Turbine_Jet_Engine_Unit_Cause_Codes_2024_DRI.pdf

Question 148

148. Why did SDG&E use GADS Cause Code 8780 when the failure appears to be due to the CEMS computer? Is there a GADS Cause Code for "computer" or "CEMS computer?"

SDG&E Response to Question 148

GADS reporting instructions direct the use of the four-digit code from Appendix B that best identifies the system, major component, or piece of equipment you are describing.

The problem was identified within the CEMS DAHS. Per the instructions SDG&E selected the four-digit code from Appendix B that best identifies the piece of equipment.

Question 149

149. SDG&E records the two outages as a NERC Event Type U1 and a GADS Cause Code 8780. What are the differences in organization and function between NERC and GADS with respect to their reporting purpose and requirements?

SDG&E Response to Question 149

NERC is the North American Electric Reliability Corporation. GADS is the Generating Availability Data Systems. NERC maintains the GADS for the Generating industry. The GADS is a webpage on the NERC website.

From the NERC website (https://www.nerc.com/AboutNERC/Pages/default.aspx):

The North American Electric Reliability Corporation (NERC) is a not-for-profit international regulatory authority whose mission is to assure the effective and efficient reduction of risks to the reliability and security of the grid. NERC develops and enforces Reliability Standards; annually assesses seasonal and long-term reliability; monitors the bulk power system through system awareness; and educates, trains, and certifies industry personnel. NERC's area of responsibility spans the continental United States, Canada, and the northern portion of Baja California, Mexico. NERC is the Electric Reliability Organization (ERO) for North America, subject to oversight by the Federal Energy Regulatory Commission (FERC) and governmental authorities in Canada. NERC's jurisdiction includes users, owners, and operators of the bulk power system, which serves nearly 400 million people.

From the GADS webpage on the NERC website (https://www.nerc.com/pa/RAPA/gads/Pages/GeneratingAvailabilityDataSystem-(GADS).aspx) and (https://www.nerc.com/pa/RAPA/gads/Pages/Data%20Reporting%20Instructions.aspx):

The electric utility industry initiated GADS in 1982 to expand data collection activities that it began in 1963. Through GADS, NERC collects information about the performance of electric generating equipment and supports equipment availability analyses. GADS reporting is mandatory for NERC-registered entities with conventional generating units that are 20 MW or more.

GADS is recognized today as a valuable source of reliability, availability, and maintainability information. This information, collected for both total unit and major equipment groups, is used by analysts industry-wide in numerous applications. GADS maintains operating histories on more than 5,000 generating units.

Question 150

150. Besides outages, are there any other events in which SDG&E must assign and report NERC Event Types and GADS Cause Codes?

SDG&E Response to Question 150

Yes, event reporting is required as described below:

An "event" occurs any time a generating unit's operating status or capability changes. GADS receives reports on four general classifications of events: outages, derates, reserve shutdowns, and non-curtailing events.

Reference: Generating Availability Data System Data Reporting Instructions, January 1, 2024, page III-1.
https://www.nerc.com/pa/RAPA/gads/DataReportingInstructions/GADS_DRI_2024.pdf

Definitions of Event Types:

1. **Outages**: An outage exists whenever an active unit is not synchronized to the grid system and not in a reserve shutdown state.

2. **Deratings**: A derating exists whenever a unit is limited to a power level that is less than the unit's net maximum capacity.

3. **Reserve Shutdowns**: This is an event where a unit is available for load but is not synchronized due to lack of demand.

4. **Non-curtailing Events**: This is an event that occurs whenever equipment or a major component is removed from service for maintenance, testing, or other purposes that do not result in a unit outage or derating.

Reference: Generating Availability Data System Data Reporting Instructions, Effective - January1, 2024, section III.
https://www.nerc.com/pa/RAPA/gads/DataReportingInstructions/GADS_DRI_2024.pdf

Question 151

151. To whom does SDG&E report the NERC Event Types and GADS Cause Codes? Please list all persons/organizations (external to SDG&E) that receive the information.

SDG&E Response to Question 151

SDG&E reports the NERC Event Type and GADS Cause Codes only to NERC. SDG&E utilizes an intermediary company, Strategic Power System "SPS", for reporting the data to NERC. SDG&E provides the data to SPS. SPS validates the data, converts the data into the NERC GADS format, and submits the data to NERC GADS

Question 152

152. Where is the requirement that SDG&E must identify and report the NERC classification and GADS Cause Code for an outage?

SDG&E Response to Question 152

NERC mandated the Generating Availability Data System (GADS) program for conventional generating units 20 MW and larger, as of January 1, 2013.

Reference: Generating Availability Data System Data Reporting Instructions, Section III: Event Reporting.
https://www.nerc.com/pa/RAPA/gads/DataReportingInstructions/GADS_DRI_2024.pdf

Question 153

153. Where is the requirement that SDG&E must identify and report the NERC classification and GADS Cause Code for an outage to other persons/organizations (external to SDG&E)?

