Docket	:	A.23-02-018
Exhibit Number	:	
Commissioner	:	J. Reynolds
Admin. Law Judge	:	M. LeQuang
Public Advocates Office	:	Karl Stellrecht
Project Mgr.	:	
Public Advocates Office Witnesses		Various

PUBLIC ADVOCATES OFFICE
CALIFORNIA PUBLIC UTILITIES COMMISSION

PREPARED TESTIMONY ON PACIFIC GAS AND ELECTRIC COMPANY APPLICATION FOR COMPLIANCE REVIEW OF UTILITY OWNED GENERATION OPERATIONS, ELECTRIC ENERGY RESOURCE RECOVERY ACCOUNT ENTRIES, CONTRACT ADMINISTRATION, ECONOMIC DISPATCH OF ELECTRIC RESOURCES, UTILITY OWNED GENERATION FUEL PROCUREMENT, AND OTHER ACTIVITIES FOR THE PERIOD JANUARY 1 THROUGH DECEMBER 31, 2022 (U 39 E)

(PUBLIC VERSION)

San Francisco, California
September 22, 2023

520480252

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CHAPTER 1 EXECUTIVE SUMMARY

(Witness: Karl Stellrecht)

I. INTRODUCTION AND RECOMMENDATIONS

This testimony presents the Public Advocates Office's (Cal Advocates) review of Pacific Gas and Electric Company's (PG&E) Energy Resource Recovery Account (ERRA) Compliance Application for the period from January 1, 2022 through December 31, 2022 (Record Period). PG&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]

PG&E filed its ERRA compliance application on March 1, 2023 requesting Commission approval for costs associated with activities that occurred during the 2022 Record Period. The scope of Cal Advocates' review of PG&E's application includes a review of utility-owned generation operations, fuel expenses and procurement, contract administration, least-cost dispatch (LCD), demand response, and an audit of balancing account entries. In addition, Cal Advocates also reviewed other ERRA issues summarized below.

[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."

In this testimony Cal Advocates presents its analyses and recommendations associated with PG&E's request. This testimony focuses exclusively on the 2022 Record Period and is based on analysis of information submitted by PG&E that includes, but is not limited to, PG&E's testimony and workpapers submitted with its application and responses to data requests.

The issues that Cal Advocates reviewed for the 2022 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
1	Executive Summary	Karl Stellrecht
2	Least-Cost Dispatch and Economically-Triggered Demand Response	Stanley Kuan
3	Utility-Owned Generation – Fossils and Renewables	Michael Yeo
4	Review Entries Recorded in the Disadvantaged Community – Green Tariff Balancing Account and the Community Solar Green Tariff Balancing Account	Brian Lui and Craig Jenquin
5	Contract Administration	Helena Oh
6	Resource Adequacy	Kyle Navis
7	Greenhouse Gas Compliance Instruments	Tom Gariffo
8	Review Entries Recorded In The Green Tariff Shared Renewables Memorandum Account and Green Tariff Shared Renewables Balancing Account	Brian Lui and Craig Jenquin
9	Summary of Portfolio Allocation Balancing Account Entries for the Record Period	Brian Lui and Craig Jenquin

Chapter #	Description	Witness
10	Energy Resource Recovery Account	Brian Lui and Craig Jenquin
11	Review Entries Recorded in the Disadvantaged Community – Single-Family Affordable Solar Homes Balancing Account and the Disadvantaged Community – Single-Family Affordable Solar Homes Memorandum Account	Brian Lui and Craig Jenquin
12	Central Procurement Entity – Entries Recorded in the Centralized Local Procurement Sub-Account	Brian Lui and Craig Jenquin

II. SUMMARY OF FINDINGS & RECOMMENDATIONS

The following summary provides an overview of each chapter presented and sponsored by the witnesses for the 2021 Record Period. This summary is provided strictly for the reader's convenience.

1. Executive Summary (Karl Stellrecht)

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

Overall, Cal Advocates finds that PG&E managed its thermal, hydro, and demand response resources reasonably and does not recommend any disallowances.

3. Utility-Owned Generation – Fossil and Renewables (Michael Yeo)

Cal Advocates recommends the Commission order PG&E to:

- provide, in the next ERRA Compliance filing following the completion of the socket weld failure analysis, a copy of the metallurgical report of the failed weld and its follow-up actions;
- file testimony and workpapers on its Licensee Event Reports (LERs) in all future ERRA Compliance Applications;
- explain why it did not adopt American Society of Mechanical Engineers (ASME) NQA-1 definitions of repair and rework;

- provide an unabridged transcript of the statement made by a PG&E spokesperson to the media on the socket weld LER incident;
- furnish a list of all the contractors working on the socket weld corrective work and identify whether they were certified to work in the area under the jurisdiction of the Nuclear Regulatory Commission (NRC). If the contractors were not qualified to work in an NRC-jurisdictional area, the Commission should order PG&E to seek approval from the NRC for the nonconformance; and
- seek approval from the NRC for the socket weld corrective work because the work was a repair not a rework.

Cal Advocates also recommends that the Commission consider ordering the DCISC to revise its Charter to address the following issues:

- Appoint a rapporteur to investigate PG&E's LERs;
- Change the qualification criteria for the selection of the DCISC members to include the member's eligibility for Quality Assurance certification; and
- Strengthen the language in the charter section on Committee Member selection to mention specifically the exclusion of PG&E involvement. This is to avoid any perception of conflict of interest.

Cal Advocates may, at a later time, seek a disallowance if the NRC, upon final determination of the LER, establishes that PG&E is at fault in its operation and maintenance activities, including its failure to file, if any, approval for nonconformances.

4. Review Entries Recorded In The Disadvantaged Community – Green Tariff Balancing Account And The Community Solar Green Tariff Balancing Account (Brian Lui and Craig Jenquin)

Cal Advocates review of the DACGTBA and CSGTBA for the 2022 Record Period found no required accounting adjustments, and Cal Advocates does not object to the costs recorded in the DACGTBA and CSGTBA. Cal Advocates found that the 2022 DACGTBA/CSGTBA administrative and outreach expenses are reasonable, appropriate, correctly stated, and in compliance with applicable Commission Decisions. Cal Advocates found that the 2022 DACGTBA/CSGTBA complies with the applicable tariffs and Commission directives.

5. Contract Administration (Helena Oh)

Based on this review and analysis of PG&E's contracts and other information provided to support their testimony, Cal Advocates does not contest PG&E's contract administration activities during the 2022 Record Period. However, Cal Advocates disagrees with the guidance that Energy Division staff provided PG&E regarding the request from Voltus for a partial forbearance on the amount due to PG&E. Cal Advocates recommends PG&E apply the stipulations of future contracts in the event of DR underperformance.

6. Resource Adequacy (Kyle Navis)

Cal Advocates finds that PG&E's efforts to procure and sell RA in its solicitations were in compliance with the requirements of PG&E's BPP.

7. Greenhouse Gas Compliance Instrument Procurement

The Commission requires the utilities to record and demonstrate GHG Cap-and-Trade compliance with methodologies per D.21-05-004. During RY 2022, PG&E recorded $55.5 million worth of greenhouse gas (GHG) compliance costs from utility-owned generation (UOG) to its balancing accounts as well as $15.6 million worth of GHG compliance costs from tolling contracts, for a total of $71.1 million. Cal Advocates reviewed PG&E's workpapers reporting these costs and demonstrating its calculations in compliance with the methodologies, but is not filing a separate testimony chapter on GHG compliance. PG&E appears to have accurately recorded and demonstrated its RY 2022 GHG compliance costs in accordance with Commission requirements.

8. Review Entries Recorded In The Green Tariff Shared Renewables Memorandum Account And The Green Tariff Shared Renewables Balancing Account (Brian Lui and Craig Jenquin/Craig Jenquin)

Cal Advocates' review of the GTSRMA and GTSRBA for the 2022 Record Period found one required accounting adjustment. Aside from the noted adjustment, Cal Advocates found that the 2022 GTSRMA administrative and outreach expenses are reasonable, appropriate, correctly stated, and in compliance with applicable Commission Decisions. Cal Advocates found that the 2022 GTSRBA complies with the applicable tariffs and Commission directives.

9. Summary Of Portfolio Allocation Balancing Account Entries For The Record Period (Brian Lui and Craig Jenquin/Craig Jenquin)

Cal Advocates found no mathematical errors in the calculation of entries recorded in the 2022 PABA Closing Sheet or any documents provided by PG&E to support the requested audit sample. All dollar values included in screenshots of the PG&E accounting System of Record retrieved by auditors were consistent with other PG&E workpapers supporting the calculation of PABA Closing Sheet entries.

10. Summary Of Energy Resource Recovery Account Entries For The Record Period (Brian Lui and Craig Jenquin/Craig Jenquin)

Cal Advocates found that, with two exceptions contributing to EPS tariff line-items 5.j and 5.ah, the 2022 accounting entries recorded into ERRA were reasonable, correctly stated, and in compliance with applicable Commission Decisions.

Given the lack of prior authorization and PG&E's admitted error, Cal Advocates recommends that the Commission disallow the $239,862 of non-ESA costs contributing to the amortization of GRC UOG revenue requirement recorded in the ERRA. PG&E failed to seek Commission authorization for recovery of non-ESA costs through the ERRA.

11. Review Entries Recorded In The Disadvantaged Community – Single-Family Affordable Solar Homes Balancing Account And The Disadvantaged Community – Single-Family Affordable Solar Homes Memorandum (Brian Lui and Craig Jenquin/Craig Jenquin)

Cal Advocates found no mathematical errors in the calculation of entries recorded in the 2022 DACSASHBA Closing Sheet or documents provided by PG&E to support the requested audit sample. All screenshots of PG&E Systems of Record were consistent with other PG&E workpapers supporting the calculation of DACSASHBA Closing Sheet entries.

12. Central Procurement Entity – Entries Recorded in the Centralized Local Procurement Sub-Account (Brian Lui and Craig Jenquin/Craig Jenquin)

Cal Advocates review of the DACGTBA and CSGTBA for the 2022 Record Period found no required accounting adjustments, and Cal Advocates does not object to the costs recorded in the DACGTBA

and CSGTBA. Cal Advocates found that the 2022 DACGTBA/CSGTBA administrative and outreach expenses are reasonable, appropriate, correctly stated, and in compliance with applicable Commission Decisions. Cal Advocates found that the 2022 DACGTBA/CSGTBA complies with the applicable tariffs and Commission directives.

CHAPTER 2 : LEAST-COST DISPATCH AND ECONOMICALLY-TRIGGERED DEMAND RESPONSE

(Witness: Stanley Kuan)

I. INTRODUCTION AND SUMMARY

This chapter of testimony reviews Pacific Gas and Electric Company's (PG&E) dispatch and demand response[3] activities for the Record Period from January 1, 2022, through December 31, 2022, and considers whether PG&E met the Commission's least-cost dispatch standard. The Public Advocates Office of the California Public Utilities Commission (Cal Advocates) examined Chapter 1 of PG&E's 2022 ERRA compliance testimony and workpapers and reviewed past ERRA testimony. Both PG&E's energy scheduling and demand response dispatch decisions were reviewed using the least-cost dispatch standard of review, as described below.

II. FINDINGS AND RECOMMENDATIONS

A. Assessment of Overall Forecasting Accuracy

- Overall, PG&E's day-ahead forecasts during Record Period 2022 were as accurate as those in Record Period 2021.
- Due to the minimal amount of variation in PG&E's load and price forecast accuracy over the past few record periods, Cal Advocates finds PG&E's load and price forecasting activities in the 2022 Record Period to be reasonable.

B. Load Bid Calculations

- The proportion of load cleared in the real-time market (RTM) in Record Period 2022 was [redacted] in the 2021 Record Period. Cal Advocates finds PG&E has demonstrated that its load bidding calculations are reasonable.

C. Assessment of Management of Thermal Resources

- In the 2022 record period, PG&E submitted 480,327 day-ahead hourly bids to the CAISO for its thermal resources. Of these thermal bids, there were no bidding events that resulted in a bid price variance of over $0.10.

[3] PG&E manages several types of Demand Response programs, but the LCD chapter, and therefore the Public Advocates Office's analysis, focuses on demand response resources with economic dispatch triggers.

- The error rate for 2022 was lower than in prior record years and resulted in minimal cost. Cal Advocates finds PG&E's bid cost calculation activities to be reasonable.

D. Assessment of Management of Hydroelectric Resources

- Overall, PG&E has demonstrated that it is bidding its hydro resources for dispatch according to least-cost dispatch principles, during times when the price and value of energy is high. While PG&E's utilization of its hydro resources during high LMPs was lower than in recent years, the lower utilization was due to an unforeseen spike in gas prices in December 2022 when hydro resources had already been utilized during reliability-constrained summer months.

III. ASSESSMENT OF MANAGEMENT OF ENERGY STORAGE AND RENEWABLE RESOURCES

Cal Advocates reviewed data on PG&E's battery storage resources that were retired in previous years. As noted in Cal Advocates' testimonies served in prior periods, there are currently no Commission-directed reporting guidelines for energy storage dispatch. Cal Advocates will review for compliance once reporting requirements for energy storage dispatch are established.

A. Assessment of Demand Response Programs

- Based on the average hourly price at the Sub-Load Aggregation Point (Sub-LAP) for instances in which a Capacity Bidding Program (CBP) or SmartAC resource was dispatched versus the average hourly Sub-LAP price for all instances wherein the trigger condition was met, PG&E optimized its CBP and SmartAC resources reasonably.

IV. BACKGROUND

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

The Commission's Decision (D.) 02-10-062 instituted rules for the utilities' procurement responsibilities, established ERRA as the cost recovery mechanism for short-term procurement costs, and set minimum standards of behavior.[4] A subsequent

[4] D.02-10-062 at 2.

decision, D.02-12-074, described the utilities' "up-front standard"[5] of least-cost dispatch as a guide for their short-term procurement plans as well as for the Commission to determine compliance. The decision elaborated upon Standard of Conduct #4:

> 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…[P]ure 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.[6]

In the settlement agreement resulting from PG&E's 2014 Record Period ERRA compliance proceeding, Cal Advocates, then the Office of Ratepayer Advocates,[7] and PG&E agreed that the Commission would review economically dispatched demand response programs and hold PG&E to the least-cost dispatch standard of review described above.[8]

B. Clarification of Least-Cost Dispatch Expectations Following PG&E's 2010 Record Period and Southern California Edison's 2012 Record Period ERRA Compliance Proceedings

Cal Advocates analysis of each investor-owned utility's ERRA Record Period 2010 least-cost dispatch testimony concluded that the utilities did not achieve least-cost dispatch and recommended disallowances for each utility. The Commission reviewed PG&E's least-cost dispatch showing in Application (A.) 11-02-011 and issued D.13-10-041, stating that while the Commission would not approve the disallowance recommendation, the showing was below expectations.[9] The decision served to

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

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

[7] The Office of Ratepayer Advocates was renamed the Public Advocates Office of the Public Utilities Commission Pursuant to Senate Bill No. 854, which was signed by the Governor on June 27, 2019 (Chapter 51, Statutes of 2019).

[8] D.16-12-045, Conclusion of Law 4 at 31.

[9] D.13-10-041 at 14-15.

"ameliorate these shortcomings and provide specific direction to PG&E to improve its showings in the future."[10]

To improve least-cost dispatch showings, the decision directed PG&E to include "precise numerical calculations that either demonstrate that PG&E achieved least-cost dispatch during the Record Period or quantify the amount of overspending by PG&E" in its 2014 ERRA compliance proceeding (and going forward).[11] Additionally, the decision directed the Commission's Energy Division to facilitate a workshop with all investor-owned utilities, wherein a set of proposed criteria would be developed for determining what constitutes least-cost dispatch compliance and the methodology required to demonstrate this compliance.[12]

Finally, in response to Southern California Edison's (SCE) Record Period 2012 ERRA reporting, Cal Advocates asserted that the utility did not provide adequate proof that it achieved least-cost dispatch.[13] The Commission further clarified least-cost dispatch responsibilities by issuing D.14-05-023 in which it established that, following the Market Redesign Technology Update in 2009, the CAISO is responsible for dispatching energy generation.[14] In other words, the regulated utilities are responsible for scheduling and bidding, but the actual dispatch is performed by the CAISO.

C. Joint Proposal, Interim Ruling, and Final Decision for A.11-02-011

After the workshops, the utilities and subject matter experts proposed least-cost dispatch criteria and methodologies and submitted them to the Commission in 2014 as the "Joint Proposal for the Demonstration of Least-Cost Dispatch" (Joint Proposal).[15] Cal Advocates reviewed the proposal and provided recommendations, but the utilities and

[10] D.13-10-041 at 15.

[11] D.13-10-041 at 43.

[12] D.13-10-041 at 25.

[13] D.14-05-023 at 9.

[14] D.14-05-023 at 19.

[15] D.15-05-006 at 7.

Cal Advocates disagreed on the format for reporting their demand response programs in ERRA compliance applications.[16]

The Commission issued the "Interim Ruling Providing Guidance for 2014 ERRA Compliance Proceedings," (Interim Ruling) directing the utilities to comply with the uncontested portions of the Joint Proposal, which are as follows:

i. The least-cost dispatch Proposal shall be modified to include a background summary table in testimony.

ii. The utilities shall use the 500 instead of 100 highest hourly Locational Marginal Prices in metric 4 of the Joint Proposal.

iii. The summary reporting of daily self-commitment decisions shall be modified to show both "profit positions" and "loss positions."

iv. The utilities shall include a comparison of the accuracy of the utilities' forecast of prices in the day-ahead market compared to actual CAISO results.[17]

Finally, the Commission's Interim Ruling addressed the dispute between Cal Advocates and the utilities by ordering that the utilities show the "metrics for demand response" in the format proposed by Cal Advocates in its response to the Joint Proposal.[18] The Commission's Decision affirming the guidance and direction in the Interim Ruling[19] was issued on May 7, 2015, and the standards were expanded to apply to all three utilities on December 3, 2015.[20]

V. DISCUSSION AND ANALYSIS

Cal Advocates' analysis is organized to assess the following elements of PG&E's least-cost dispatch and demand response testimony: the accuracy of PG&E's overall forecasting accuracy and load bid calculations, dispatch of thermal resources, dispatch of hydro resources, and dispatch of demand response programs.