SDG&E Response to Question 153

There is no requirement that SDG&E must identify and report the NERC classification and GADS Cause Code for the outage to other persons/organizations.

Question 154

154. Did SDG&E provide follow-up reports/information to the persons/organizations that receive the NERC and the GADS information either because of procedural/ jurisdictional/ regulatory requirements or because of follow-up data requests/inquiries from those entities?
a. If the answer is yes, please forward copies of any and all such follow-up reports, correspondences and documentation sent out related to the CPEP outages.

SDG&E Response to Question 154

No

Question 155

155. Did SDG&E provide follow-up reports/information to other entities that did not receive SDG&E reports of the NERC Event Types and GADS Cause Codes?
a. If the answer is yes, please forward copies of any and all such follow-up reports, correspondences and documentation sent out related to the CPEP outages.

SDG&E Response to Question 155

No

Inspection and Repair – Outage #5

Question 156

156. Who performed the inspection? If SDG&E used a vendor/contractor, state the name and address of the vendor/contractor.

SDG&E Response to Question 156

SDG&E performed the inspection.

Question 157

157. Who performed the repair/rework? If SDG&E used a vendor/contractor, state the name and address of the vendor/contractor.

SDG&E Response to Question 157

SDGE Employee with manufacturer of the DAHS computer (DELL) and with the OEM for the system loaded on the CEMS DAHS computer (SBS CISCO)

CEMS DAHS Computer Manufacturer
Dell
One Dell Way
Mail Stop 8129
Round Rock, TX 78682

CEMS DAHS service provider:
SBS CISCO, INC
7841 S. Wheeling CT
Englewood, CO 80112

Question 158

158. In addition to the installation and assembly of new CEMS computer, what items were repaired and/or reworked?

SDG&E Response to Question 158

In Outage #5 the CEMS only the hard drive was replaced. The CEMS DAHS computer was not replaced. CEMS DAHS Computer Manufacturer (Dell) Provided remote diagnostic services and determined hard drive required replacement. Dell tech was dispatched to install new hard and SDGE worked with CEMS DAHS system service provider to load software and configure for operation.

Question 159

159. Who installed the new CEMS computer? If SDG&E used a vendor/contractor, state the name and address of the vendor/contractor.

SDG&E Response to Question 159

A new CEMS computer was not installed in Outage #5.

Question 160

160. Who performed the reassembly? If SDG&E used a vendor/contractor, state the name and address of the vendor/contractor.

SDG&E Response to Question 160

SDG&E and Dell Service Tech performed the reassembly.

Dell
One Dell Way
Mail Stop 8129
Round Rock, TX 78682

Inspection and Repair – Outage 11

Question 161

161. Who performed the inspection? If SDG&E used a vendor/contractor, state the name and address of the vendor/contractor.

SDG&E Response to Question 161

SDG&E performed the inspection.

Question 162

162. Who performed the repair/rework? If SDG&E used a vendor/contractor, state the name and address of the vendor/contractor.

SDG&E Response to Question 162

SDG&E along with CISCO performed the repair.

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7841 S. Wheeling CT
Englewood, CO 80112

Question 163

163. In addition to the installation and assembly of new CEMS computer, what items were repaired and/or reworked?

SDG&E Response to Question 163

No other items were repaired and/or reworked.

Question 164

164. Who installed the new CEMS computer? If SDG&E used a vendor/contractor, state the name and address of the vendor/contractor.

SDG&E Response to Question 164

SDGE installed new computer and worked with CEMS DAHS service provider to restore the data and settings from backups.

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7841 S. Wheeling CT
Englewood, CO 80112

Question 165

165. Who performed the reassembly? If SDG&E used a vendor/contractor, state the name and address of the vendor/contractor.

SDG&E Response to Question 165

No reassembly was required. The CEMS DAHS computer was delivered fully assembled. SDG&E installed new computer for operation.

Outage Chronology – Outage #11

Question 166

The following questions seek information to determine the reasonableness of the outage duration:

166. Please describe how the outage and equipment failure happened, in chronological order, and provide the amount of time spent for each activity, and the total amount of time spent for all activities. (A table format for this response is preferred.)
For example, please include the below information in your response, along with all other relevant items that are not mentioned below:

i. There was an outage on <provide date> and the following tasks were performed:
   a. Replaced <specify items replaced> and dates and time spent.
   b. Repaired <specify items repaired> and dates and time spent;
   c. Reworked <specify items reworked> and dates and time spent.

ii. At the conclusion of the outage work on <provide date>, SDG&E noted the following issues <provide specifics and explanations>.

iii. On <date>, SDG&E started the following repair work:
   a. SDG&E did this <please enumerate> for this amount of time spent;
   b. SDG&E did that <please enumerate> for this amount of time spent, etc.

SDG&E Response to Question 166

Date	Time	Event
10/10/2024	1304	CPEP CEMS DAHS Trouble Alarm received. SDGE dispatched for investigation. DAHS could not be recovered at site and was relocated to Palomar.
10/10/2024	1508	CPEP is unavailable for operation. Forced outage started.
10/10/2024	1610	CEMS DAHS System service provider (SBS CISCO) informed of CEMS DAHS failure. Requested expedited setup and shipment of replacement computer.
10/10/2024	Approximately 1800	Our site technology specialist completed evaluation of the initial symptoms displayed by the DAHS and computer system diagnostics. Identified the issue as a hard drive failure that could not be recovered.
10/11/2024	0934	CEMS DAHS System service provider (SBS CISCO) informed SDGE of schedule for shipment of replacement computer.
10/16 /2024	1037	CEMS DAHS computer installed and was placed in service and CPEP restored to service. CEMS system calibration completed satisfactorily.
10/16 /2024	1415	OMS notification updated; CPEP restored to service.

Question 167

167. How much time did SDG&E and/or its contractor(s) perform on testing/inspections at the conclusion of the repair to assure that the work was done correctly? Please enumerate the testing/inspections work and the time spent on each item.

SDG&E Response to Question 167

SDG&E and its contractors spent approximately five hours performing testing and inspections at the conclusion of the repair to ensure the work was completed correctly. The scope of work included installing a new computer at the site, collaborating with the CEMS DAHS computer service provider to restore data and system settings from daily backups, and conducting an offline calibration of the Continuous Emissions Monitoring System (CEMS) to confirm accurate data collection on the DAHS computer.

Question 168

168. Why did the outage time, 5.963 days, for Outage #11 last longer than the outage time, 2.90 days, for Outage #5? Could Outage #11 have been shortened? Please explain.

SDG&E Response to Question 168

Outage #11 lasted longer than Outage #5 primarily due to the scope and nature of the repair. In Outage #5, the issue was resolved by replacing the hard drive and restoring the CEMS DAHS computer, allowing for a quicker turnaround of 2.90 days. However, Outage #11 involved a more extensive response due to recurring issues with the CEMS DAHS computer noted approximately five months earlier. As a result, the decision was made to replace the entire unit rather than perform another repair. Although the service provider had a replacement unit available, additional time was required to load and test the necessary software and ship the unit to the site. These steps contributed to the extended outage duration of 5.963 days. Given the circumstances the outage duration was appropriate and could not have been reasonably shortened.

CPEP Shutdown and Restoration – Outage #11

Question 169

169. Who made the decision that SDG&E needed to shut down the entire CPEP because the CEMS computer was not collecting emissions data?

SDG&E Response to Question 169

SDG&E.

Question 170

170. How were the operators alerted of the CEMS computer failure?

SDG&E Response to Question 170

The operators were alerted by a CEMS Trouble Alarm.

Question 171

171. How many alarms did the operators receive? Please list the alarms and their locations, and explain why there was more than one alarm.

SDG&E Response to Question 171

The operators received one CEMS Trouble Alarm in the control room at 13:04 on 10/10/2024.

Question 172

172. Do the operators receive multiple alarms for all failures? Please explain.

SDG&E Response to Question 172

SDG&E objects to this request as vague, ambiguous, burdensome, and overbroad as to the term "all failures." SDG&E further objects to this question to the extent it seeks the production of information that is irrelevant to this proceeding. Subject to and without waiving the foregoing objections, SDG&E responds as follows: The number of alarms received by the operators depends on the nature and scope of the failure. For Outage #11 the operators received one alarm in the control room indicating a trouble condition with the CEMS system.

Question 173

173. Did the operators manually shut down CPEP, or was it shut down automatically? Please explain.

SDG&E Response to Question 124

Yes. The operators initiated a shutdown command from the plant control system. This was done to follow the dispatch instruction to shut down from the CAISO.

Question 174

174. Are there any Instrumentation and Controls (I&C) devices that control the shutdown? Please explain.

SDG&E Response to Question 174

Yes. The Distributed Control System (DCS) manages the shutdown sequence using both automated logic and operator commands. Throughout the process, sensors and transmitters continuously monitor system parameters to ensure conditions remain within limits. Operators oversee and guide the shutdown via the Human-Machine Interface (HMI), while the DCS executes each step in the correct order.

Question 175

175. What are the set points and/or operating characteristics which cause CPEP to shut down?
    a. Who established those set points/operating characteristics, and what was their reasoning for doing so?

SDG&E Response to Question 175

SDG&E objects to this request on the grounds that it is overbroad, unduly burdensome, and ambiguous. SDG&E further objects to this question to the extent it seeks the production of information that is irrelevant to this proceeding. Subject to and without waiving the foregoing objections, SDG&E responds as follows:

SDG&E is unable to respond to the request as currently worded as it could potentially include hundreds of different triggering events, incidents or trips that could automatically shut down the facility. SDG&E is willing to meet and confer with Cal Advocates to narrow the scope of this request to a specific type of plant shutdown or triggering event.

Question 176

176. What did SDG&E and/or its contractor(s) need to test before the unit was returned to service on October 16, 2024 @ 14:15? Please explain and provide a diagram and photograph(s) of the all the parts and components that SDG&E and/or its contractor(s) needed to test.