[16] D.15-05-006 at 7-11.

[17] D.15-05-006 at 12.

[18] D.15-05-006 at 12.

[19] D.15-05-006 at 13-14.

[20] D. 15-12-015.

A. Overall Forecasting Accuracy

1. Overview

PG&E conducts load and price forecasts to support its day-ahead market bidding and to procure fuel to supply its thermal resources. The load forecast is performed seven days in advance and is based on temperatures and actual hourly-updated load data. The price forecast is intended to reflect energy demand given market dynamics of supply, congestion, solar concentration, and transmission-constrained local area differences. This forecast also enables PG&E to evaluate the opportunity costs of use-limited dispatchable resources, such as hydroelectric powerhouses. Finally, PG&E combines the load (supply) with the price (demand) forecasts to predict market clearing prices and the marginal cost of providing energy during the optimization process, which informs the price of resources bid into the CAISO's day-ahead market.[21]

PG&E's day-ahead forecast accuracy can be determined by comparing the load and price forecasts with the actual CAISO load and clearing price to get the average mean absolute percentage error (MAPE), which is a measure of the forecast price deviation from the actual clearing price. This information is provided in PG&E's testimony in its comparison of forecast and actual price and load for the 100 highest energy value days (ranked based on the total cost of the load cleared in the day-ahead market)[22] as well as for every day of the Record Period.[23] In addition to verifying forecast accuracy, the MAPE analysis provides insight into how well PG&E values its dispatchable resources to ensure that they are bid economically, consistent with least-cost dispatch principles.

[21] Trading floor tour during the Public Advocates Office's site visit to PG&E office on March 16, 2016.

[22] A.23-02-018, Chapter 1 Workpapers, 2022_LCD_6_Highest_Energy_Value_Days_and_Price_Forecast_Summary_CONF.

[23] A.23-02-018, Chapter 1 Workpapers, 2022_LCD_Workpaper_6_HighestEnergyValueDays_CONF.

a. Analysis

According to PG&E, a MAPE value of [redacted] is "normal" and is more likely to be higher on hotter days with higher energy values.[24] In the 2022 Record Period, among the 100 highest energy value days, the median price MAPE was [redacted] and the mean was [redacted].[25] This is [redacted] to the 2021 values, when the median price MAPE among the 100 highest energy value days was [redacted] and the mean was [redacted].[26]

The mean and median price MAPE values for all 365 days of the year are [redacted] than the average MAPE values for the 100 highest energy value days in 2022; for every day in 2022, the median MAPE was [redacted] and the mean was [redacted].[27] The 2021 and 2020 Record Period median MAPE for every day was also [redacted] than their respective year's median MAPE for the 100 highest energy value days.[28] In contrast, the 2019 Record Period median MAPE for every day of the year was [redacted] than the 2019 median MAPE for the 100 highest energy value days.[29]

The mean and median price MAPE values for every day of 2022 are lower than in 2021, when the median MAPE value was [redacted] and the mean was [redacted].[30] The mean MAPE values for every day of the year for 2019-2022 were [redacted] than what PG&E considers normal (up to 10%). The median MAPE values for every day of 2019 and 2020 were also [redacted] than the normal threshold, though for 2021 and 2022, the median MAPE was [redacted] the normal range (less than 10%). Table 1 below presents the data more clearly.

[24] Presentation of LCD chapter and workpapers during the Public Advocates Office's site visit to PG&E office on March 16, 2016.

[25] A.23-02-018, Chapter 1 Workpapers, 2022_LCD_Workpaper_6_HighestEnergyValueDays, Table 6.1.

[26] A.22-02-015, Chapter 1 Workpapers, 2021_LCD_Workpaper_6_HighestEnergyValueDays, Table 6.1.

[27] A.23-02-018, Chapter 1 Workpapers, 2022_LCD_Workpaper_6_HighestEnergyValueDays, Table 6.2.

[28] A.21-03-008, Chapter 1 Workpapers, 2020_LCD_Workpaper_6_HighestEnergyValueDays, Table 6.2.

[29] A.20-02-009, Chapter 1 Workpapers, 2019_LCD_Workpaper_6_HighestEnergyValueDays, Table 6.2.

[30] Cal Advocates Workpapers, 2022_LCD_Workpaper_7_Load_Bid_CONF, Table 2015-2022 Total.

Table 1: Mean and Median Price MAPE Values for 2019- 2022 (Confidential)[31]

	2019	2020	2021	2022
MAPE for top 100 energy value days	[redacted]	[redacted]	[redacted]	[redacted]
Median MAPE for top 100 energy value days	[redacted]	[redacted]	[redacted]	[redacted]
MAPE for every day of the year	[redacted]	[redacted]	[redacted]	[redacted]
Median MAPE for every day of the year	[redacted]	[redacted]	[redacted]	[redacted]

b. Summary and Recommendations

Overall, PG&E's day-ahead forecasts for every day of the year during Record Period 2022 were slightly more accurate than those in the prior three Record Periods (2019-2021). PG&E's day-ahead forecasts the top 100 energy value days in the 2022 Record Period were similar in accuracy to those in Record Periods 2021 and 2020. However, the independent review noted earlier provided Cal Advocates with a baseline for the quality and robustness of PG&E's forecasting tools and methods.

During the 2022 Record Period, most of the high daily MAPEs occurred when hourly prices dropped to very low values during low load Spring months and when prices increased to abnormally high values during the severe September heat event and elevated December Natural gas prices. PG&E similarly observed high daily MAPEs in its 2021 Record Period during low load Spring months when hourly prices dropped to very low values during.[32] PG&E notes that, in general, forecast algorithms are trained to perform well on average, though extreme prices are difficult to forecast.[33]

[31] Cal Advocates Workpapers, 2022_LCD_Workpaper_7_Load_Bid_CONF, Table 2015-2022 Total.

[32] A.23-02-018, Chapter 1 Workpapers, 2022-LCD_Workpaper_6_HighestEnergyValueDays_CONF.

[33] A.23-02-018, Chapter 1 Workpapers, 2022-LCD_Workpaper_6_HighestEnergyValueDays_CONF.

Figure 1 illustrates the relatively higher MAPEs that correspond with the low-price values during low load Spring months and high values in February, as well as high MAPEs in the September and December time periods.

Figure 1: Average Forecasted DAM DLAP Price and Cleared ISO DAM DLAP Price with MAPE Values for 2021 (Confidential)[34]

[34] Cal Advocates Workpapers, 2022-LCD_Workpaper_6_HighestEnergyValueDays_CONF, Table 6.2.

Given that high MAPEs corresponded to unusual external weather and market events, Cal Advocates finds PG&E's load and price forecasting activities for the 2022 Record Period to be reasonable and in line with their historical performance.

B. Load Bid Calculations

PG&E bids "[redacted][35][redacted]. PG&E's load summary shows the total number of megawatt-hours (MWh) cleared each month in the day-ahead market and actual settled load. The difference indicates the amount of load scheduled in real-time. This information provides a large-scale context for the efficacy of PG&E's load bidding strategy. A high proportion of load cleared in the day-ahead market indicates that PG&E forecasted and procured sufficient energy resources relative to consumer demand, and then appropriately calculated the value of its resources and translated these values into bids that would allow the resources to be economically dispatched.

Based on this data, [redacted] of PG&E's total load was cleared in the day-ahead market, and each month between [redacted] cleared in the RTM.[36] The proportion of load cleared in the RTM in Record Period 2022 is [redacted] in the 2021 Record Period.[37] From 2015 to 2018, PG&E typically cleared [redacted] of its load in the RTM.[38] Figure 3 below compares PG&E's total load cleared in the day-ahead market versus load cleared in the real-time market from 2015-2022.

[35] A.23-02-018, PG&E Testimony at 1-13.

[36] A.23-02-018, Chapter 1 Workpapers, 2022 LCD _7_Load_Bid_CONF.xlsx; ERRA-2022-PGE-Compliance_DR_CalAdvocates_019-Q001_Atch01_CONF.xlsx

[37] A.22-02-015, Chapter 1 Workpapers, 2021_LCD_Workpaper_7_Load_Bid.

[38] Cal Advocates Workpapers, 2022_LCD_Workpaper_7_Load_Bid_CONF, Table 2015-2022 Total.

[redacted][39]

[redacted]

PG&E's load and price forecasting methodologies were independently reviewed, deemed "reputable," and found to produce "robust" outcomes. [redacted] in the DAM. [redacted] customers. PG&E may have overestimated its

[39] Cal Advocates Workpapers, 2022_LCD_Workpaper_7_Load_Bid_CONF, Table 2015-2022 Total.

load forecast. Over-procuring electricity in the day-ahead market may result in financial inefficiencies. If demand is lower than expected, the utility might have to sell the surplus power back to the market, often at a lower price. In response to Cal Advocates data request, PG&E states that [redacted][40]

This load forecast error figure is in line with the historical average for the past seven record years. Therefore, Cal Advocates finds PG&E's load bidding calculations reasonable, resulting in a reliable grid for ratepayers.

C. Management of Thermal Resources

PG&E is required to bid its utility-retained and contracted thermal resources at their incremental (marginal) costs, subject to safety, regulatory, legal, operational, and financial requirements. PG&E is prohibited from taking any actions that result in a preference for its utility-retained thermal generation resources relative to those under contract with outside counterparties.[41]

1. Commitment Cost Decisions

Prior to April 1, 2019, if the utilities believed that the proxy bids did not adequately reflect the true costs of running a resource, like a facility's non-fuel related costs, they could use the registered cost option. However, beginning on April 1, 2019, the CAISO "retired" the registered cost option,[42] except for "resources that have less than 12 months of 15-minute [locational marginal price] data."[43] Since none of the thermal resources in the PG&E's portfolio was eligible for the exception (having less than 12 months of 15-minutes data), all were required to use the proxy cost option starting

[40] ERRA-2022-PGE-Compliance_DR_CalAdvocaets_019-Q001CONF.

[41] D.02-12-069 at 62-63.

[42] CAISO Commitment Cost Enhancements Phase 3 initiative implemented on April 1, 2019.

[43] A.23-02-018, PG&E Testimony at 1-15.

April 1, 2019.[44] Because of this CAISO rule change, PG&E did not perform any proxy/registered cost determinations for thermal resources during the record period for 2022.[45]

Therefore, due to the retirement of the registered cost option, PG&E did not use this option for any of its resources in 2022,[46] which eliminated the need for PG&E to make a Proxy/Registered cost determination for thermal resources during the 2022 Record Period. It also eliminated the need for Workpaper 1- Commitment Cost Decisions, which PG&E submitted but left blank.[47]

2. Incremental Bid Cost Calculations

PG&E schedules or bids[48] resources that have dispatch flexibility into the CAISO markets at the incremental cost of providing energy, considering the variable resource operating cost and the most current market price forecast.[49] Resource costs that increase or decrease with resource output are properly treated as incremental costs.[50] Incremental energy bid costs include costs that vary directly with the generation of each additional megawatt-hour (MWh) above the minimum operating point such as fuel costs, greenhouse gas (GHG) costs, and variable operations and maintenance (VOM) costs.[51] Optimally, PG&E submits its calculated bids to the CAISO's day-ahead market, and the CAISO will dispatch the resource if the bid price is less than or equal to the locational marginal price (LMP) that the CAISO calculated for the node at which the resource is

[44] A.23-02-018, PG&E Testimony at 1-15.

[45] A.23-02-018, PG&E Testimony at 1-15.

[46] A.23-02-018, PG&E Testimony at 1-15, Chapter 1 Workpapers, 2022_LCD_Workpaper_1_CommitmentCostDecisions, Table 1.1.

[47] A.23-02-018, PG&E Testimony at 1-34.

[48] Schedules commonly refer to self-schedules whereas bids refer to price-quantity offers to sell or buy in the CAISO Market. (A.21-03-008, PG&E Testimony at p. 1-7, footnote 12).

[49] A.23-02-018, PG&E Testimony at 1-8.

[50] A.23-02-018, PG&E Testimony at 1-8.

[51] A.23-02-018, PG&E Testimony at 1-9.

located. If PG&E's bid is higher than the LMP at a resource's node, the CAISO does not dispatch the resource.[52]

In the 2022 record period, [redacted] day-ahead hourly bids to the CAISO for its thermal resources.[53] [redacted][54] [redacted] [redacted].[55] [redacted].[56] The error rate for 2022 was [redacted] in prior record years and resulted in minimal cost. Cal Advocates finds PG&E's bid cost calculation activities to be reasonable.

3. Bidding Activity

During the 2022 record period, PG&E submitted bids for dispatchable thermal resources during all hours when available. [redacted][57]

Among the [redacted] hourly bids that PG&E submitted to the CAISO for its thermal resources, [redacted] were "flagged," meaning that they were not dispatched although the incremental bid cost was lower than the LMP.[58] For all instances, the non-award was justifiable because the resource was providing ancillary services, was receiving regulation awards, was a multi-stage generator, and was in process of

[52] Caveat: CAISO has the discretion to dispatch or not dispatch a resource regardless of the bid price if CAISO determines it is necessary based on its exclusive information about the grid.

[53] A.22-05-015, Chapter 1 Workpapers, 2021_LCD_2_Bid_Cost_Calculation_Summary.

[54] A.23-02-018, Chapter 1 Workpapers, 2022_LCD_2_Bid_Cost_Calculation_Summary_CONF.

[55] A.22-05-015, Chapter 1 Workpapers, 2021_LCD_2_Bid_Cost_Calculation_Summary.

[56] A.22-05-015, Chapter 1 Workpapers, 2021_LCD_2_Bid_Cost_Calculation_Summary.

[57] A.23-02-018, Chapter 1 Workpapers, 2022_LCD_2_Bid_Cost_Calculation_Summary_CONF.

[58] A.23-02-018, Chapter 1 Workpapers, 2022_LCD_Workpaper_2_BidCostCalculation_CONF_Table 2.2-Annual Non-Award.

transitioning from one configuration to another, or all or part of the resource had an outage card,[59] limiting its available capacity.

In the 2022 Record Period, there were [redacted][60] "bidding and scheduling events" that resulted in a total cost impacts of [redacted].[61] The [redacted][62] [redacted][63] [redacted][64] [redacted][65] [redacted][66] [redacted].[67] [redacted][68]

[59] PG&E submits bids for resources even during outage periods to prevent traders from forgetting to bid the resource once it is operational again. The outage card communicates to the CAISO that although a bid has been submitted, the resource is either fully or partially unavailable. (A.16-02-019, PG&E response to the Public Advocates Office Data Request 012, Question 3.)

[60] A.23-02-018, PG&E Testimony at 1-30.

[61] A.23-02-018, PG&E Testimony at 1-30.

[62] A.23-02-018, PG&E Testimony at 1-30.

[63] A.23-02-018, PG&E Testimony at 1-30.

[64] A.23-02-018, PG&E Testimony, Table 1-7 at 1-30.

[65] A.23-02-018, PG&E Testimony at 1-30.

[66] A.23-02-018, PG&E Testimony at 1-30.

[67] A.23-02-018, PG&E Testimony at 1-31.

[68] A.23-02-018, PG&E Testimony at 1-31.

[redacted][69]

To remedy these events, [redacted][70] Because these events were remedied and did not reoccur, PG&E mitigated potentially higher cost impacts. Therefore, Cal Advocates finds that PG&E acted as a reasonable manager and does not recommend a disallowance.

Finally, during the 2022 Record Period, PG&E did not have any resources that did not bid into the CAISO markets at times when they were available,[71] which indicates that PG&E bid all of its available resources into the market, alleviating possible outages and contractual constraints.

4. Must-Take Resource Bidding and Scheduling

Part of PG&E's supply portfolio comprises must-take resources,[72] which are subject to safety, environmental, licensing, regulatory, or contractual constraints.[73] Rather than submit hourly economic bids to the CAISO for these resources, as is the case with most of the dispatchable thermal and hydro resources discussed in this chapter, PG&E self-schedules the "inflexible" generation (must-take) supply in the day-ahead market based on its forecast of their generation, and then modifies these self-schedules in real-time if the forecast of generation changes.[74] In the 2022 Record Period, PG&E did

[69] A.23-02-018, PG&E Testimony at 1-31.

[70] A.23-02-018, PG&E Testimony at 1-31.

[71] A.23-02-018, Chapter 1 Workpapers, 2022_LCD_Workpaper_2_BidCostCalculation, "Table 2.5 – Annual Non-Bid" tab.

[72] PG&E's must-take resources include (i.) existing Qualifying Facilities, (ii.) Combined Heat and Power facilities, (iii.) renewable energy contracts and resources without bidding rights for economic dispatch, (iv.) Diablo Canyon nuclear power plant, (v.) legacy contracts, and (vi.) must-run hydro generation. (A.22-02-015, PG&E Testimony, pp.1-23-24).

[73] A.23-02-018, PG&E Testimony at 1-10.

[74] A.23-02-018, PG&E Testimony at 1-10.

not self-commit any dispatchable thermal resources. There were no reported incidences of erroneous self-commitment during the record period.[75] Therefore, Cal Advocates finds PG&E's management of must-take resources reasonable.

D. Management of Hydro Resources

1. Overview

In general, hydro generation is use-limited due to the limited availability of water.[76] While water in reservoirs from natural inflows may be considered a zero-cost fuel (except in the case of pumped storage hydro), the availability of this zero-cost fuel may be limited.[77] While some hydro resources cannot be controlled at all, such as run-of-river resources, other hydro resources can be stored behind a dam and are bid into the CAISO markets at their incremental costs. Hydro resources do not have explicit fuel costs like thermal resources do, and so, while the incremental cost of providing hydropower does not include fuel, utilities must consider the opportunity costs of utilizing the resource at a future time when it may be more valuable.

Least-cost dispatch of hydro resources must take into consideration the uncertainty of weather conditions such as the likelihood of precipitation and high temperatures, the future availability of water, and any potential operating constraints. Hydro resources have the highest value to customers when the limited amount of water is utilized during high market prices[78] to offset or suppress high costs. PG&E utilizes three hydro modeling tools (PLEXOS, TESS, and Xpress) for forecasting and optimizing hydropower generation.[79]

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[75] A.23-02-018, Chapter 1 Workpapers, 2022_LCD_3_SelfCommitment_Summary_CONF.