SDG&E Response to Question 176

Perform Offline calibration of unit and confirm that DAHS was collecting data from CEMS systems.

Before the unit was returned to service on October 16, 2024, at 14:15, SDG&E and its contractors performed an offline calibration of the CEMS and confirm that the DAHS computer was correctly collecting data from the CEMS analyzers.

1. Analyzer Testing: Ensuring the gas analyzers were functioning properly and reading accurately.
2. CEMS Calibration Gases: Using calibration gases to verify analyzer accuracy and response.
3. CEMS Sample Conditioner: Removes moisture and particulates from the calibration gas to ensure accurate and stable analyzer readings.
4. CEMS Analyzers: measure the calibration gases to verify accuracy and adjust the system to ensure correct emissions data reporting.
5. CEMS DAHS: Confirming restored data and settings and validating communication between DAHS and CEMS.

Please see “Attachment 13 - CPEP CEMS Pictures” and “Attachment 17 - CEMS System Drawing”

Question 177

177. What things/items were satisfactorily tested?
   a. What tests did SDG&E perform? If SDG&E used a vendor/contractor, state the name and address of the vendor/contractor.
   b. How did SDG&E/contractor determine/ascertain that the things/items were satisfactory to return the unit to service?

SDG&E Response to Question 177

The CEMS system including the DAHS was satisfactorily tested.

a. SDG&E performed an offline calibration of the CEMS and verified that the DAHS computer was correctly collecting data from the CEMS analyzers. SDG&E worked with the CEMS DAHS service provider:

   SBS CISCO, INC
   7841 S. Wheeling CT
   Englewood, CO 80112

b. The calibration results were compared against established reference values using certified calibration gases. The DAHS computer was validated by confirming real-time data collection and communication with all CEMS analyzers. Successful completion of this calibration demonstrated proper operation of the DAHS, allowing the unit to return to service.

Question 178

178. Are these tests identical to the ones performed when returning CPEP back to service in the May 21, 2024 outage? Please explain.

SDG&E Response to Question 178

Yes

Postmortem – Outage #5 and #11
In addition to providing your responses in the answer sheets to the below questions, also state, if any, the appropriate pages and lines numbers of any reports and documents where the information to answer the questions below may be found.

Question 179

179. Did the two CPEP incidents violate any in-house SDG&E procedures and operating instructions, and any other requirements, such as those of American Society of Mechanical Engineers (ASME) codes and standards? If so, please
   a. provide reports and correspondences regarding those violations;
   b. enumerate the violations; and
   c. explain why they happened.

SDG&E Response to Question 179

No.
   a. Not applicable.
   b. Not applicable
   c. Not applicable.

Question 180

180. Please provide all inspection/postmortem records for the incident and any other inspection/postmortem reports prepared by SDG&E or any other party/organization.
   a. If there are no inspection/postmortem documents, please explain why.

SDG&E Response to Question 180

There are no inspection or postmortem reports prepared by SDG&E or any other party for this incident. The reason is that the tests performed after the repair were operational checks only, intended to confirm proper functionality of the CEMS DAHS computer and associated systems. These tests included restoring system settings, verifying data collection, and performing offline calibration of the CEMS system. Since these were routine functional verifications and not formal inspections, no separate inspection or postmortem documents were developed

Question 181

181. Please provide any other Root Cause Analysis Report (RCA)/Root Cause Evaluation Report(RCE) for the incident and any other postmortem reports (such as, inspection reports) prepared by SDG&E and/or others (e.g., contractor and external technical consultant). If there are no other reports for each of the aforementioned documents, please explain why.

SDG&E Response to Question 181

There are no Root Cause Analysis (RCA), Root Cause Evaluation (RCE), or postmortem inspection reports prepared by SDG&E or external contractors for this incident. The reason is that the failure was straightforward and conclusively identified during troubleshooting. For IT hardware, the corrective action is typically replacement rather than an in-depth investigation, because the cost and time of RCA outweigh the benefit.

Question 182

182. Has SDG&E or any other party/organization performed any analyses to determine why the outage occurred? If so, please provide all such reports and documents.

SDG&E Response to Question 182

No.

Question 183

183. Please enumerate all the parts that failed, were damaged and/or replaced.
   i. Provide pictures of the damaged/replaced parts.
   ii. Show where the parts are located in relation to each other.
   iii. How old were the damaged/replaced parts?
   iv. Please describe how each part failed.
   v. Please describe the functions of each of the damaged/replaced parts.
   vi. Were any of the above listed parts directly related to the outage?

SDG&E Response to Question 183

1. CEMS Computer Hard Drive
   i. See "Attachment 18 – CPEP CEMS Hard Drive"
   ii. See "Attachment 19 - CPEP CEMS Computer - Hard Drive Location"
   iii. The CEMS DAHS Computer were installed in 10/2020; Parts were 4 years old.
   iv. No specific cause of the hard drive failure was determined.
   v. A computer hard drive stores and retrieves digital data, serving as the primary location for the operating system, applications, and files needed for the computer to function.
   vi. Yes.

2. CEMS DAHS
   i. See "Attachment 20 - CPEP CEMS Computer"
   ii. See "Attachment 13 - CPEP CEMS Pictures"
   iii. The CEMS DAHS Computer were installed in 10/2020; The computer was 4 years old. The hard drive was replaced in May of 2024. It was approximately 6 month old.
   iv. No specific cause of the CEMS Computer failure was determined.
   v. The Data Acquisition and Handling System (DAHS) is a dedicated computer within the CEMS. Its primary function is to collect data from CEMS instrumentation, such as analyzers and flow monitors, and manage that data to support environmental compliance. The DAHS enables the recording, storage, and regulatory reporting of emissions and operational data, ensuring that facilities can meet environmental standards and can provide required documentation to regulatory agencies.
   vi. Yes.

Question 184

184. What were the factors which contributed to the failures of the various parts and components?

SDG&E Response to Question 184

No specific cause of the CEMS computer or hard drive failure was determined during troubleshooting and repair activities.

Question 185

185. Prior to the outage on October 10, 2024, were there regularly-scheduled inspection and maintenance requirements for the failed/damaged items as enumerated in your response to question #183.
   a. As a result of the outage, are there plans to change those inspection and maintenance requirements presently or in the future? Please explain.

SDG&E Response to Question 185

SDG&E performs daily checks of the CEMS as part of the operator rounds at CPEP that includes performing data review in the DAHS. In addition to these daily checks, preventative maintenance is conducted on a scheduled basis (weekly, monthly, quarterly, semiannually, and annually) in accordance with the CEMS Quality Assurance Plan.

a. The failure that SDG&E experienced may not show signs of fault prior to failure. SDG&E decided to purchase spare computers to reduce outage time if a similar failure was experienced in another area or unit instead of changing maintenance practices.

Question 186

186. For comparison, please provide color photos of the failed items provided in your response to question #183 before usage, and at failure. Please label the parts.

SDG&E Response to Question 186

SDG&E does not have before usage pictures for the failed items.

For post failure pictures see “Attachment 18 - CPEP CEMS Hard Drive”, “Attachment 19 - CPEP CEMS Computer - Hard Drive Location”, and “Attachment 22 - CPEP CEMS Computer Outside”

Question 187

187. Were there any regularly-scheduled inspection and maintenance requirements for the above items in the other peaker units? Are they the same as CPEP? Please explain.

SDG&E Response to Question 187

Yes. Similar regularly-scheduled inspection and maintenance items are performed at the other peaker units.

Question 188

188. Did SDG&E have any similar types of outages previously? Please explain.

SDG&E Response to Question 188

No. SDG&E did not have any similar types of outages during the record year.

Replacement Power Cost – Outage #5 and #11
Please provide the response to the below questions in an Excel spreadsheet and show the replacement power cost calculations. Provide sources of numbers and show each cell formula if the numbers pertain to computation from different cell data.

Question 189

189. During the failure of the two incidents, was CPEP able to generate power from any of the functioning equipment? Please explain.

SDG&E Response to Question 189

No. During the two incidents, the plant could not operate within permit conditions due to the failure of the DAHS, which is essential for emissions monitoring and compliance. As a result, generation was not possible until the system was restored.

Question 190

190. What is the replacement power cost during the two CPEP outages? If the cost is zero or negative, explain. (Do not respond, "refer to spreadsheet." State the cost in the answer sheet and identify the Excel cell number where the cost may be found.)

SDG&E Response to Question 190

Refer to attachment *CONFIDENTIAL-2024 ERRA-Replacement Cost-CPEP* for the replacement power costs for the outage. The replacement power cost was $5,309 for FO#1(05/21 to 05/24) and $30,884 for FO#2(10/10 to 10/16) as illustrated in the attachment. SDG&E did not receive revenue from the Day Ahead awards as the unit was not awarded during the duration of the outage. The replacement power costs are due to RAAIM penalties SDG&E incurred during May and October for not meeting the availability threshold for RA resources.

Question 191

191. Has SDG&E asked any manufacturer/vendor to reimburse it for this cost?
    a. If yes, please provide all documents and the claim's status.
    b. If not, please explain why SDG&E has not sought the reimbursement from the manufacturer/vendor.

SDG&E Response to Question 191

No.
a. Not applicable.
b. SDG&E did not have a contract with the vendor that includes replacement power cost.

Equipment Warranty/Contractual Services Agreement – Outage #5 and #11

Question 192

192. Who originally made the parts that failed?
    a. If the original parts were replaced on one or more occasions, please identify all the vendors. Provide the date(s) and time(s) when the parts were installed.

SDG&E Response to Question 192

Dell was the original manufacturer of the CEMS DAHS computer.

Question 193

193. What is the warranty period of the damaged parts in question?

SDG&E Response to Question 193

The CEMS DAHS computers were originally installed with three years of Dell Next Business Day Pro Support. Upon expiration of the initial support term, SDG&E assumed responsibility for maintaining the service and has continued to renew the service annually.