[76] A.23-02-018, PG&E Testimony at 1-15.

[77] A.23-02-018, PG&E Testimony at 1-15-16.

[78] A.23-02-018, PG&E Testimony at 1-16.

[79] A.23-02-018, Chapter 1 Workpapers, 2022_LCD_4_Hydro_Resources_Summary.

2. Analysis

PG&E's hydro resources were, on average, dispatched during [redacted] of the 500 highest energy value hours, as determined by ranking the highest hourly locational marginal price values.[80] This is [redacted] than the 2021 record year when hydro resources were dispatched during [redacted] of the 500 highest energy value hours,[81] and [redacted] the percentage in the 2020 record year when hydro resources were dispatched [redacted] of the 500 highest energy value hours.[82] Most of PG&E's 40 dispatchable hydro units were individually dispatched between [redacted] and [redacted] of the 500 highest energy value hours.[83]

Cal Advocates sought an explanation for why PG&E's hydro resources were used by CAISO [redacted] during the top 500 highest LMPs during the 2022 record year versus prior recent record periods.[84] PG&E's response attributed the [redacted] of hydro resources during high market prices to the fact that high gas prices in December 2022 drove LMPs higher in December, after PG&E had already provided generation, utilizing water and depleting reservoirs during the reliability constrained summer months.[85] The high gas prices and associated CAISO energy market volatility were not anticipated by PG&E's mid-term hydro planning models.[86] [redacted][87] Cal Advocates finds this explanation reasonable given that the LMP spikes in December were neither seasonal

[80] A.23-02-018, Chapter 1 Workpapers, 2022_LCD_4_Hydro_Top_500, "Table 4.3 Hydro Stat" tab.

[81] A.22-02-015, Chapter 1 Workpapers, 2021_LCD_4_Hydro_Top_500, "Table 4.3 Hydro Stat" tab.

[82] A.21-03-008, Chapter 1 Workpapers, 2020_LCD_4_Hydro_Top_500, "Table 4.3 Hydro Stat" tab.

[83] A.23-02-018, Chapter 1 Workpapers, 2022_LCD_4_Hydro_Top_500, "Table 4.3 Hydro Stat" tab.

[84] ERRA-2022-PGE-Compliance_DR_CalAdvocates_021-Q002CONF.

[85] ERRA-2022-PGE-Compliance_DR_CalAdvocates_021-Q002CONF.

[86] ERRA-2022-PGE-Compliance_DR_CalAdvocates_021-Q002CONF.

[87] ERRA-2022-PGE-Compliance_DR_CalAdvocates_021-Q002CONF.

nor foreseeable, and occurred after PG&E utilized its hydro resources for the reliability constrained summer months.

For all the reasons described above, Cal Advocates determined that PG&E [redacted]

3. Summary and Recommendations

Overall, PG&E demonstrated that it is bidding its hydro resources for dispatch according to least-cost dispatch principles, during times when the price and value of energy is high. PG&E also demonstrated that it is bidding the hydro resources, such as those in the Helms Pumped Storage facility, for generation according to least-cost dispatch principles, when the price and value of energy is high and pumping when prices are lower.

E. Management of Dispatchable Renewable Resources and Energy Storage

1. Overview

PG&E contracts with and owns renewable resources with economic bidding rights.[88] The economic bidding of these resources captures the incremental and the opportunity costs associated with contractual and operational constraints.[89] In addition to calculating the cost components making up the bid cost for the economic dispatch of renewable energy in the day-ahead market, PG&E evaluates market prices and opportunity costs associated with the curtailment of renewables. For example, sometimes the CAISO-reported net energy demand approaches the minimum must-offer threshold and increases the risk of overgeneration. Overgeneration can overburden distribution and transmission lines and lead to surges and outages. At these times, energy prices are often negative to provide a financial incentive for generators to "turn off" and reduce the amount of energy flowing into the grid. This scenario typically occurs midday when

[88] A.23-02-018, PG&E Testimony at 1-25.

[89] A.23-02-018, PG&E Testimony at 1-25.

solar generation is at its peak. Much like hydro resources, renewables do not have explicit fuel costs, but, unlike many hydro resources,[90] renewables can be economically curtailed at times when the CAISO system is approaching overgeneration conditions and energy costs are negative.

By the time scheduling coordinators consider curtailing renewable resources, other thermal resources with flexible operating protocols have already been turned off, so renewables are the next type of energy resource that can be curtailed to prevent energy overgeneration. However, to ensure compliance with California's Renewable Portfolio Standard (RPS), the utilities assess the opportunity cost of not generating the Renewable Energy Credits (RECs) associated with renewable generation when determining their curtailment bids.

The opportunity costs associated with renewable resources are [redacted].[91] It is only economical for a renewable resource to be curtailed when the negative price at the resource's LMP is lower than the cost of a REC.[92] Some of PG&E's renewable resources also have operational constraints such as a limit on the number of curtailment hours per year. This presents an additional opportunity cost where PG&E must reserve renewable economic curtailment during the lowest LMPs in the year without exceeding the allowable curtailment hours to maximize the value of renewable resources.[93]
Battery storage can provide similar cost-mitigating services (optimization model) as hydro storage[94] by charging during times of the day when energy is least expensive and generating the stored energy at times when energy is most expensive. PG&E had two small utility-scale battery storage resources that were retired and removed from the

[90] For example, Must-run hydro generation face environmental, licensing, or physical requirements that require continuous operations.

[91] A.23-02-018, PG&E Testimony at 1-25.

[92] A.23-02-018, PG&E Testimony at 1-25.

[93] A.23-02-018, PG&E Testimony at 1-25.

[94] A.23-02-018, PG&E Testimony at 1-21.

CAISO markets on July 31, 2021. PG&E ended the pilot for these battery resources because the operational and maintenance costs exceeded potential benefits from continued operations.[95] The incremental cost of providing either energy or ancillary services from PG&E's batteries was calculated based on the cost of maintaining the battery's State of Charge at a level permitting provision of energy or ancillary services, considering the charging efficiency. Charging energy was procured from CAISO markets in the lowest cost hours.[96] The incremental cost of battery discharge was based on the battery's cycling efficiency and cost of charging.[97]

2. Summary and Recommendation

In its 2017 Record Period ERRA testimony, Cal Advocates attempted to analyze PG&E's renewable and energy storage dispatch data to determine whether PG&E had economically curtailed its renewable resources responsibly and optimized its battery storage.[98] However, without discrete Commission-directed reporting guidelines, it is not possible to assess PG&E's renewable and storage resource management.

The Commission pledged to "consider whether to institute a rulemaking proceeding covering all affected IOUs regarding storage resources, including consideration of the development of more detailed standards governing LCD compliance."[99] Cal Advocates will review for compliance once reporting requirements for energy storage dispatch are established.

F. 2022 Market and Business Process Changes

1. Overview

In the 2022 Record Period, PG&E participated in CPUC proceedings and CAISO initiatives on changes to market design and implementation, integrating those changes

[95] A.23-02-018, PG&E Testimony at 1-22.

[96] A.23-02-018, PG&E Testimony at 1-22.

[97] A.23-02-018, PG&E Testimony at 1-22.

[98] A.18-02-015, Public Advocates Office Testimony at 2-27-30.

[99] D.21-07-018 at 16.

into its internal processes. PG&E identifies two CAISO Stakeholder initiatives relevant to energy storage resources that were implemented during 2021. The first was Phase 1 of the Resource Adequacy (RA) Enhancements Initiative, which created the Minimum State of Charge (MSOC) constraint for Non-Generator Resources (NGRs), such as storage.[100] The purpose of the MSOC is to preserve enough state-of-charge in the energy storage fleet to meet their respective DAM awards in the RTM.[101]

The CAISO also implemented the energy storage and distribution storage resources phase 4 (ESDER4) initiative in October of 2021.[102] PG&E updated its bidding software to process new ESDER4 storage parameters (i.e., end-of-hour state of charge bid parameter and variable storage operations costs). CAISO's Commitment Cost Enhancements Phase 3 initiative implemented on April 1, 2019 eliminated the need for PG&E to make a Proxy/Registered cost determination for thermal resources and eliminated the need for Workpaper 1- Commitment Cost Decisions.[103]

G. Management of Demand Response Programs

1. Overview

PG&E manages several types of demand response (DR) programs, but the least-cost dispatch chapter, and therefore Cal Advocates' analysis, focuses on demand response resources with economic triggers. Of the different types of demand response programs with economic triggers, PG&E manages the Capacity Bidding Program (CBP) and the SmartAC Program.[104] Both of these DR programs are "represented as Proxy Demand Response (PDR) resources in PG&E's portfolio and bid into the day-ahead markets based on calculated availabilities and dispatch trigger prices."[105]

[100] A.23-02-018, PG&E Testimony at 1-33.

[101] A.23-02-018, PG&E Testimony at 1-33-34.

[102] A.23-02-018, PG&E Testimony at 1-34

[103] A.23-02-018, PG&E Testimony at 1-34.

[104] A.23-02-018, PG&E Testimony at 1-34.

[105] A.23-02-018, PG&E Testimony at 1-34.

2. Capacity Bidding Program (CBP)

The CBP is a "voluntary DR program that offers customers capacity and energy payments for being on standby to reduce load and for reducing energy consumption when requested by PG&E."[106] Program participants enroll through a third-party aggregator who receives the capacity payments and awards the payments to subscribing customers.[107] The CBP is available from May to October of each year.[108] There are three CBP program options. The first is the Prescribed option, which most closely resembled the CBP programs of past years. The Prescribed CBP option is available between 1:00 PM and 9:00 PM, Monday through Friday, with a maximum dispatch of six events and 30 hours per month.[109] A CBP event is triggered when:

a) The CAISO day-ahead price exceeds $95/MWh;

b) PG&E receives a market award or dispatch instruction from the CAISO for a PDR sourced from CBP;

c) When PG&E, in its sole opinion, forecasts that generation resources or electric system capacity may not be adequate; or

d) Forecasted temperature for a Sub-LAP exceeds the temperature threshold for the Sub-LAP.[110]

The CBP Elect option is available between 1:00 PM and 9:00 PM, Monday through Friday, with a maximum of six events and 30 hours per month, though Elect participants can choose to participate in additional events or hours.[111] The CBP Elect Plus option allows participation in the CAISO market for "additional hours outside the standard program hours."[112] Unlike the Prescribed CBP, the tariff price trigger for CBP

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[106] A.23-02-018, PG&E Testimony at 1-35.

[107] PG&E Electric Bidding Schedule E-CBP, July 23, 2018. Accessed at http://www.pge.com/tariffs/assets/pdf/tariffbook/ELEC_SCHEDS_E-CBP.pdf.

[108] A.23-02-018, PG&E Testimony at 1-36.

[109] A.23-02-018, PG&E Testimony at 1-36.

[110] A.23-02-018, PG&E Testimony at 1-36.

[111] A.23-02-018, PG&E Testimony at 1-37.

[112] A.23-02-018, PG&E Testimony at 1-37.

Elect and Elect Plus is bid at the price chosen by the aggregator.[113] Starting in 2021, both the Elect and Elect Plus options allow optional weekend participation. Weekend events count toward the maximum number of consecutive event days, maximum number events per month, and maximum event hours per operating month for resources nominated for weekend participation.[114]

There are opportunity costs associated with demand response dispatch. In addition to the opportunity cost of dispatching a resource at a future time, PG&E considers customer fatigue, or when a demand response customer experiences frequent dispatch and, as a result, does not believe that the value of the dispatch outweighs the burden placed on their own operations and may be less likely to participate in the demand response program in the future.[115] To avoid customer fatigue and subsequent customer attrition, per customer feedback, PG&E does not dispatch a demand response resource more than three business days in a row.[116]

3. SmartAC Program

The SmartAC Program was first integrated into the CAISO day-ahead market in 2019.[117] In 2022, SmartAC continued to be integrated into the CAISO day-ahead energy as a PDR,[118] and it is still available to residential customers.[119] Under this program, PG&E "installs a load control device at a customer's premise that can temporarily disengage the customer's primary central Air Conditioning (A/C) unit or raise the temperature at the thermostat when the device is remotely activated."[120] Like the CBP, the SmartAC Program is available from May 1 through October 31 of each year

[113] A.23-02-018, PG&E Testimony at 1-37.
[114] A.23-02-018, PG&E Testimony at 1-37.
[115] A.23-02-018, PG&E Testimony at 1-42.
[116] A.23-02-018, PG&E Testimony at 1-42.
[117] A.20-02-009, PG&E Testimony at 1-38.
[118] A.23-02-018, PG&E Testimony at 1-44.
[119] A.23-02-018, PG&E Testimony at 1-44.
[120] A.23-02-018, PG&E Testimony at 1-44.

consistent with times of high A/C usage, up to a 100 hours of cycling per customer per year.[121]

SmartAC is both a reliability program used during emergencies and an economic program based on wholesale energy prices which can be dispatched:[122]

a) Upon the CAISO's order:

   i. After the dispatch of Condition 2 Reliability Must-Run (RMR) units and prior to canvasing other entities and Balancing Authorities for available Manual Dispatch Energy/Capacity on interties;

   ii. Based on its forecasted system conditions and operating procedures; or

   iii. During emergency or near-emergency situations;

b) At the discretion of PG&E's energy operations center in response to a CAISO economic award in the wholesale market or high wholesale energy prices; or

c) During program testing.[123]

When used as a reliability program, [redacted][124]

4. Analysis

During the 2022 Record Period, PG&E dispatched CBP resources on 24 occasions for a total of 70 event hours. In comparison, PG&E dispatched CBP resources on 52 occasions for 112 event hours in 2021, and dispatched CBP resources on 28 occasions for 60 event hours in 2020.[125] PG&E attributed the decrease in dispatch frequency and

[121] A.23-02-018, PG&E Testimony at 1-44.

[122] A.23-02-018, PG&E Testimony at 1-43-44.

[123] A.23-02-018, PG&E Testimony at 1-44.

[124] A.23-02-018, PG&E Testimony at 1-45.

[125] A.23-02-018, PG&E Testimony at 1-38.

duration from 2021 to 2022 to the decrease in the number of resources dispatched under the Prescribed option.[126]

During the times that the CBP trigger conditions were met, and the resources were dispatched,[127] the average hourly net cost was [redacted] in 2022, versus [redacted] in 2021.[128] By comparison, the average hourly potential price for the times that the CBP trigger conditions were forecast, whether they were dispatched, was [redacted] in 2022, versus [redacted] in 2021.[129] The [redacted][130] [redacted] in 2022, between the two values can be attributed, in part, to instances where the trigger for an event was met, but not ultimately dispatched due to resources having already reached their maximum number of events per month or maximum number of consecutive event days.

PG&E provided the data for all the instances that the economic trigger was met, but the CBP resource was not dispatched. During the 2022 Record Period, there were 15 occasions totaling 43 hours where CBP resources received market awards but were not dispatched.[131] On 9 occasions totaling 23 hours, CBP resources were not dispatched because those resources had already reached either the maximum number of events per month or the maximum number of consecutive event days.[132] There were no occasions where the trigger was met but CBP resources were not dispatched due to technical difficulties with PG&E's notification and dispatch system.[133] By comparison, during the 2021 Record Period, there were 5 occasions when the economic trigger was met, but the CBP resource was not dispatched.[134]

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[126] A.23-02-018, PG&E Testimony at 1-37.

[127] This is also known as an "actual" dispatch. (A.23-02-018, PG&E Testimony at 1-39).

[128] A.23-02-018, PG&E Testimony at 1-43; A.22-02-015, PG&E Testimony at 1-42.

[129] A.23-02-018, PG&E Testimony at 1-43; A.22-02-015, PG&E Testimony at 1-42.

[130] A.23-02-018, PG&E Testimony at 1-43.

[131] A.23-02-018, PG&E Testimony at 1-40.

[132] A.23-02-018, PG&E Testimony at 1-41.

[133] A.23-02-018, PG&E Testimony at 1-41.

[134] A.22-02-015, PG&E Testimony at 1-40.

In the 2022 Record Period, PG&E dispatched its SmartAC resources during the summer DR season on 16 occasions for a total of 46.5 hours, and all events were dispatched because of market awards, a program system serial test event, or a CAISO emergency.[135] Eight of the dispatches were triggered by a market award, and one was for a transmission emergency.[136]

During actual SmartAC dispatch events in 2022, the average hourly net cost was [redacted], versus [redacted] in 2021.[137] By comparison, the average hourly potential price for all times that the SmartAC trigger conditions were forecasted in 2022, whether they were dispatched or not, was [redacted], versus [redacted] in 2021.[138] The difference in price in 2022 between the average hourly LMP and the average hourly potential LMP is [redacted]. This difference is mainly attributed to the dispatch hours where SmartAC resources did not receive market awards and were still dispatched for emergency events, test events, or retail dispatches.[139] Additionally, there were a few instances when SmartAC resources received market awards but were not dispatched.[140]

5. Summary and Recommendations

Average LMP for forecasted trigger event days and actual dispatch days for the CBP and SmartAC Program indicate PG&E optimized its demand response resources during the hours with higher energy values. Cal Advocates finds that PG&E managed its CBP and SmartAC resources reasonably.

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[135] A.23-02-018, PG&E Testimony, Chapter 1, Attachment A, Summary of Triggered Dispatch from Demand Response Programs.

[136] A.22-02-015, PG&E Testimony, Chapter 1, Attachment A, Summary of Triggered Dispatch from Demand Response Programs.

[137] A.23-02-018, PG&E Testimony at 1-48; A.22-02-015, PG&E Testimony at 1-46.

[138] A.23-02-018, PG&E Testimony at 1-48; A.22-02-015, PG&E Testimony at 1-46.

[139] A.23-02-018, PG&E Testimony at 1-48-49.

[140] A.23-02-018, PG&E Testimony at 1-47.

VI. CONCLUSION

Overall, Cal Advocates finds that PG&E managed its thermal, hydro, and demand response resources reasonably and does not recommend any disallowances.