Question 194

194. Did SDG&E pursue compensation (equipment and replacement power cost) for the outage from any manufacturer or other vendors?
    a. If so, please provide any and all related documents.
    b. If not, please explain why not.

SDG&E Response to Question 194

No.

a. Not applicable
b. SDG&E has no basis to seek replacement power costs or equipment repair costs for this event.

Question 195

195. Does SDG&E have a Contractual Services Agreement (CSA)/ Warranty Agreement(Warranty) with the manufacturer/vendor? If yes:
    a. Is this current CSA/Warranty a new agreement, or an extension from the beginning date of CPEP operation? Please provide coverage dates for the CSA/Warranty.
    b. What is the cost of the CSA/Warranty?

SDG&E Response to Question 195

Yes, SDG&E has a service agreement with DELL.

a. The CEMS DAHS computers were originally installed with three years of Dell Next Business Day Pro Support. Upon expiration of the initial support term, SDG&E has continued to renew the service annually.
b. Approximate annual cost of the service is $185.

Question 196

196. What are the agreement terms with respect to this incident on costs, inclusions, exclusions, and deductibles? Please provide a copy of the CSA/Warranty.

SDG&E Response to Question 195

Please see " Attachment 25 - Dell-ProSupport-Plus Service Description"

Question 197

197. Does the CSA/Warranty cover:
    a. the cost of equipment and labor to repair the outage;
    b. any deductibles; or
    c. the replacement power cost?

SDG&E Response to Question 197

a. Yes. The service covers the cost of equipment and labor.
b. No.
c. No.

Question 198

198. If the CSA/Warranty does not cover the replacement power cost, how much more would the CSA/Warranty cost be if SDG&E had opted for replacement power cost?

SDG&E Response to Question 198

SDG&E has not requested a quote to include the cost of replacement power.

Question 199

199. Did SDG&E consider purchasing the extended coverage on replacement power cost, such as, analyzing on cost effectiveness, etc.?

SDG&E Response to Question 199

No

Question 200

200. If SDG&E does not have a CSA/Warranty, please explain why.

SDG&E Response to Question 200

Not applicable.

CPEP Cost of Damaged Equipment – Outage #5 and #11

Question 201

201. Which Application and Decision number dealt with the depreciation life and depreciation rate?
    a. What was the Commission-approved depreciation life and depreciation rate for the damaged parts in question?

SDG&E Response to Question 201

Decision 11-12-002 effective December 1, 2011
Application 10-12-005 and Application 11-01-004
SDG&E's final 2024 General Rate Case Application 22-05-016
SDG&E's final 2024 General Rate Case Decision 24-12-074

a. Computer equipment has a depreciation life of 5 years, 20% per year. 5 years is the company standard for equipment of this nature.

Question 202

202. How much did it cost SDG&E to replace the damaged parts? Please provide the cost breakdown (labor, materials, etc.) and workpapers.
    a. If there are numerous cost items less than $100,000, please group them in the appropriate categories.

SDG&E Response to Question 202

Outage #5 – the cost of the replacement hard drives was covered by the Dell ProSupport Plus Service.

Outage #11 – The cost of the replacement DAHS was $3550.00, and the SQL Server License was $1550.00. See "Attachment 23 - CISCO Spare DAHS Quote".

Question 203

203. How does SDG&E intend to seek cost recovery for this repair?
   a. If SDG&E has already recovered the cost of the repair, please provide the Application and Decision number approving this cost recovery.

SDG&E Response to Question 203

SDG&E does not intend to seek cost recovery for the repair. SDG&E considers this repair part of normal plant maintenance covered by the General Rate Case

Question 204

204. Please provide copies of all correspondence between SDG&E and the manufacturer/vendor regarding the repair cost.

SDG&E Response to Question 204

See "Attachment 23 - CISCO Spare DAHS Quote" and "Attachment 25 - ordering FW_ CW40617 PR45803 - Cisco - DAHS Computer"

Question 205

205. Does SDG&E have or believe it has sufficient justification to seek from any manufacturer/vendor:
   a. Replacement power cost? Please explain.
   b. Other repair costs? Please explain.

SDG&E Response to Question 205

No. SDG&E does not have or believe it has sufficient justification to seek replacement power costs or other repair costs from any manufacturer/vendor. SDG&E did not have a contract with the vendor for replacement power cost. SDG&E did not have a contract or warranty covering other repair costs for this outage.

Question 206

206. If the manufacturer/vendor refuses or has refused to reimburse SDG&E for the replacement power cost and/or repair cost, what legal recourse does SDG&E have, and does SDG&E intend to pursue such legal recourse?

SDG&E Response to Question 206

SDG&E has not requested, and does not intend to request, reimbursement from the vendor for either the cost of replacement power or the cost of the repair.

Question 207

207. Does this manufacturer/vendor have a history of manufacturing and/or service mistakes that led to forced outages? If so, please list them.
   a. What actions does SDG&E intend to pursue with this manufacturer/vendor with its history of mishaps, if any, on SDG&E facilities?

SDG&E Response to Question 207

This manufacturer has no history of manufacturing and/or service mistakes that led to forced outages with respect to SDG&E facilities.

a. Not applicable.

Corrective Action – Outage #11

Question 208

208. Please (i) enumerate all the parts that were replaced during the shutdown to restore CPEP back in service; (ii) state whether the work was done on site or off site and (iii) include the reasons why.
   i. Provide pictures of the replaced parts. Please provide the picture(s) and/or diagrams of the parts/items and label them.
   ii. If non-failed parts/items were replaced, please list them, and explain why they were replaced.
   iii. If not all failed parts/items were replaced, please list them, and explain why not.
   iv. Show where the parts are located in relation to one another and to the generator.
   v. Please describe how each part failed, and what was broken or failed.
   vi. Please describe the functions of each of the replaced parts.
   vii. Were any of the above listed replaced parts directly related to the outage?
   viii. How old were each of the parts that failed, replaced, or repaired? In your response, please state whether they were part of the original installation, and the dates and circumstances when they were installed/replaced/repaired.
   ix. What are the depreciation/expectant lives of the failed parts? If the parts failed before their depreciation/expectant lives, please explain why.
   x. What other actions has SDG&E taken to correct the problem?

SDG&E Response to Question 208

1. CEMS DAHS
   i. See "Attachment 20 - CPEP CEMS Computer"
   ii. The computer was replaced as a whole unit.
   iii. Not applicable.
   iv. See "Attachment 13 - CPEP CEMS Pictures"
   v. No specific cause of the CEMS Computer failure was determined.
   vi. The Data Acquisition and Handling System (DAHS) is a dedicated computer within the CEMS. Its primary function is to collect data from CEMS instrumentation, such as analyzers and flow monitors, and manage that data to support environmental compliance. The DAHS enables the recording, storage, and regulatory reporting of emissions and operational data, ensuring that facilities can meet environmental standards and can provide required documentation to regulatory agencies.
   vii. Yes
   viii. The CEMS DAHS Computer were installed in 10/2020; The computer was 4 years old. The hard drive was replaced in May of 2024. It was approximately 6 months old.
   ix. Computer equipment has a depreciation life of 5 years, 20% per year. 5 years is the company standard for equipment of this nature.
   x. Prior to the outage, SDG&E proactively purchased spare DAHS computers to minimize outage time in the event of similar failures in other areas or units. These spare computers are equipped with solid-state drives (SSDs) instead of traditional hard disk drives (HDDs), eliminating mechanical wear and reducing vulnerability to shock, vibration, and physical damage, thereby improving overall reliability.

Question 209

209. Was the repair or rework approved? If so, by whom?

SDG&E Response to Question 209

SDG&E approved the repair work.

Question 210

210. For the replaced/damaged parts previously identified in your response to question #208, please explain why some items were not replaced/repaired.

SDG&E Response to Question 210

The CEMS DAHS was replaced in its entirety. No damaged parts were left unrepaired or unaddressed; all components in the DAHS were included in the full replacement.

Question 211

211. For the contractor/vendor who performed the repair/rework.
   a. How did SDG&E select this vendor?
   b. Has SDG&E dealt with this vendor previously? If so, when and under what circumstances?
   c. How was this vendor's work performance in previous assignments? Please elaborate.

SDG&E Response to Question 211

a. CISCO is the Original Equipment Manufacturer of the CEMS system.
b. Yes, CISCO has provided service and equipment to support the CEMS system at the Palomar Energy Center, Miramar Energy Facility and the Cuyamaca Peak Energy Plant.
c. This vendor has delivered high-quality performance. As the original equipment manufacturer (OEM) and primary supplier of parts, they have been essential in helping us maintain excellent reliability and material condition of our emissions monitoring system.

Question 212

212. If the approver(s) for the repair/rework was not the same as the original designer, please explain who had authority to approve the work.

SDG&E Response to Question 212

SDG&E approved the repair work

Question 213

213. Were the parts installed in the repair/rework identical to the original design specifications? Please explain.

SDG&E Response to Question 213

Yes, the parts installed during the repair were consistent with the original design specifications. The replacement DAHS computer has the same processor, memory, hard drive size, network interface count, and speed as the original unit. The only difference is the operating system, which is Windows 11 instead of Windows 10; this change does not affect the functionality or operation of the CEMS system.

Question 214

214. Please provide the documentation and/or inspection report when the replaced parts/items were installed, and all associated tests before the unit was returned to service.

SDG&E Response to Question 214

SDG&E does not have documentation and/or inspection report when the replaced parts/items were installed. The tests performed after the repair were operational checks only, intended to confirm proper functionality of the CEMS DAHS computer and associated systems. Since these were routine functional verifications and not formal inspections, no separate documentation and/or inspection reports were developed.

Question 215

215. Why did it take SDG&E 5.963 days to repair the above damages?
   a. Please provide the schedule/timeline of the various milestone activities and identify the total amount of outage time.
   b. What could have been done to reduce downtime in this instance and what can be done in the future to reduce the downtime? Please explain.
   c. Does SDG&E stock the failed parts in the warehouse? If yes, explain why it took that amount of time for the repair.
   d. Did SDG&E perform any benefit/cost study to determine whether it was cost effective to warehouse the above and/or other items which led to this outage?
      i. If yes, please provide the study.
      ii. If not, please explain.