LIST OF ATTACHMENTS FOR CHAPTER 2

#	Attachment	Description
1	Attachment 2.1 (Confidential)	A.23-02-018 - PG&E Chapter 1 Workpapers, 2022_LCD_ LCD_6_Highest_Energy_Value_Days_and_Price_Forecast_Summary_CONF.
2	Attachment 2.2 (Confidential)	A.23-02-018, Chapter 1 Workpapers, 2022_LCD_Workpaper_6_HighestEnergyValueDays_CONF. (Available via e-mail)
3	Attachment 2.3 (Confidential)	A.22-02-015, Chapter 1 Workpapers, 2021_LCD_Workpaper_6_HighestEnergyValueDays_CONF, Table 6.1. (Available via e-mail)
4	Attachment 2.4 (Confidential)	A.21-03-008, Chapter 1 Workpapers, 2020_LCD_Workpaper_6_HighestEnergyValueDays_CONF, Table 6.2. (Available via e-mail)
5	Attachment 2.5 (Confidential)	A.20-02-009, Chapter 1 Workpapers, 2019_LCD_Workpaper_6_HighestEnergyValueDays_CONF, Table 6.2. (Available via e-mail)
6	Attachment 2.6 (Confidential)	Cal Advocates Workpapers, 2022_LCD_Workpaper_7_Load_Bid_CONF. (Available via e-mail)
7	Attachment 2.7 (Confidential)	Cal Advocates Workpapers, 2022-LCD_Workpaper_6_HighestEnergyValueDays_CONF, Table 6.2. (Available via e-mail)
8	Attachment 2.8 (Confidential)	A.23-02-018, Chapter 1 Workpapers, 2022 LCD _7_Load_Bid_CONF.xlsx. (Available via e-mail)
9	Attachment 2.9 (Confidential)	A.22-02-015, Chapter 1 Workpapers, 2021_LCD_Workpaper_7_Load_Bid_CONF.xlsx. (Available via e-mail)
10	Attachment 2.10 (Confidential)	Data Request ERRA-2022-PGE-Compliance_DR_CalAdvocates_019-Q001CONF.
11	Attachment 2.11	Chapter 1 Workpapers, 2022_LCD_Workpaper_1_CommitmentCostDecisions, Table 1.1. (Available via e-mail)
12	Attachment 2.12	A.22-05-015, Chapter 1 Workpapers, 2021_LCD_2_Bid_Cost_Calculation_Summary.
13	Attachment 2.13 (Confidential)	A.23-02-018, Chapter 1 Workpapers, 2022_LCD_2_Bid_Cost_Calculation_Summary_CONF.

#	Attachment	Description
14	Attachment 2.14 (Confidential)	A.23-02-018, Chapter 1 Workpapers, 2022_LCD_Workpaper_2_BidCostCalculation_CONF_Table 2.2-Annual Non-Award. (Available via e-mail)
15	Attachment 2.15 (Confidential)	A.23-02-018, Chapter 1 Workpapers, 2022_LCD_Workpaper_2_BidCostCalculation_CONF, "Table 2.5 – Annual Non-Bid" tab. (Available via e-mail)
16	Attachment 2.16 (Confidential)	A.23-02-018, Chapter 1 Workpapers, 2022_LCD_3_SelfCommitment_Summary_CONF. (Available via e-mail)
17	Attachment 2.17 (Confidential)	A.23-02-018, Chapter 1 Workpapers, 2022_LCD_4_Hydro_Resources_Summary_CONF.
18	Attachment 2.18 (Confidential)	A.23-02-018, Chapter 1 Workpapers, 2022_LCD_4_Hydro_Top_500_CONF, "Table 4.3 Hydro Stat" tab. (Available via e-mail)
19	Attachment 2.19 (Confidential)	Data Request ERRA-2022-PGE-Compliance_DR_CalAdvocates_021-Q002CONF

CHAPTER 3 : UTILITY-OWNED GENERATION – FOSSIL AND RENEWABLES

(Witness: Michael Yeo)

I. INTRODUCTION AND RECOMMENDATIONS

This chapter addresses Pacific Gas and Electric Company's (PG&E) management and operation of its utility-owned nuclear facility, Diablo Canyon Power Plant (DCPP), and outages that occurred at this facility during the 2022 Record Period.

After reviewing PG&E's testimony and responses to data requests, the Public Advocates Office at the California Public Utilities Commission (Cal Advocates) recommends the Commission order PG&E to:

(a) provide, in the next ERRA Compliance filing following the completion of the socket weld failure analysis, a copy of the metallurgical report of the failed weld and its follow-up actions;

(b) file testimony and workpapers on its Licensee Event Reports (LERs) in all future ERRA Compliance Applications;

(c) explain why it did not adopt American Society of Mechanical Engineers (ASME) NQA-1 definitions of repair and rework;[141]

(d) provide an unabridged transcript of the statement made by a PG&E spokesperson to the media on the socket weld LER incident;[142]

(e) furnish a list of all the contractors working on the socket weld corrective work and identify whether they were certified to work in the area under the jurisdiction of the Nuclear Regulatory Commission (NRC).[143] If the contractors were not qualified to work in an NRC-jurisdictional area, the Commission should order PG&E to seek approval from the NRC for the nonconformance; and

(f) seek approval from the NRC for the socket weld corrective work because the work was a repair not a rework.

Cal Advocates also recommends that the Commission consider ordering the Diablo Canyon Independent Safety Commission (DCISC) to revise its Charter to address the following issues:

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[141] PG&E response to Cal Advocates Data Request 13, Question 112.

[142] PG&E response to Cal Advocates Data Request 13, Question 067 and 073.

[143] PG&E response to Cal Advocates Data Request 9, Question 053.

(a) Appoint a rapporteur to investigate PG&E's LERs;

(b) Change the qualification criteria for the selection of the DCISC members to include the member's eligibility for Quality Assurance certification; and

(c) Strengthen the language in the charter section on Committee Member selection to mention specifically the exclusion of PG&E involvement. This is to avoid any perception of conflict of interest.

Cal Advocates may, at a later time, seek a disallowance if the NRC, upon final determination of the LER, establishes that PG&E is at fault in its operation and maintenance activities, including its failure to file, if any, approval for nonconformances.

II. DISCUSSION AND ANALYSIS

For this year's review, the Public Advocates Office conducted further analysis and review of the leaked socket weld discovered during the DCPP Unit 2 planned refueling outage. PG&E reported that leakage to the NRC in its December 21, 2022 PG&E Letter labeled as DCL-22-093.[144] PG&E also submitted the NRC's Licensee Event Report (LER) as an attachment to the Letter.[145]

A. DCPP - Background

During the Record Period, PG&E owned, operated, and maintained one nuclear generating facility, the Diablo Canyon Power Plant (DCPP), located nine miles northwest of Avila Beach in San Luis Obispo County.[146] DCPP consists of twin pressurized water reactors, Units 1 and 2, rated at a nominal 1,122 megawatts (MW) and 1,118 MW, respectively.[147] The two reactors have been operating since 1985 (Unit 1) and 1986 (Unit 2).[148]

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[144] PG&E response to Cal Advocates Data Request 9, Question 009: DCL-22-093 is a PG&E Diablo Canyon chronological outgoing correspondence designator – 22 indicating year 2022 and 093 being the 93rd letter of the year.

[145] https://www.nrc.gov/docs/ML2235/ML22355A081.pdf. See Appendix 3-1.

[146] PG&E Testimony, at 4-1, line 9-11.

[147] PG&E Testimony, at 4-1, line 12-13.

[148] R.23-01-007, at 2.

DCPP generation supply is maximized to 100% baseload operation with reductions, at times, to perform necessary maintenance and refueling.[149]

The percentage of power supplied to PG&E customers over the past 5 years from DCPP generation was:[150]

a. 2022 - 49% from DCPP
b. 2021 - 39% from DCPP
c. 2020 - 43% from DCPP
d. 2019 - 44% from DCPP
e. 2018 - 34% from DCPP

The percentage is not mandated by regulators; the overall energy mix fluctuates year to year.[151]

The units are currently licensed by the United States Nuclear Regulatory Commission (NRC) to operate until November 2, 2024 (Unit 1) and August 26, 2025 (Unit 2).[152]

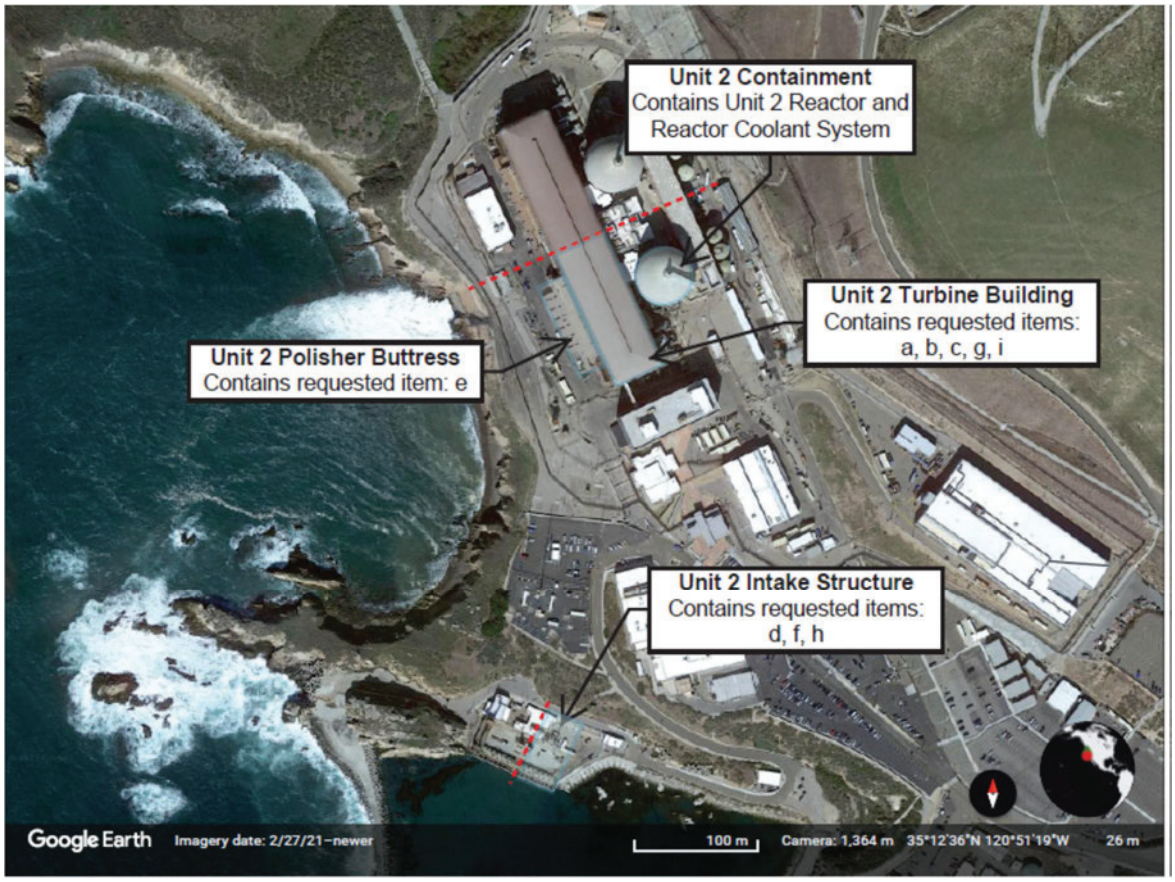
[149] PG&E response to Cal Advocates Data Request 9, Question 022 and 023.

[150] PG&E response to Cal Advocates Data Request 9, Question 023.

[151] PG&E response to Cal Advocates Data Request 9, Question 023.

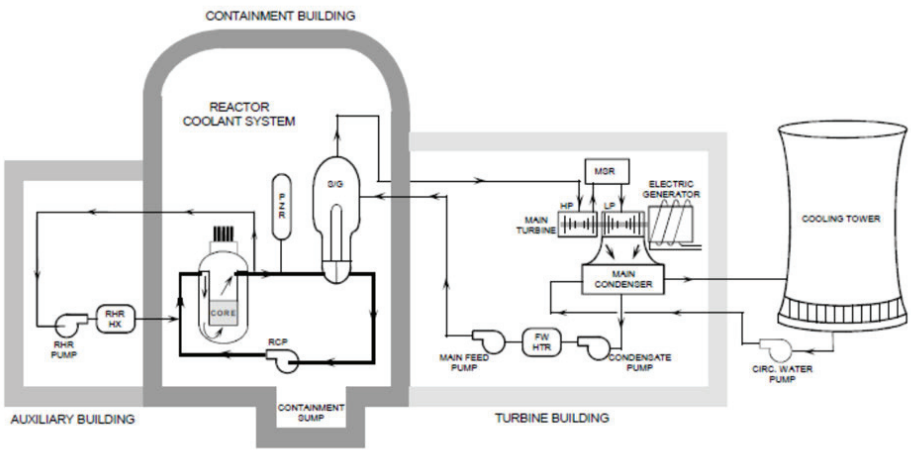
[152] R.23-01-007, at 2.

Figure 3-1 DCPP Layout – Aerial View[153]



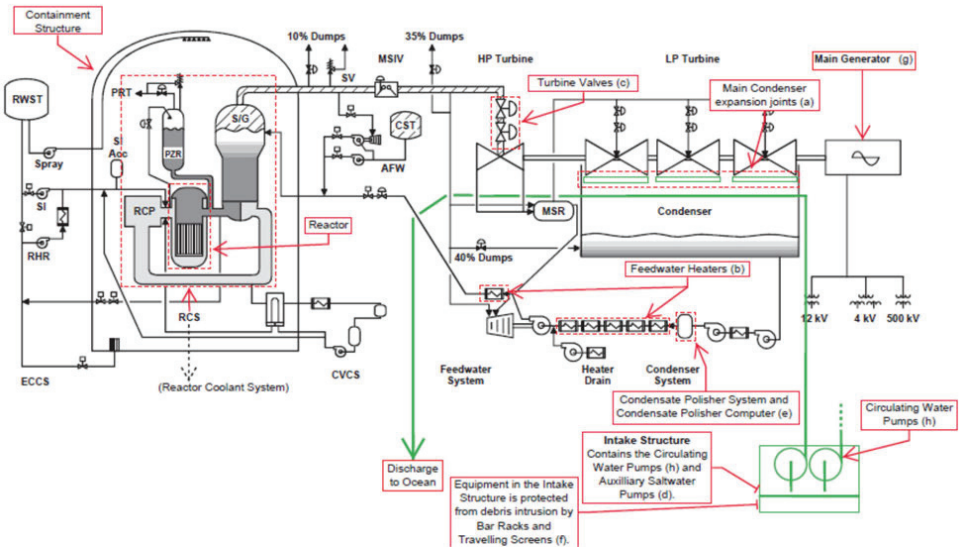
[153] PG&E response to Cal Advocates Data Request 9, Question 001 and 014 and PG&E response to Cal Advocates Data Request 13, Question 001.

Figure 3-2 DCPP Layout – Schematic View (Simplified)[154]



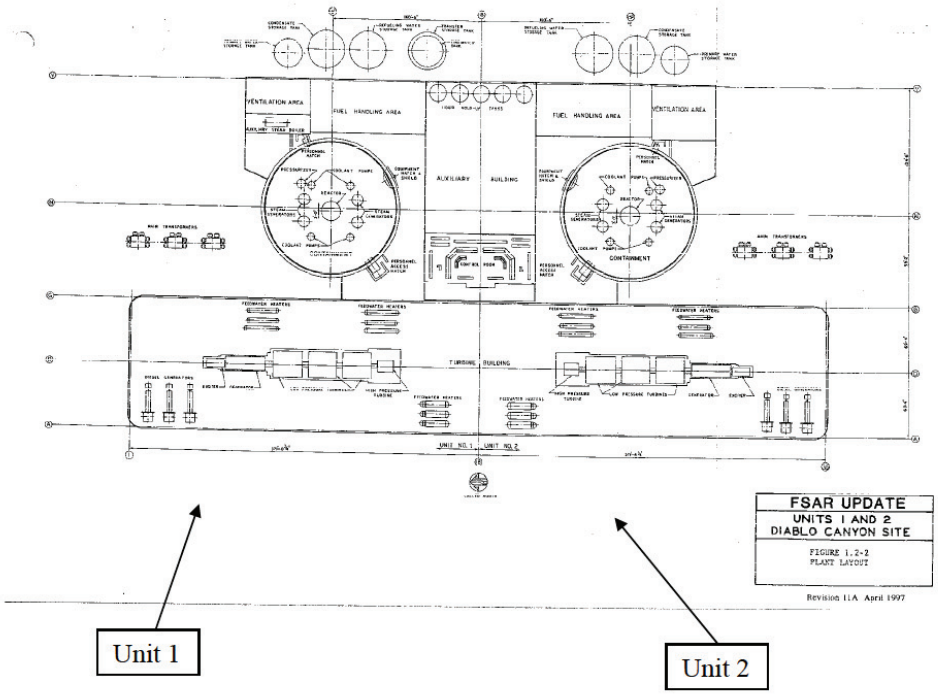
[154] PG&E response to Cal Advocates Data Request 9, Question 009 and 016.

Figure 3-3 DCPP Layout – Schematic View (Detailed)[155]



[155] PG&E response to Cal Advocates Data Request 9, Question 001 and 014 and PG&E response to Cal Advocates Data Request 13, Question 001.

Figure 3-4 DCPP Layout – Top View[156]



[156] PG&E response to Cal Advocates Data Request 13, Question 001.

Senate Bill (SB) 846 requires the Commission to execute several tasks and consider specific criteria related to the potential extension of operations at Diablo Canyon. The Commission has recently opened Rulemaking (R.) 23-01-007 to consider potential extension of DCPP operations in accordance with SB 846. SB 846 requires the Commission to execute several tasks and consider specific criteria to render, by the end of calendar year 2023, a decision establishing new retirement dates for DCPP Unit 1 and 2.[157]

Regulated Agencies

All nuclear activities are regulated and overseen daily by the Nuclear Regulatory Commission (NRC) to ensure that the facility is operated in compliance with federal regulations.[158] The NRC's jurisdiction is drawn from the Atomic Energy Act (AEA) of 1954, as amended, and the Energy Reorganization Act (ERA) of 1974, as amended.[159]

The NRC was created as an independent agency by Congress in 1974 to ensure the safe use of radioactive materials for beneficial civilian purposes while protecting people and the environment.[160] The NRC regulates commercial nuclear power plants and other uses of nuclear materials, such as in nuclear medicine, through licensing, inspection and enforcement of its requirements.[161] The roles, responsibilities, and functions of the NRC are described on their website at www.nrc.gov.[162]

There are two full time NRC staff members (referred to as Resident Inspectors) stationed at DCPP.[163] The two Resident Inspectors are both assigned to Unit 1 and 2.[164]

[157] R.23-01-007, at 1.

[158] PG&E Testimony, at 4-1, line 17-19.

[159] PG&E response to Cal Advocates Data Request 9, Question 006.

[160] PG&E response to Cal Advocates Data Request 13, Question 032.

[161] PG&E response to Cal Advocates Data Request 13, Question 032.

[162] PG&E response to Cal Advocates Data Request 13, Question 032.

[163] PG&E response to Cal Advocates Data Request 13, Question 025.

[164] PG&E response to Cal Advocates Data Request 13, Question 026.

Periodically, other NRC inspectors visit the DCPP site for the time required to perform planned inspections.[165] The number of such part-time inspectors varies depending on the scope of the inspection.[166] PG&E provided information on NRC's audit plan in the last five years.[167]

The on-site NRC Resident Inspectors evaluate reactor operations through a combination of independent oversight, including inspections, and assessment of plant performance and operational experience.[168] Results of NRC inspection activities are documented in inspection reports, which are also publicly available.[169]

The two full-time NRC Resident Inspectors conduct constant oversight and inspection of various DCPP activities throughout each year and issue quarterly inspection reports which document their conclusions.[170]

Additionally, periodic focused inspections are conducted each year by NRC inspectors from the NRC's Regional office in Arlington, TX and/or Headquarters in Washington D.C.[171]

The NRC's inspection schedules for DCPP were published in the following letters, which are publicly available via the NRC's Agencywide Document Access and Management System (ADAMS) (www.nrc.gov/reading-rm/adams):[172]

a. Annual Assessment Letter for Diablo Canyon Power Plant, Units 1 and 2 (Report 05000275/2017006 AND 05000323/2017006), Dated March 1, 2018

b. Annual Assessment Letter for Diablo Canyon Power Plant, Units 1 and 2 (Report 05000275/2018006 AND 05000323/2018006), Dated March 4, 2019

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[165] PG&E response to Cal Advocates Data Request 13, Question 025.

[166] PG&E response to Cal Advocates Data Request 13, Question 025.

[167] PG&E response to Cal Advocates Data Request 13, Question 028.

[168] PG&E response to Cal Advocates Data Request 13, Question 027.

[169] PG&E response to Cal Advocates Data Request 13, Question 025.

[170] PG&E response to Cal Advocates Data Request 13, Question 028.

[171] PG&E response to Cal Advocates Data Request 13, Question 028.

[172] PG&E response to Cal Advocates Data Request 13, Question 028.

c. Annual Assessment Letter for Diablo Canyon Power Plant, Units 1 and 2 (Report 05000275/2019006 AND 05000323/2019006), Dated March 3, 2020

d. Annual Assessment Letter for Diablo Canyon Power Plant, Units 1 and 2 (Report 05000275/2020006 AND 05000323/2020006), Dated March 3, 2021

e. Annual Assessment Letter for Diablo Canyon Power Plant, Units 1 and 2 (Report 05000275/2021006 AND 05000323/2021006), Dated March 2, 2022

f. Annual Assessment Letter for Diablo Canyon Power Plant, Units 1 and 2 (Report 05000275/2022006 AND 05000323/2022006), Dated March 1, 2023

The NRC's associated inspection reports for DCPP are also publicly available via the NRC's ADAMS website.[173]

When Cal Advocates asked PG&E to identify all the regulatory agencies and authorities that have jurisdiction over PG&E nuclear operations, PG&E responded that it objected to the query as being over-broad and ambiguous.[174] PG&E asserts that the NRC is the primary regulatory agency that oversees PG&E nuclear operations.[175] PG&E adds that the NRC is the primary agency to whom PG&E reports its nuclear operation.[176]

When Cal Advocates asked for all the nuclear operations reports that PG&E had submitted to the various regulatory agencies and authorities, PG&E responded that the data request was over-broad and vague, unduly burdensome, outside the scope of this proceeding, and not reasonably calculated to lead to the discovery of admissible evidence.[177] As for its NRC filings, PG&E added that it provided, to Cal Advocates, a summary of those filings in its Master Data Request response.[178]

[173] PG&E response to Cal Advocates Data Request 13, Question 028.

[174] PG&E response to Cal Advocates Data Request 9, Question 005.

[175] PG&E response to Cal Advocates Data Request 9, Question 005.

[176] PG&E response to Cal Advocates Data Request 9, Question 007.

[177] PG&E response to Cal Advocates Data Request 9, Question 008.

[178] PG&E response to Cal Advocates Data Request 9, Question 008.

Refueling Outage

PG&E performs planned refueling outages every 18-20 months on each unit.[179]

The initial start time for future outages is developed years in advance of the outage start through a coordinated effort between PG&E Nuclear Work Management and PG&E Engineering Services.[180] Outage start dates are typically in the spring or fall to support operation during the summer months and are coordinated with reactor fuel core cycle length (currently from 18-20 months on each unit).[181] This planning minimizes fuel cost for the remaining operating years on both Units 1 and 2.[182] The outage initial start date is then coordinated through PG&E's Energy Policy and Procurement organization, in advance of the actual outage start date.[183]

In the last five years, PG&E performed refueling outages at Unit 2 in 2022, 2021, 2019 and 2018.[184] The refueling outage for Record Period 2022 is designated as 2R23 where:[185]

a. The "2" signifies Diablo Canyon Unit 2,
b. "R" stands for a refueling outage, and
c. "23" signifies this as the 23rd refueling outage since the unit was placed in operation.

For 2021, the outage is referred to as 2R22; for 2019, it is 2R21; and for 2018, it is 2R20.[186]

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[179] PG&E response to Cal Advocates Data Request 9, Question 003.

[180] PG&E Testimony, page 4-4, line 3-5, and PG&E response to Cal Advocates Data Request 9, Question 003.

[181] PG&E Testimony, page 4-4, line 5-8, and PG&E response to Cal Advocates Data Request 9, Question 003.

[182] PG&E Testimony, page 4-4, line 8-9, and PG&E response to Cal Advocates Data Request 9, Question 003.

[183] PG&E Testimony, page 4-4, line 9-11, and PG&E response to Cal Advocates Data Request 9, Question 003.

[184] PG&E response to Cal Advocates Data Request 9, Question 004.

[185] PG&E response to Cal Advocates Data Request 9, Question 002.

[186] PG&E response to Cal Advocates Data Request 9, Question 004.

B. DCPP – Physical Properties

When Unit 2 is down for maintenance, Unit 1 operation is not significantly affected.[187] Shared equipment is realigned as directed by DCPP operating procedures to ensure Unit 1 operational and safety system functions are maintained when Unit 2 is shut down.[188]

Separate facilities and equipment are provided for each unit, with few exceptions.[189]

Unit 2 shutdown does not impact Unit 1 power production level, nor does it impact the licensed level of safety system redundancy.[190] Necessary Unit 1 operational and safety system functions are maintained through procedurally directed system realignments.[191]

If a shared equipment is out of service, both Unit 1 and Unit 2 do not have to shut down.[192] Shared equipment is designed such that it does not impair the ability of either unit's safety functions, and sufficient redundancy of shared equipment is provided such that power operation will not be affected.[193] This is to comply with 10 CFR 50 Appendix A General Design Criterion 5.[194]

The process for ramping down a unit for a planned shutdown is scheduled and coordinated ahead of time with Short Term Energy Trading (STES).[195] During all outages and curtailments, DCPP notifies STES of any schedule changes that alter parallel or load change start times.[196]

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[187] PG&E response to Cal Advocates Data Request 13, Question 011.

[188] PG&E response to Cal Advocates Data Request 13, Question 011.

[189] PG&E response to Cal Advocates Data Request 13, Question 011.

[190] PG&E response to Cal Advocates Data Request 13, Question 012.

[191] PG&E response to Cal Advocates Data Request 13, Question 012.

[192] PG&E response to Cal Advocates Data Request 13, Question 013.

[193] PG&E response to Cal Advocates Data Request 13, Question 013.

[194] PG&E response to Cal Advocates Data Request 13, Question 013.

[195] PG&E response to Cal Advocates Data Request 13, Question 014.

[196] PG&E response to Cal Advocates Data Request 13, Question 014.

The unit power reduction ramp rate is controlled per DCPP procedures, with an overall goal of maintaining reactor safety to protect the health and safety of the public.[197]

Ramp times and outage durations vary depending on the reason for the ramp and any maintenance and testing that is required, both during the curtailment and during the return to full power.[198]

The ramp up will typically be the same whether planned or unexpected shutdown.[199] The ramping up is dependent on the degree of the unit cooldown and depressurization required to perform work, as well as the actual work performed.[200] Testing is required on any startup, and the greater the cooldown and depressurization the more testing that will be required, thereby requiring more time to return to full power operation.[201] Similarly, post-Maintenance testing of equipment that had maintenance performed during the shutdown would be required, additionally requiring more time to return to full power operation.[202]

When a unit shuts down after an unexpected trip, the reactor trip signal de-energizes the Control Rods causing them to gravity fall into the Reactor: the control rods safely terminate power production and maintain the Reactor shutdown.[203]

Following a reactor trip from full power, the Auxiliary Feed Water system will automatically start to provide a backup source of water to the Steam Generators for continued heat removal.[204]

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[197] PG&E response to Cal Advocates Data Request 13, Question 014.

[198] PG&E response to Cal Advocates Data Request 13, Question 014.

[199] PG&E response to Cal Advocates Data Request 13, Question 015.

[200] PG&E response to Cal Advocates Data Request 13, Question 015.

[201] PG&E response to Cal Advocates Data Request 13, Question 015.

[202] PG&E response to Cal Advocates Data Request 13, Question 015.

[203] PG&E response to Cal Advocates Data Request 13, Question 016.

[204] PG&E response to Cal Advocates Data Request 13, Question 015.

If the reactor trip was generated due to a grid related event which affects the 230kV power supply to the site, the Emergency Diesel Generators may automatically start as an anticipatory signal to ensure continuity of power to Vital Electrical Busses.[205]

Radiological Zone and Safety

DCPP has a main radiologically controlled area (RCA) which contains all the contaminated portions of the power plant.[206] Within the RCA are two containment structures, one for each of DCPP's reactors (Unit 1 and Unit 2).[207] Radiation levels throughout the plant vary significantly depending on the systems and components in a specific area and on the specific plant conditions (e.g., operating or shutdown).[208]

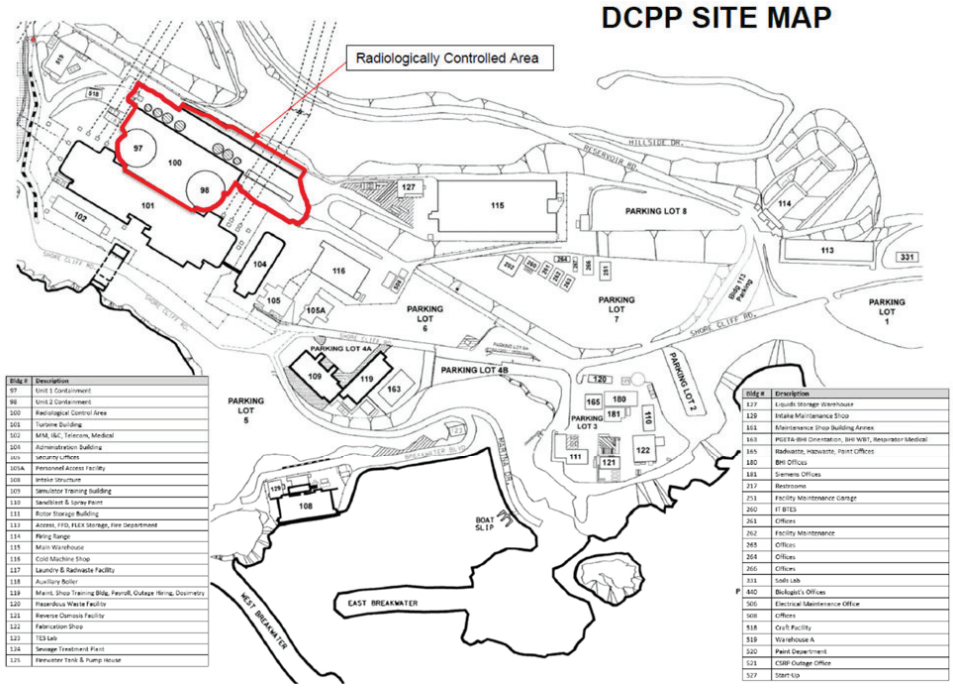
[205] PG&E response to Cal Advocates Data Request 13, Question 015.

[206] PG&E response to Cal Advocates Data Request 9, Question 011.

[207] PG&E response to Cal Advocates Data Request 9, Question 011.

[208] PG&E response to Cal Advocates Data Request 9, Question 011.

Figure 3-5 DCPP Radiologically-Controlled Area[209]



[209] PG&E response to Cal Advocates Data Request 13, Question 002.

Radiation levels are not normally measured at the LER leak location during normal operations.[210] This is because radiation levels in the leak location during normal reactor operations are very high, and therefore entry to this area is hazardous to personnel.[211] Radiation levels would be measured for any emergency-required entry.[212]

During refueling operations at the floor below the leak location, the radiation levels are 5-10 mrem/hr for the general area.[213] The leak location is overhead and not normally accessible without scaffolding constructed.[214] With scaffolding constructed, radiation levels on the scaffolding are 10-40 mrem/hr.[215]

The leak did not affect radiation levels.[216] The radiation at the leak was not discernable from the general area radiation levels.[217] The contamination levels at the leak were measured at 600 disintegrations per minute / 100cm2.[218] The leak was not quantifiable.[219] The radiation leak level was due to radioactive particulates within the reactor coolant system that exited the piping system through the leak.[220]

During outages, the area is posted as a high radiation area and as a contaminated area.[221] This means acceptable radiation levels are < 800 mrem/hr and acceptable contamination levels are < 100,000 disintegrations per minute / 100cm2.[222] The

[210] PG&E response to Cal Advocates Data Request 9, Question 033.
[211] PG&E response to Cal Advocates Data Request 9, Question 033.
[212] PG&E response to Cal Advocates Data Request 9, Question 033.
[213] PG&E response to Cal Advocates Data Request 9, Question 034.
[214] PG&E response to Cal Advocates Data Request 9, Question 034.
[215] PG&E response to Cal Advocates Data Request 9, Question 034.
[216] PG&E response to Cal Advocates Data Request 9, Question 035.
[217] PG&E response to Cal Advocates Data Request 9, Question 035.
[218] PG&E response to Cal Advocates Data Request 9, Question 035.
[219] PG&E response to Cal Advocates Data Request 9, Question 035.
[220] PG&E response to Cal Advocates Data Request 9, Question 035.
[221] PG&E response to Cal Advocates Data Request 9, Question 036.
[222] PG&E response to Cal Advocates Data Request 9, Question 036.

regulation of nuclear power plant radiological safety is exclusive and field preempted to the NRC.[223]

The leak did not change the radiation levels.[224] No contamination from this leak was detected outside the leak area as detectable contamination from this incident was limited to the pipe and surrounding insulation.[225]

During outages, the containment structure is posted as a radiation area and contaminated area, but it is not posted as an airborne area.[226] This means acceptable radiation levels are < 80 mrem/hr, acceptable contamination levels are < 100,000 dpm/100cm2, and acceptable airborne levels <0.3 derived airborne concentration (DAC).[227]

Radiation exposure for a single entry or occurrence is limited by the specific radiation work permit (RWP) for the specific work being performed.[228] RWP limits vary based on the work being performed.[229] For the repair of the leak, the RWP exposure limit was 250 mrem.[230]

Plant personnel are limited to 5,000 mrem/year of plant-related radiation exposure.[231] In addition, plant personnel are limited to 25,000 mrem during a lifetime of plant-related radiation exposure.[232]

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[223] PG&E response to Cal Advocates Data Request 9, Question 040, 041, 042, 044 to 046.

[224] PG&E response to Cal Advocates Data Request 9, Question 037.

[225] PG&E response to Cal Advocates Data Request 9, Question 037.

[226] PG&E response to Cal Advocates Data Request 9, Question 038.

[227] PG&E response to Cal Advocates Data Request 9, Question 038.

[228] PG&E response to Cal Advocates Data Request 9, Question 039.

[229] PG&E response to Cal Advocates Data Request 9, Question 039.

[230] PG&E response to Cal Advocates Data Request 9, Question 039.

[231] PG&E response to Cal Advocates Data Request 9, Question 040.

[232] PG&E response to Cal Advocates Data Request 9, Question 042.

No plant personnel exceeded their allowable exposure limits because of this LER incident.[233] Also, no PG&E employees required medical treatment as a result of the LER incident.[234]

Radiation levels from the leak did not affect radiation levels outside DCPP because no contamination from this leak was detected outside the leak area.[235] The leak area was limited to the pipe weld and insulation surrounding the weld.[236]

Members of the public are limited to 100 mrem/year of plant-related radiation exposure.[237] No non-PG&E employees required medical treatment as a result of the LER incident.[238]

[233] PG&E response to Cal Advocates Data Request 9, Question 043.

[234] PG&E response to Cal Advocates Data Request 9, Question 045.

[235] PG&E response to Cal Advocates Data Request 9, Question 044.

[236] PG&E response to Cal Advocates Data Request 9, Question 044.

[237] PG&E response to Cal Advocates Data Request 9, Question 045.

[238] PG&E response to Cal Advocates Data Request 9, Question 047.