SDG&E Response to Question 215

SDG&E took approximately 5.963 days to repair the damages related to the October 10, 2024 outage due to several factors. At the time of the failure, SDG&E did not have spare CEMS DAHS computers in stock, although replacements were on order. The system service provider did have a unit available, but additional time was required to load and test the necessary software before shipping the unit to SDG&E's location. These steps contributed to the extended repair duration.

a.

Date	Time	Event
10/10/2024	1304	CPEP CEMS DAHS Trouble Alarm received. SDGE dispatched for investigation. DAHS could not be recovered at site and was relocated to Palomar.
10/10/2024	1508	CPEP is unavailable for operation. Forced outage started.
10/10/2024	1610	CEMS DAHS System service provider (SBS CISCO) informed of CEMS DAHS failure. Requested expedited setup and shipment of replacement computer.
10/10/2024	Approximately 1800	Our site technology specialist completed evaluation of the initial symptoms displayed by the DAHS and computer system diagnostics. Identified the issue as a hard drive failure that could not be recovered.
10/11/2024	0934	CEMS DAHS System service provider (SBS CISCO) informed SDGE of schedule for shipment of replacement computer.
10/16 /2024	1037	CEMS DAHS computer installed and was placed in service and CPEP restored to service. CEMS system calibration completed satisfactorily.
10/16 /2024	1415	OMS notification updated; CPEP restored to service.

b. SDG&E has purchased spare DAHS computers to reduce outage time if a similar failure was experienced in another area or unit.
c. Prior to the October 10, 2024, outage, SDG&E did not have spare computers in stock, although spares had been ordered. When the failure occurred in October, the CEMS DAHS system service provider had a replacement unit available, but additional time was required to load and test the necessary software and ship the unit to the site.

d. No.
    i. Not applicable.
    ii. SDG&E did not perform a benefit/cost study to evaluate whether warehousing spare CEMS DAHS computers would be a cost-effective strategy for preventing outages. However, following the May 21,2024, outage, SDG&E purchased spare CEMS DAHS computers to reduce downtime in the event of similar failures occurring in other areas or units.

Question 216

216. What steps has SDG&E taken to prevent recurrence of the outage?

SDG&E Response to Question 216

SDG&E has purchased spare DAHS computers to reduce outage time if a similar failure was experienced in another area or unit.

Question 217

217. What actions has SDG&E taken to correct similar problems elsewhere in SDG&E's portfolio of generation? Please explain.
   a. Did SDG&E inspect and replace the parts in other units?

SDG&E Response to Question 217

SDG&E purchased spare computers for inventory that can be utilized as replacements if there were to be a failure in the future.

a. No.

Question 218

218. As a result of the CPEP outage, did SDG&E inspect the integrity of the other combined cycle units? Please explain and provide records of such inspection. Please list all the parts and items replaced in the other combined cycle units, and state where those items are indicated in the inspection reports.

SDG&E Response to Question 218

Following the outage SDG&E did not inspect for similar-related issues pertaining to CEMS and DAHS in other areas and other units. The failure that SDG&E experienced may not show signs of fault prior to failure. SDG&E decided to purchase spare DAHS computers to reduce outage time if a similar failure was experienced in another area or unit.

Question 219

219. Please provide all corrective actions performed (or to be performed) to prevent the recurrence of similar incidents, including scheduled inspections and maintenance.

SDG&E Response to Question 219

SDG&E will continue to perform scheduled maintenance per the CEMS Quality Assurance Plan. SDG&E has also purchased spare computers for inventory that can be utilized as replacements if there were to be a failure in the future.

Question 220

220. After the outage, did SDG&E inspect the work performed by contractors and/or its own CPEP personnel?
   a. If so, please provide the records of such inspection(s).
   b. If not, please explain why not.

SDG&E Response to Question 220

Yes, after the outage, SDG&E performed an offline calibration of the CEMS and verified that the DAHS computer was correctly collecting data from the CEMS analyzers.

a. SDG&E does not have records of this testing. The reason is that the tests performed after the repair were operational checks only, intended to confirm proper functionality of the CEMS DAHS computer and associated systems. Since these were routine functional verifications and not formal inspections, no separate inspection documents were developed
b. Not applicable.

Question 221

221. What are the postmortem actions that SDG&E has instituted and implemented as a result of this October 10, 2024 outage? Please provide reference to the appropriate pages and lines numbers of relevant reports and documents in your response.

SDG&E Response to Question 221

Prior to the outage, SDG&E proactively purchased spare DAHS computers to minimize outage time in the event of similar failures in other areas or units. These spare computers are equipped with solid-state drives (SSDs) instead of traditional hard disk drives (HDDs), eliminating mechanical wear and reducing vulnerability to shock, vibration, and physical damage, thereby improving overall reliability.

END DATA REQUEST