C. DCPP – Equipment and Operation Nomenclature

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

1. ASME: American Society of Mechanical Engineers, a non-profit professional organization, was founded in 1880.[239] ASME published the Boiler & Pressure Vessel Code (BPVC) in 1915, which was later incorporated into laws in most North American territories.[240] In the years following the publication of the first BPVC, ASME continued the proliferation of safety in industry, developing engineering standards in numerous technical areas including pipeline production, elevators and escalators, materials handling, gas turbines, and nuclear power.[241]
2. Code of Federal Regulations (CFR)
    a. 10 CFR 50.73 stands for: Code of Federal Regulations, Title 10 (Energy), Chapter 1 (Nuclear Regulatory Commission), Part 50 (Domestic Licensing of Production and Utilization Facilities), Section 50.73 Licensee event report system.[242]
    b. 10 CFR 50 Appendix A General Design Criterion 5.[243]
    c. 10 CFR 50 Appendix B: Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants.
    d. 10 CFR 50 Appendix B:[244] Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants. This Appendix establishes quality assurance requirements for the design, manufacture, construction, and operation of those structures, systems, and components. The pertinent requirements of this appendix apply to all activities affecting the safety-related functions of those structures, systems, and components; these activities include designing, purchasing, fabricating, handling, shipping, storing, cleaning, erecting, installing, inspecting, testing, operating, maintaining, repairing, refueling, and modifying.

[239] https://www.asme.org/about-asme

[240] https://www.asme.org/about-asme/engineering-history

[241] https://www.asme.org/about-asme/engineering-history

[242] PG&E response to Cal Advocates Data Request 9, Question 009.

[243] PG&E response to Cal Advocates Data Request 13, Question 013.

[244] https://www.nrc.gov/reading-rm/doc-collections/cfr/part050/part050-appb.html

3. Boric Acid: additive used to control reactor reactivity in the reactor coolant system.[245] Because boric acid is intentionally added to the reactor coolant water to control reactor reactivity, the additive is contained within the stainless-steel reactor coolant system pressure boundary.[246] Inhibiting boric acid ingression into equipment and components would inhibit the intentional addition, and is therefore not desirable.[247]

Dry boric acid is mixed with water and stored in tanks until it is added to the reactor coolant system.[248]

The tanks are in the auxiliary building, which is the structure between the Unit 1 and the Unit 2 containment.[249]

[245] PG&E response to Cal Advocates Data Request 9, Question 028.

[246] PG&E response to Cal Advocates Data Request 9, Question 031.

[247] PG&E response to Cal Advocates Data Request 9, Question 031.

[248] PG&E response to Cal Advocates Data Request 9, Question 028.

[249] PG&E response to Cal Advocates Data Request 9, Question 028.

Figure 3-6 Boric Acid System[250]

Boric Acid System Piping & Overview

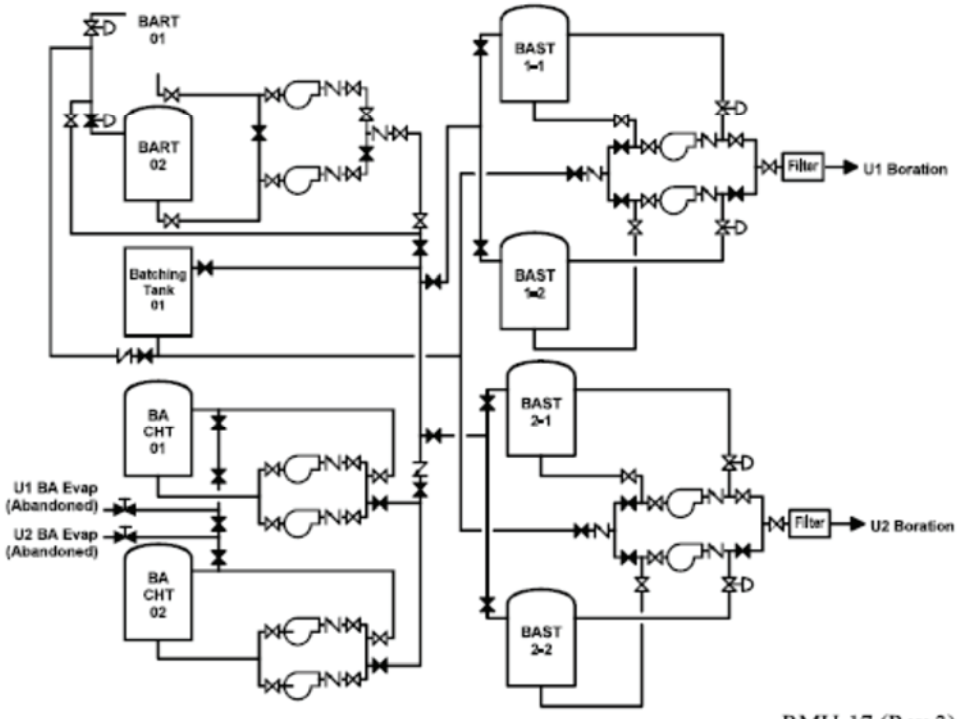
Purpose

The purpose of the Boric Acid system is to inject boric acid into the RCS for reactivity control. This can be done in either:

- High concentration (4% solution) for emergency shutdown considerations or
- Low concentrations (through the blender) in response to normal reactivity transients.

Diagram

The diagram below is an overview of the Boric Acid system and its connections with the CVCS system.



RMU-17 (Rev 3)

4. Boric Acid Corrosion Control Program:[251] a Plan whose purpose is to identify early boric acid leaks that have the potential to cause corrosion of plant equipment made of carbon steel and low-alloy steel components.

[250] PG&E response to Cal Advocates Data Request 9, Question 028.

[251] PG&E response to Cal Advocates Data Request 9, Question 029 and 030.

5. Certified Material Test Report or Certified Mill Test Report (CMTR):[252] a written and signed document that is approved by a qualified party and contains data and information that attests to the actual properties of an item and the actual results of all required tests.

6. Classifications of Structures, Systems, and Components (SSCs):[253] categories of items based on their functions. PG&E provided its DCPP Final Analysis Report, which provides descriptions of the classification of structures, systems, and components.[254] For example, an abbreviated description is as follows:[255]

   a. PG&E Design Class I SSCs refer to those items that are important to safety.

   b. PG&E Design Class II SSCs refer to those items that are important to reactor operation but not essential to safe shutdown and isolation of the reactor, and failure of which would not result in the release of substantial amounts of radioactivity.

   c. PG&E Design Class III SSCs refer to those items that are not related to reactor operation or safety.

   Nuclear systems and components of various quality classifications are located throughout the power plant, i.e., plant areas are not exclusive to systems and components of a certain quality classification.[256]

   There is no direct correlation between nuclear class of systems or components and radiological protection zones.[257] Radiological zones are established based on regulatorily required controls corresponding to the radiological risk.[258]

7. Non-Destructive Examination (NDE) or Non-Destructive Testing (NDT):[259] method used to inspect the integrity of weld. The

[252] https://www.directives.doe.gov/terms_definitions/certified-material-test-report-cmtr

[253] PG&E response to Cal Advocates Data Request 13, Question 003 to 005.

[254] PG&E response to Cal Advocates Data Request 13, Question 003.

[255] PG&E response to Cal Advocates Data Request 13, Question 003.

[256] PG&E response to Cal Advocates Data Request 13, Question 004 and 005.

[257] PG&E response to Cal Advocates Data Request 13, Question 006.

[258] PG&E response to Cal Advocates Data Request 13, Question 006.

[259] https://www.astm.org/e1316-22a.html.

procedures used include acoustic emission, electromagnetic testing, gamma- and X-radiology, leak testing, liquid penetrant testing, magnetic particle testing, neutron radiology and gauging, ultrasonic testing, and other technical methods.

8. Quality Assurance (QA): all those planned and systematic actions necessary to provide adequate confidence that a structure, system, or component will perform satisfactorily in service.[260] The criteria or requirements of a QA Program are:[261]

   i) Organization;

   ii) Quality Assurance Program;

   iii) Design Control;

   iv) Procurement Document Control;

   v) Instructions, Procedures, and Drawings;

   vi) Document Control;

   vii) Control of Purchased material, Equipment, and Services;

   viii) Identification and Control of Material, Parts, and Components;

   ix) Control of Special Processes;

   x) Inspection;

   xi) Test Control;

   xii) Control of Measuring and Test Equipment;

   xiii) Handling, Storage and Shipping;

   xiv) Inspection, Test and Operating Status;

   xv) Nonconforming Materials, Parts, or Components;

   xvi) Corrective Action;

   xvii) QA Records; and

   xviii) Audits.

9. Radiologically-Controlled Area (RCA):[262] area of the DCPP designated as radiologically controlled as shown in Figure 3-5.[263]

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[260] ASME NQA-1 (Appendix 3-1).

[261] 10 CFR 50 Appendix B.

[262] PG&E response to Cal Advocates Data Request 13, Question 002.

[263] PG&E response to Cal Advocates Data Request 13, Question 002.

Smaller control areas are posted within the RCA based on the level of radiological hazard that exist within the control areas.[264] The area boundaries change over time based on changing operating conditions and activities within the RCA and are not fixed radiological/containment zones.[265] The control areas are posted in accordance with federal regulations with compliance enforced by the NRC.[266]

As Low As Reasonably Achievable

The position of the nuclear industry, including DCPP, and the NRC is that any exposure to radiation, no matter how small, carries some inherent risk.[267] As such, radiological safety is the management of radiological risk.[268] This principle is referred to as controlling radiation exposure "As Low As Reasonably Achievable" or ALARA.[269]

From a radiological standpoint, most areas of the plant can be made accessible for employees to safely enter when the following conditions are met:[270]

a. There is a need to enter the area with a benefit that exceeds the risks.

b. Reasonable efforts have been made to minimize the risk.

Unsafe Entry During DCPP Operation

Plant areas adjacent to the reactor vessel during reactor operation at power conditions should not be entered due to radiation levels that pose a normally unacceptable risk to health and safety (e.g., debilitating radiation exposure).[271] These areas are directly affected by radiation produced during fission in the reactor core.[272] These areas are not assigned to a particular radiological zone but are

[264] PG&E response to Cal Advocates Data Request 13, Question 002.

[265] PG&E response to Cal Advocates Data Request 13, Question 002.

[266] PG&E response to Cal Advocates Data Request 13, Question 002.

[267] PG&E response to Cal Advocates Data Request 13, Question 007, 009 and 010.

[268] PG&E response to Cal Advocates Data Request 13, Question 007, 009 and 010.

[269] PG&E response to Cal Advocates Data Request 13, Question 007, 009 and 010.

[270] PG&E response to Cal Advocates Data Request 13, Question 007, 009 and 010.

[271] PG&E response to Cal Advocates Data Request 13, Question 008.

[272] PG&E response to Cal Advocates Data Request 13, Question 008.

controlled by radiation protection for purposes of meeting regulatory criteria.[273]

Safe Entry Zones During Shutdown

During shutdown, the areas adjacent to the reactor vessel are at reduced radiation levels due to termination of fission in the reactor core when the units are shut down.[274] However other areas experience increased levels of radiation during shutdown when nuclear fuel is being removed from the reactor core.[275]

Unsafe Entry Areas During Shutdown

During shutdown various areas at DCPP may experience increased levels of radiation due to movement of nuclear fuel from the reactor refueling process and other planned maintenance that make it unsafe for employees to enter.[276] These areas are not assigned to a particular radiological zone but are controlled by radiation protection for purposes of meeting regulatory criteria.[277]

10. Reactor Coolant:[278] liquid comprised of high purity water and traces of boric acid, which is contained by the pipes, pumps, and steam generators of the Reactor Coolant System. The Reactor Coolant removes thermal energy from the Reactor and delivers the energy to the Steam Generators for the purpose of generating steam.

See Figure 3.2 for the location of the reactor coolant system.

See Figure 3.3 and Figure 3.4 (schematic views) for the location of the reactor, reactor coolant system, and other major components of DCPP.

11. Reactor Coolant System / Coolant System:[279] liquid comprised of high purity water and traces of boric acid. It is contained by the pipes, pumps, and steam generators of the Reactor Coolant System, which is considered a high temperature and pressure system.

[273] PG&E response to Cal Advocates Data Request 13, Question 008.

[274] PG&E response to Cal Advocates Data Request 13, Question 009.

[275] PG&E response to Cal Advocates Data Request 13, Question 009.

[276] PG&E response to Cal Advocates Data Request 13, Question 010.

[277] PG&E response to Cal Advocates Data Request 13, Question 010.

[278] PG&E response to Cal Advocates Data Request 9, Question 010.

[279] PG&E response to Cal Advocates Data Request 13, Question 076.

12. Reactor Coolant System Pressure Boundary:[280] the area comprises all piping systems and components that contain reactor coolant at design pressure and temperature. This includes valves, pumps, steam generators, and the reactor vessel that contains the Reactor Coolant System process fluid. Except for the reactor coolant sampling lines, the entire Reactor Coolant System pressure boundary is located entirely within the containment structure.

    The reactor coolant pressure boundary is not a barrier between radiological zones because the entire reactor coolant system is contained within the power plant's main radiologically controlled area.

13. Reactor Coolant Boundary Degradation:[281] any flaw in piping, valves, steam generators, or the reactor vessel that is not acceptable to any Code or Standards.

14. Reactor Coolant Boundary Degradation Maintenance Inspection:[282] work activity to check for evidence of boric acid leakage approximately every 18 months, at the start of every refueling outage.

    In 1989, PG&E established a containment boric acid program requiring their inspectors to walk down the equipment area to look for boric acid leakage. The background for the walkdown program was to address an industry concern for potential corrosion of carbon steel reactor coolant pressure boundary components that could be caused by boric acid leakage if it were to contact carbon steel components.

15. Safety-Related Structures, Systems and Components:[283] those items that are relied upon to remain functional during and following nuclear events to assure:

    a. The integrity of the reactor coolant pressure boundary

    b. The capability to shut down the reactor and maintain it in a safe shutdown condition; or

[280] PG&E response to Cal Advocates Data Request 9, Question 013.

[281] PG&E response to Cal Advocates Data Request 9, Question 015.

[282] PG&E response to Cal Advocates Data Request 9, Question 018.

[283] PG&E response to Cal Advocates Data Request 13, Question 053 and 054 055.

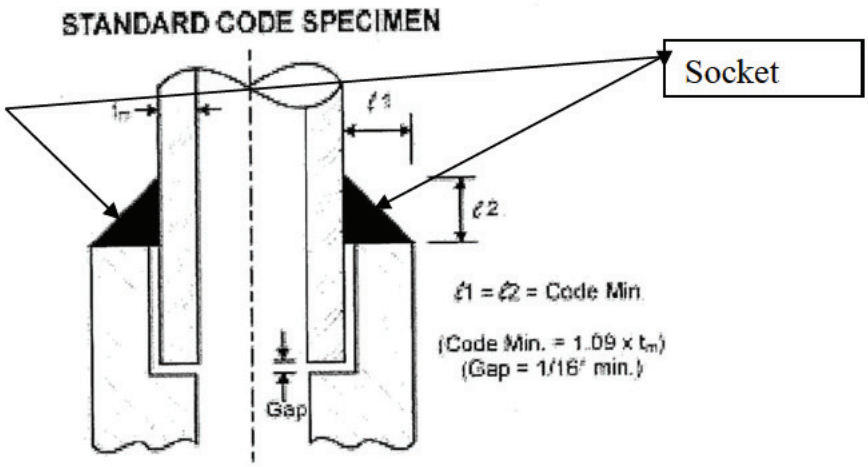
c. The capability to prevent or mitigate the consequences of accidents that could result in potential offsite exposures comparable to the guideline exposures of 10 CFR 50.67.

Equipment that meets the above criteria must meet the QA program requirements and is designated as QA class Q in PG&E's Q-list Table.

16. Socket Weld:[284] method of joining pipe and fittings where the pipe is inserted into a socket in the fitting. A fillet is circumferentially deposited to complete the connection.

[284] PG&E response to Cal Advocates Data Request 13, Question 079.

Figure 3-7 Socket Weld – Cross Sectional View[285]



17. Total Effective Dose Equivalent (TEDE)[286]: the sum of the external radiation exposure (effective dose equivalent) and the internal radiation exposure (committed effective dose equivalent). Both the external and the internal radiation exposure are considered and reported as a total radiation dose to an individual.

D. Licensee Event Report (LER) – DCL-22-093

PG&E filed the LER to the NRC in its December 21, 2022 PG&E Letter DCL-22-093[287] to report the discovery, on October 23,2022, of a reactor coolant system boundary degradation related to a through-wall leak in a socket weld.[288]

The LER leak was located inside the Unit 2 Reactor Containment Building.[289]

[285] PG&E response to Cal Advocates Data Request 9, Question 050 and PG&E response to Cal Advocates Data Request 13, Question 079.

[286] PG&E response to Cal Advocates Data Request 9, Question 041.

[287] PG&E response to Cal Advocates Data Request 9, Question 009: DCL-22-093 is a PG&E Diablo Canyon chronological outgoing correspondence designator – 22 indicating year 2022 and 093 being the 93rd letter of the year.

[288] https://www.nrc.gov/docs/ML2235/ML22355A081.pdf. See Appendix 3-1.

[289] PG&E response to Cal Advocates Data Request 9, Question 012.

The subject weld defect was in the Unit 2 Containment Structure, on a 2-inch pipe off the loop 1 reactor coolant system cold leg.[290]

The weld leak could not have been detected during normal operations when there is no outage.[291] PG&E explained that the leak in the Reactor Coolant System pressure boundary was located inside the containment structure in an area not normally accessible during normal operation due to high radiation dose rates.[292] The leak rate was so small it was not detectable to online leakage monitoring.[293]

During the inspection of the Reactor Coolant System pressure boundary at the beginning of the 2R23 refueling outage, PG&E identified residual white boric acid at the leak location.[294] The Reactor Coolant System was not at normal operating pressure at the time of discovery and was not actively leaking water.[295] The residual boric acid at the leak location indicates a small leak existed prior to discovery, that the boric acid source was reactor coolant from the leak location, and, based on that the radiation level, was not detectable above the radiation level from the surroundings.[296] The degraded weld joined together piping sections that were part of a piping system that vented the reactor coolant system after maintenance.[297]

PG&E discovered the reactor coolant system pressure boundary degradation during the 2022 refueling outage containment walkdown for evidence of boric acid leakage.[298] This inspection is a visual exam of components inside the containment that

[290] PG&E response to Cal Advocates Data Request 9, Question 016.

[291] PG&E response to Cal Advocates Data Request 9, Question 019.

[292] PG&E response to Cal Advocates Data Request 9, Question 019.

[293] PG&E response to Cal Advocates Data Request 9, Question 019.

[294] PG&E response to Cal Advocates Data Request 9, Question 021.

[295] PG&E response to Cal Advocates Data Request 9, Question 021.

[296] PG&E response to Cal Advocates Data Request 9, Question 021.

[297] PG&E response to Cal Advocates Data Request 9, Question 022 and PG&E response to Cal Advocates Data Request 13, Question 078.

[298] PG&E response to Cal Advocates Data Request 9, Question 027.

could cause corrosion of carbon steel reactor coolant pressure boundary items.[299] The inspection is conducted using flashlights and mirrors (no special equipment).[300] PG&E inspectors referred to drawings that identify the reactor coolant pressure boundary items and the plant manual that provides a list of likely leakage sources and targets.[301]

Upon inspection, PG&E found that the reactor coolant water containing boric acid had leaked out of the degraded weld when the unit was in operation.[302] When the Reactor Coolant System pressure boundary was inspected at the beginning of the maintenance outage, the Reactor Coolant System was not at normal operating pressure.[303] Therefore, there was no active leaking water at the leak location. The only indicator of a leak was residual white boric acid on the weld.[304] PG&E did not find any similar observation in its 2021 refueling outage.[305]

The weld developed a vibration-induced fatigue crack that presented itself as a pin-hole leak.[306] Normal operational vibrational stresses propagated the weld defect.[307]

Except for the pin-hole leak location, the remainder of the weld appeared to be intact (was not broken off).[308] The weld was the only item associated with pressure boundary degradation.[309]

[299] PG&E response to Cal Advocates Data Request 9, Question 027.

[300] PG&E response to Cal Advocates Data Request 9, Question 027.

[301] PG&E response to Cal Advocates Data Request 9, Question 027.

[302] PG&E response to Cal Advocates Data Request 9, Question 023.

[303] PG&E response to Cal Advocates Data Request 9, Question 024.

[304] PG&E response to Cal Advocates Data Request 9, Question 024.

[305] PG&E response to Cal Advocates Data Request 9, Question 020.

[306] PG&E response to Cal Advocates Data Request 9, Question 026 and 050.

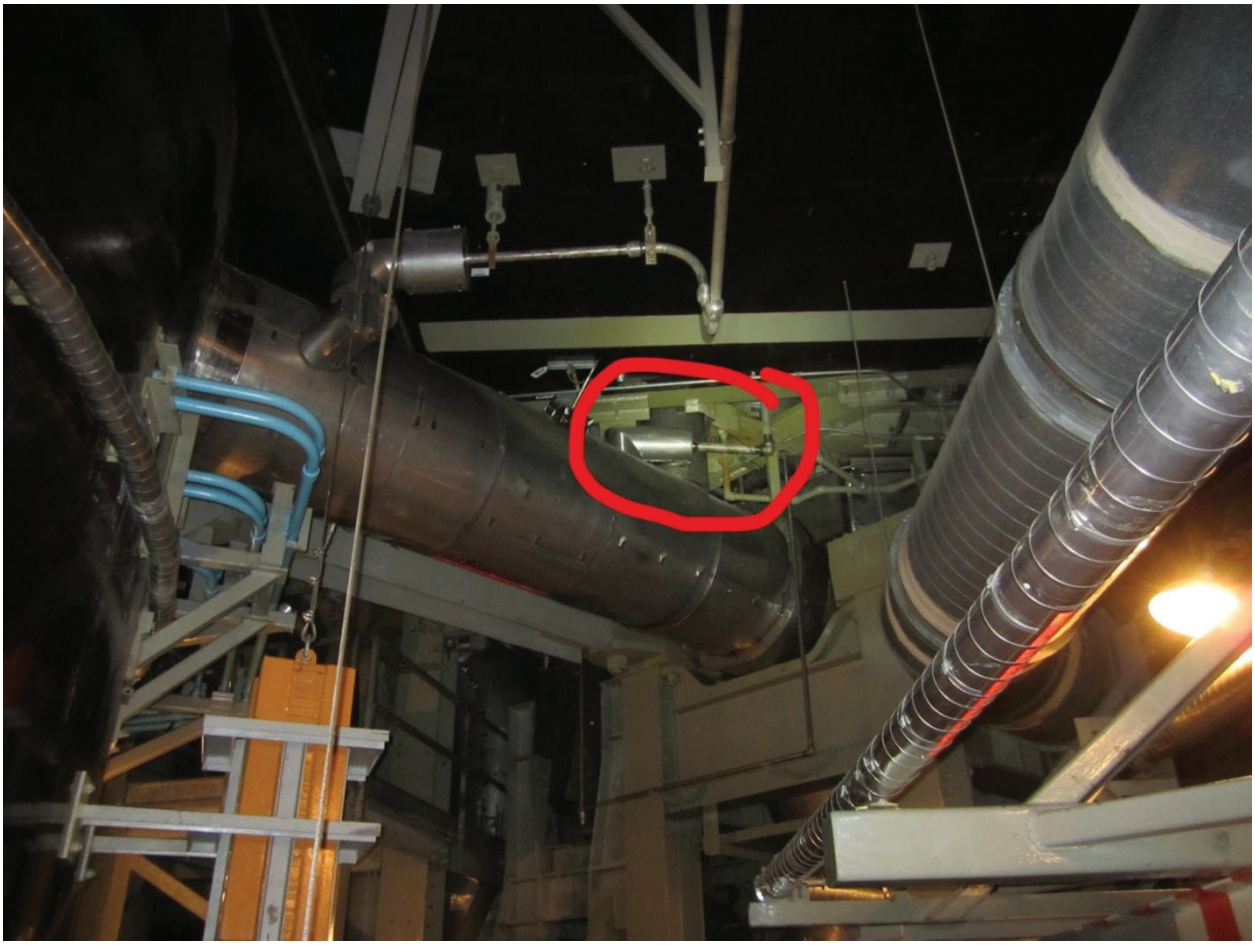
[307] PG&E response to Cal Advocates Data Request 13, Question 113.

[308] PG&E response to Cal Advocates Data Request 9, Question 026.

[309] PG&E response to Cal Advocates Data Request 9, Question 049.

The boric acid did not cause the boundary degradation.[310] And the failed weld was not directly related to the refueling outage.[311] There have not been any previous occasions when DCPP had to submit a LER associated with a through-weld leak.[312]

Figure 3-8 Weld Defect General Area[313]



[310] PG&E response to Cal Advocates Data Request 9, Question 032.

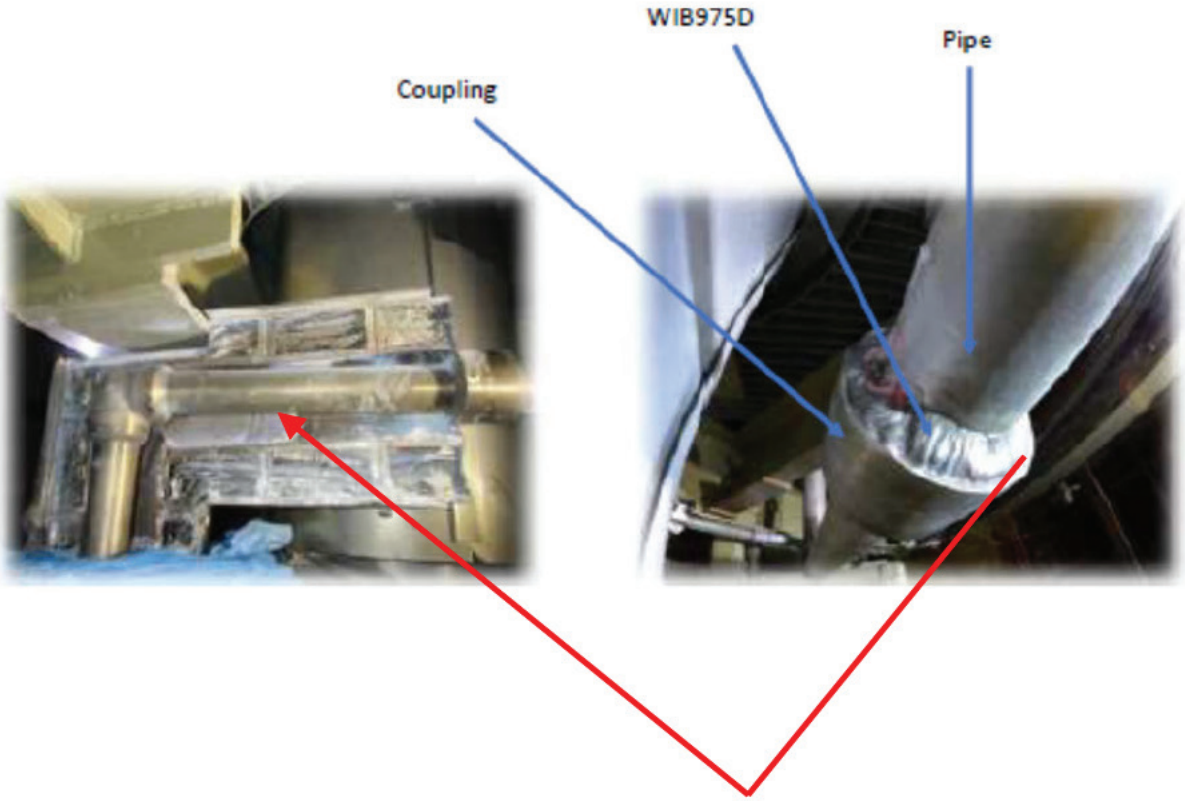
[311] PG&E response to Cal Advocates Data Request 13, Question 111.

[312] PG&E response to Cal Advocates Data Request 13, Question 117.

[313] PG&E response to Cal Advocates Data Request 9, Question 016.

Figure 3-9 Weld Defect General Area – Closer View (Prior to Repair)[314]

The defective weld is labeled as WIB975D



[314] PG&E response to Cal Advocates Data Request 13, Question 115.

Figure 3-10 Weld Defect – As-Found Boric Acid Leak[315]

THE BELOW FIGURE IS CONFIDENTIAL

[315] PG&E response to Cal Advocates Data Request 9, Question 022.

Figure 3-11 Weld Defect – Close-up View of Leak Location and Pin-Hole Weld Defect at Coupling Socket Weld[316]

[316] PG&E response to Cal Advocates Data Request 9, Question 022 and 026.

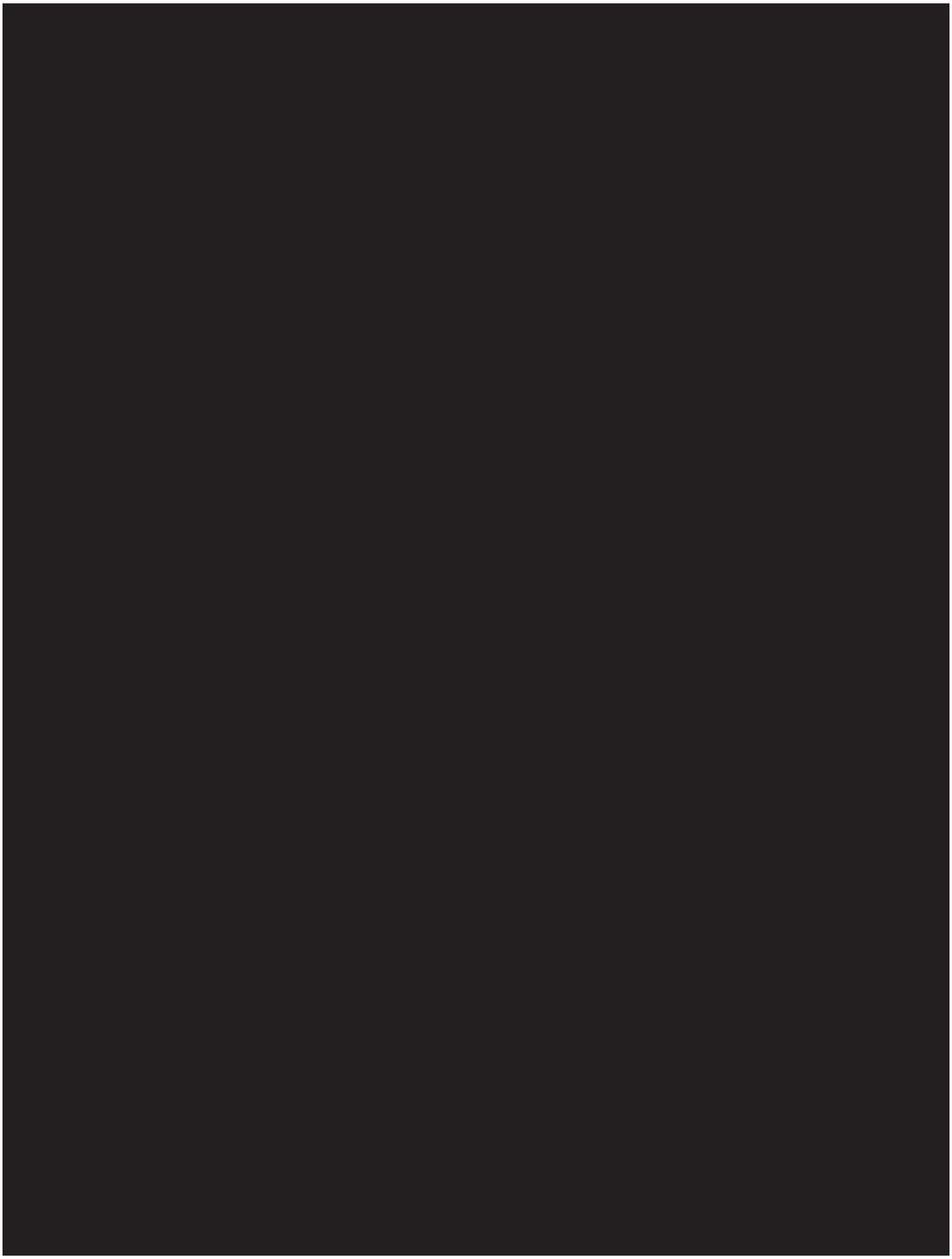
Figure 3-12 Weld Defect – Surface Condition at Leak Location[317]

THE BELOW FIGURE IS CONFIDENTIAL

[317] PG&E response to Cal Advocates Data Request 9, Question 050 and PG&E response to Cal Advocates Data Request 13, Question 111.

Figure 3-13 Weld Defect – Line Diagram Showing Leak Location[318]

THE BELOW FIGURE IS CONFIDENTIAL



[318] PG&E response to Cal Advocates Data Request 9, Question 016 and 026 and PG&E response to Cal Advocates Data Request 13, Question 078.

Figure 3-14 Weld Defect – Schematic Location[319]

THE BELOW FIGURE IS CONFIDENTIAL

DCPP implemented the repair of the socket weld (labeled as WIB975D) utilizing the ASME BPVC (Section XI : Rules for Inservice Inspection of Nuclear Power Plant Components) Code Case N 666-1: Weld Overlay of Class 1,2 and 3 Socket Welded Connections.[320]

DCPP routinely performs inspections for evidence of boric acid leakage at the beginning of each refueling outage, and inspections for reactor coolant system leakage is

[319] PG&E response to Cal Advocates Data Request 9, Question 016 and 026, and PG&E response to Cal Advocates Data Request 13, Question 078.

[320] PG&E response to Cal Advocates Data Request 9, Question 052, and PG&E response to Cal Advocates Data Request 13, Question 112.

performed at the end of each refueling outage.[321] PG&E visually inspects this weld for leakage each refueling outage.[322] The inspectors use the procedure, STP R-8C, "Containment Walkdown for Evidence of Boric Acid Leakage" at the start of each outage and the procedure STP R-8A, "Reactor Coolant System Leakage Test" at the end of each outage.[323] Inspection requirements for this weld are specified by the ASME Section XI Code "Rules For Inservice Inspection of Nuclear Plant Components", which defines the visual exam frequency, which is every refueling outage.[324] These inspections will continue based on the outage frequency.[325]

The inspection that identified the leak at the beginning of the refueling outage 2R23 was identical to the inspection performed at the beginning of 2R22.[326] The 2R22 inspections for boric acid leakage at the beginning of the outage and for reactor coolant system leakage at the end of the outage did not report any leakage at this location.[327]

The weld in question was 28 years old at the time of discovery in 2022; it was applied on the joint sometime from October 3 to 4, 1994.[328] The defective weld was installed in 1994 as part of a replacement to eliminate a reactor coolant resistance temperature detector (RTD) bypass – there was no socket weld at that location prior to October 3, 1994.[329]

[321] PG&E response to Cal Advocates Data Request 9, Question 020, and PG&E response to Cal Advocates Data Request 13, Question 116.

[322] PG&E response to Cal Advocates Data Request 13, Question 114 and 116.

[323] PG&E response to Cal Advocates Data Request 13, Question 114 and 116.

[324] PG&E response to Cal Advocates Data Request 13, Question 114 and 116.

[325] PG&E response to Cal Advocates Data Request 13, Question 114.

[326] PG&E response to Cal Advocates Data Request 9, Question 020.

[327] PG&E response to Cal Advocates Data Request 9, Question 020.

[328] PG&E response to Cal Advocates Data Request 9, Question 025, and PG&E response to Cal Advocates Data Request 13, Question 081 and 082 083, 111.

[329] PG&E response to Cal Advocates Data Request 13, Question 081 to 083.

The specific material specifications of the piping and weld materials used were:[330]

[redacted]

All welds related to the socket weld WIB975D were specified by DCPP design engineering and controlled under the DCPP QA program.[333] Its fabrication and inspection of piping and socket fitting for WIB975D (the socket weld identified in the December 21, 2022 LER) was performed using the rules of ASME III, Subsection NB, "Rules for Construction of Nuclear Facility Components, Class 1 Components," 1989 Edition.[334]

The socket weld was installed in compliance with the original technical, quality and quality assurance requirements as specified by DCPP design engineering.[335] Had

[330] PG&E response to Cal Advocates Data Request 13, Question 085, 086 and 088.

[331] PG&E response to Cal Advocates Data Request 13, Question 086.

[332] PG&E response to Cal Advocates Data Request 13, Question 086.

[333] PG&E response to Cal Advocates Data Request 13, Question 087 and 090.

[334] PG&E response to Cal Advocates Data Request 13, Question 089 and 091.

[335] PG&E response to Cal Advocates Data Request 13, Question 102 to 104.

there been any changes, different or multiple personnel or agencies might have been involved in the approval process.[336]

The NDEs performed were visual testing (VT) and dye penetrant testing (PT).[337] PG&E did not identify any welding failure.[338]

The LER event was a failure to meet ASME BPVC Section XI acceptance criteria for a 2-inch stainless steel socket weld.[339] The ASME Boilers and Pressure Vessels Code (BPVC) acceptance criteria does not allow for existence of a through-wall indication.[340] The weld failure occurred due to the vibration-induced fatigue that propagated at a weld defect resulting in a through-wall indication.[341]

E. PG&E Testimony and Workpapers

The work description of the Unit 2 refueling maintenance outage (PG&E Testimony, page 4-10, line 5 to 12) lists nine work items that were performed. However, none of the nine items pertain to the LER incident. PG&E explains that the LER corrective work was not included in the enumeration because the LER work was not part of the refueling outage preplanned activities.[342]

None of the fueling outage major work items mentioned in PG&E Testimony, page 4-10, line 5 to 12, pertain to the boundary degradation repair work of the LER incident because it was not part of the refueling outage preplanned activities.[343] The planned Unit 2 outage work listed in the testimony are some of the major refueling

[336] PG&E response to Cal Advocates Data Request 9, Question 103.

[337] PG&E response to Cal Advocates Data Request 9, Question 091 and 094.

[338] PG&E response to Cal Advocates Data Request 9, Question 094.

[339] PG&E response to Cal Advocates Data Request 9, Question 054.

[340] PG&E response to Cal Advocates Data Request 9, Question 054, and PG&E response to Cal Advocates Data Request 13, Question 107.

[341] PG&E response to Cal Advocates Data Request 9, Question 054, and PG&E response to Cal Advocates Data Request 13, Question 107.

[342] PG&E response to Cal Advocates Data Request 9, Question 017.

[343] PG&E response to Cal Advocates Data Request 9, Question 017 and 051.

outage preplanned activities.[344] That listing in the testimony is not a comprehensive display of all planned work conducted during the refueling outage.[345]

PG&E workpapers do not include the LER incident. PG&E explains, "The DCPP 2022 operational and outage history was clear and non-complex. With two planned refueling outages and one forced outage, the dates, times, and sequence of events did not require development of work papers."[346] PG&E adds, "The weld indication was identified through inspections planned as part of the station's boric acid corrosion control program. The indication and repair were conducted without impact to the refueling outage duration."[347]

In addition, PG&E Testimony makes no mention of the LER incident. PG&E argues that PG&E provided a summary of all NRC filings for the 2022 Record Period, including a description of each filing, in response to Cal Advocates Master Data Request MDR001, question 1.1.23.[348] However, the MDR is not something of which every party is aware or something to which every party may be granted access.

The omissions in the above areas mean that parties may not have knowledge of the LER incident, and missed the opportunity to intervene and to conduct discovery. Parties therefore may lose out on the due process opportunity.

The QA Manual and the CA Program are not included in Chapter 4 Workpapers because they are not necessary to meet PG&E's burden of production to demonstrate prudent operation with respect to outages and generation output during the 2022 Record Period.[349]

[344] PG&E response to Cal Advocates Data Request 9, Question 051.

[345] PG&E response to Cal Advocates Data Request 9, Question 051.

[346] PG&E response to Cal Advocates Data Request 9, Question 059.

[347] PG&E response to Cal Advocates Data Request 9, Question 060.

[348] PG&E response to Cal Advocates Data Request 9, Question 008.

[349] PG&E response to Cal Advocates Data Request 13, Question 057 and 062.

"Ensure" versus "Assure"

There are three instances[350] where Cal Advocates disagrees with PG&E in its usage of the word, "ensure", in its Chapter 4 Testimony; Cal Advocates contends that the correct word should have been "assure." "Ensure" means certainty, while "assure" means confidence of compliance, i.e., not 100% certainty.

ASME NQA-1 defines Quality Assurance as all those planned and systematic actions necessary to provide adequate **confidence** that a structure, system, or component will perform satisfactorily in service.[351] "Confidence" is not certainty.

CFR Appendix B uses the word, "assure", 17 times; "assurance" 40 times; and "assuring" three times. Not once do the words, "ensure" and "ensuring", appear in the document. CFR Appendix B calls for the utility to have a Quality Assurance Program, not a Quality Surety Program or Quality Certainty Program.

PG&E also uses the word, "ensure", several times in its data request responses which led Cal Advocates to use "ensure" in its testimony when citing reference to PG&E data request responses.

F. Repair versus Rework

PG&E characterized the corrective work performed for the LER incident as repair work.[352] In a data request response, PG&E defines rework as the unexpected and unplanned repeat performance of work to repair or maintain a component or system.[353] Whereas repair is the performance of maintenance to correct an original construction deficiency.[354]

However, ASME NQA-1 defines them differently, as follows (see Appendix 3-2):

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[350] PG&E Testimony, at 4-1, line 18; at 4-4, line 24; and at 4-5, line 14.

[351] See Appendix 3-2.

[352] PG&E response to Cal Advocates Data Request 9, Question 018: CONF-Attach-04-ERRA-2022-PGE-Compliance-DR-CalAdvocates_009-Q018 2R23 STP R-8C Inspection Results & Repairs.pdf.

[353] PG&E response to Cal Advocates Data Request 13, Question 112.

[354] PG&E response to Cal Advocates Data Request 13, Question 112.

a. rework: the process by which an item is made to conform to original requirements by completion or correction.

b. repair: the process of restoring a nonconforming characteristic to a condition such that the capability of an item to function reliably and safely is unimpaired, even though that item still does not conform to the original requirement.

In other words, a repair work requires approval from design engineering and the NRC since the work does not conform to its original requirement. Since many items in DCPP, as well as for this LER incident, fall under ASME, specifically ASME BPVC and ASME B31.1 *Power Piping*, PG&E should adopt ASME NQA-1 definitions. As explained in the next section, that distinction is important because a repair work in the LER incident requires the NRC approval.

G. Corrective Action

PG&E prepared a root cause evaluation report (RCE Report) dated March 6, 2023.[355] PG&E also used an outside vendor, Structural Integrity Associates, Inc., to perform an analysis of the dynamic behavior of the Reactor Coolant System during startup and operation.[356] However, metallurgical failure analysis of the weld will be performed after the weld is removed in the 2R24 outage in 2024.[357] PG&E should provide a copy of the metallurgical report and its follow-up actions in the next ERRA Compliance filing, following the completion of the failure analysis.

DCPP implemented the repair of field weld WIB975D utilizing the ASME BPVC (Section XI : Rules for Inservice Inspection of Nuclear Power Plant Components) Code Case N 666-1: Weld Overlay of Class 1,2 and 3 Socket Welded Connections.[358]

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[355] PG&E response to Cal Advocates Data Request 9, Question 022, 048 and 050, and PG&E response to Cal Advocates Data Request 13, Question 109 and 110.

[356] PG&E response to Cal Advocates Data Request 9, Question 050, and PG&E response to Cal Advocates Data Request 13, Question 109 and 110.

[357] PG&E response to Cal Advocates Data Request 13, Question 108.

[358] PG&E response to Cal Advocates Data Request 9, Question 052, and PG&E response to Cal Advocates Data Request 13, Question 112 and 121.

During the corrective work, the socket weld coupling and associated piping from the initial installation remained and were not replaced.[359] The new welding filler materials utilized for the welding overlay meet the same requirements as the original installation; however, the filler metal was from a more current material stock, and not from the same batch used in 1994.[360] The weld filler material utilized is ASME SFA 5,9, Type ER308.[361]

The NDEs were VT and PT, in accordance with ASME Section III-NB, 2007 Edition with 2008 Addenda.[362]

Additionally, as per the RCE Report, in the next Unit 1 and Unit 2 refueling outage, socket welds that were made or inspected by the individuals that performed the weld and inspection in 1994 will be visually inspected.[363]

Cal Advocates asked PG&E to list the names and addresses of the contractors who performed the corrective work, and to provide their qualifications attesting to their nuclear certification.[364] Because the work is nuclear-related, Cal Advocates wants to know that the appropriate contractors were employed. PG&E, however, did not provide any information about its contractor(s) in its data request response.[365] Because the contractors are, in essence, doing work for PG&E in an NRC-controlled area, those contractors are required to be certified to work in the area under the jurisdiction of the NRC.

Instead of gouging out the old defective weld and then applying new weld to conform to existing design, PG&E chose to apply new weld over the old one (an

[359] PG&E response to Cal Advocates Data Request 13, Question 120.

[360] PG&E response to Cal Advocates Data Request 13, Question 120 and 123.

[361] PG&E response to Cal Advocates Data Request 13, Question 124.

[362] PG&E response to Cal Advocates Data Request 13, Question 126 and 129.

[363] PG&E response to Cal Advocates Data Request 13, Question 114.

[364] PG&E response to Cal Advocates Data Request 13, Question 053.

[365] PG&E response to Cal Advocates Data Request 9, Question 053.

overlay).[366] Based on PG&E's definition, the overlay weld is considered a repair work. Even the table, *2523 STP R-8C Results*, in the DR response shows that the corrective action was "weld repaired", not "weld reworked."[367] Based on the definition from ASME NQA -1,[368] the corrective work performed by PG&E would be also classified as a repair, not rework, but only because the corrective work did not conform to the original design.

PG&E indicated that the overlay weld was approved by DCPP design engineering.[369] However, since this is a repair and not a rework, Cal Advocates does not know whether the overlay weld repair provides the same structural and functional integrity as the original design, and whether the change requires NRC approval. Moreover, PG&E intends to remove the overlay weld in the next refueling outage 2R24 in 2024.[370] PG&E did not provide any information as to whether the new weld in 2024 will conform to the original socket weld design as shown in Figure 3-7.

Since this 2022 corrective work is a repair and not a rework, PG&E did not furnish any documentation seeking approval from the NRC for the deviation. PG&E responded that there was no such documentation as there were no deviations that required approval.[371] That does not seem correct because the corrective work is a repair.

PG&E completed the weld repair on October 31, 2022, the weld passed the required inspections.[372]

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[366] PG&E response to Cal Advocates Data Request 9, Question 052.

[367] PG&E response to Cal Advocates Data Request 9, Question 018: the electronic label of the table is *CONF-Attach-04-ERRA-2022-PGE-Compliance-DR-CalAdvocates_009-Q018 2R23 STP R-8C Inspection Results & Repairs*.

[368] see Appendix 3-2

[369] PG&E response to Cal Advocates Data Request 13, Question 122 and 125.

[370] PG&E response to Cal Advocates Data Request 13, Question 108.

[371] PG&E response to Cal Advocates Data Request 13, Question 136 and138.

[372] LER (see Appendix 3-1)

Maintenance Inspection – Boric Acid Leak

PG&E provided records of its Reactor Coolant Boundary Degradation Maintenance Inspection for the 2022 and 2021:[373] Those confidential records show the inspection findings and actions taken.[374]

In the 2021 report, [redacted][375]

The 2021 report [redacted][376]

The 2022 report lists [redacted].[377] More importantly, [redacted][378]

PG&E also furnished evidence of its containment walkdown for the 2022 refueling outage.[379] The document shows the walkdown procedure, inspection items checklist and participants' names.[380] It was signed and dated October 21, 2022.[381]

H. NRC and Regulatory Follow-up

Cal Advocates requests to be apprised of the NRC's determination of this LER incident. Therefore, Cal Advocates has issued an on-going data request to PG&E for all correspondences between PG&E and the NRC on this LER incident until this proceeding is concluded.[382]

[373] PG&E response to Cal Advocates Data Request 9, Question 018.
[374] PG&E response to Cal Advocates Data Request 9, Question 018.
[375] PG&E response to Cal Advocates Data Request 9, Question 018.
[376] PG&E response to Cal Advocates Data Request 9, Question 018.
[377] PG&E response to Cal Advocates Data Request 9, Question 018.
[378] PG&E response to Cal Advocates Data Request 9, Question 018.
[379] PG&E response to Cal Advocates Data Request 9, Question 018.
[380] PG&E response to Cal Advocates Data Request 9, Question 018.
[381] PG&E response to Cal Advocates Data Request 9, Question 018.
[382] PG&E response to Cal Advocates Data Request 9, Question 055.

As of the date that testimony was served, PG&E Letter DCL-23-093 remains the only correspondence between PG&E and the NRC on this incident.[383] The NRC is required to review and resolve all LER incidents.[384] There are no regulations that specify the timeline for the disposition of LER by the NRC.[385]

Currently, neither the NRC nor any other regulatory authorities have cited PG&E for this incident.[386] Because the NRC has not yet made a determination on this incident, the LER incident is not in Table 4-3, page 4-11, of PG&E Testimony.[387]

I. Diablo Canyon Independent Safety Committee

The CPUC through Decision 88-12-083 in December 1988 established the Diablo Canyon Independent Safety Committee (DCISC) to monitor safety at the plant.

The history of the DCISC, as described in the DCISC website, is as follows:[388]

a. The concept of an independent safety committee for Diablo Canyon Power Plant arose in context of the opposition by the CPUC Division of Ratepayer Advocates (now known as the Public Advocates Office of the CPUC) and the then-California Attorney General (John Van de Kamp) to PG&E'S request for recover from its ratepayers for the cost of building both DCPP units. Those parties argued that billions of dollars of these costs were unreasonable, and to resolve the matter, the parties, in June 1988, entered into a Settlement Agreement with PG&E providing for "performance-based pricing."

b. Opponents of the Settlement Agreement, such as The Utility Reform Network (TURN) argued that performance-based pricing gave PG&E an incentive to maximize energy production and profits that could threaten plant safety. The CPUC recognized the safety implications of the then-established, performance-based pricing for power produced by DCPP in its approval of Decision (D.) 88-12-083

[383] PG&E response to Cal Advocates Data Request 9, Question 055.

[384] PG&E response to Cal Advocates Data Request 9, Question 057.

[385] PG&E response to Cal Advocates Data Request 9, Question 057.

[386] PG&E response to Cal Advocates Data Request 9, Question 056.

[387] PG&E response to Cal Advocates Data Request 9, Question 058.

[388] History (Diablo Canyon Independent Safety Committee) (dcisc.org)

in December 1988. DCISC was henceforth established in D.88-12-083 to monitor safety at DCPP.

c. The DCISC Committee was formed in late 1989. It began its review activities on January 1, 1990, conducted its first site visit on April 20, 1990, and presided its first public meeting in San Luis Obispo on May 22, 1990.

The DCISC charter is on its website at https://www.dcisc.org/resources/second-restatement-of-the-charter/ The Commission Decision D.07-01-028 approved this latest charter in DCISC's application A.06-10-024, *Application of the Diablo Canyon Independent Safety Committee for California Public Utilities Commission Approval of a Restated Charter to Govern the Composition, Responsibilities, and Operations of the Committee*.

The DCISC charter at the website above includes the following language from the Settlement Agreement approved in D. 88-12-083 to describe the DCISC's duties as follows:[389]

> "An Independent Safety Committee shall be established consisting of three members, one each appointed by the Governor of the State of California, the Attorney General and the Chair of the California Energy Commission ("CEC"), respectively, serving staggered three-year terms. The Committee shall review Diablo Canyon operations for the purpose of assessing the safety of operations and suggesting any recommendations for safe operation. Neither the Committee nor its members shall have any responsibility or authority for plant operations, and they shall have no authority to direct Pacific Gas & Electric Company personnel. The Committee shall conform in all respects to applicable federal laws, regulations, and Nuclear Regulatory Commission ("NRC") policies."

The DCISC is an independent state committee that is not accountable to PG&E, nor subject to PG&E oversight and control.[390] When asked, PG&E responded that it is not involved in the selection procedure of the three-member Committee Members.[391] PG&E directed Cal Advocates to the DCISC charter section on Appointment of

[389] PG&E response to Cal Advocates Data Request 13, Question 029.

[390] PG&E response to Cal Advocates Data Request 13, Question 030, 038. 039 and 063.

[391] PG&E response to Cal Advocates Data Request 13, Question 040.

Committee Members in the website, and there is no mention of PG&E involvement.[392] Cal Advocates recommends that the language of that DCISC charter section be strengthened to mention specifically the exclusion of PG&E involvement to avoid any perception of a conflict of interest. target

DCISC performs monthly fact-finding visits for nine months of the year and holds public meetings for the remaining three months.[393] The DCISC annual reports, with results of DCISC audits, are publicly available on its website, (https://www.dcisc.org).[394] PG&E's responses to the findings in the annual reports are typically included in the DCISC report.[395]

The DCISC 32nd Annual Report (July 1, 2021 to June 30, 2022) concludes that PG&E continues to operate DCPP safely, and has no recommendations for PG&E during the report period.[396]

The DCISC audit plan is discussed and updated by the DCISC in the public meetings, and the plan can be obtained from the DCISC on their website as part of the public meeting agenda packet.[397]

The DCISC charter on the selection of Committee Members does not mention whether Committee Members need to be eligible for QA Auditor certification or need to be certified upon employment. It seems incongruous that the DCISC members who audit PG&E DCPP nuclear activities are not required to be certified because the lack of a certification requirement does not comport with the otherwise stringent regulation of nuclear safety. Having such certification will enhance and underscore the auditor's technical profile and expertise.

[392] PG&E response to Cal Advocates Data Request 13, Question 040.

[393] PG&E response to Cal Advocates Data Request 13, Question 031.

[394] PG&E response to Cal Advocates Data Request 13, Question 029 and 036.

[395] PG&E response to Cal Advocates Data Request 13, Question 037.

[396] PG&E response to Cal Advocates Data Request 13, Question 037.

[397] PG&E response to Cal Advocates Data Request 13, Question 029.

The DCISC performs an oversight role, and PG&E does not need to consult with DCISC.[398] PG&E does not need to seek DCISC approval for its work activities.[399]

However, in response to DCISC fact-finding visits and its observations, PG&E may discuss the facts and observations with it to ensure the DCISC information requests and observations are accurately understood and addressed.[400] Matters of DCISC denial occasionally occur, and they relate to logistic matters, such as, dates of DCISC fact-finding visits and public meetings.[401] Such matters are discussed in public forums.[402]

As for the October 23, 2022 LER, the DCISC received both the root cause analysis and the LER as part of the monthly data submittals provided by PG&E.[403] The DCISC identifies the records received from PG&E in its public meeting agenda packets and in its website https://www.dcisc.org.[404]

In light of public concerns on DCPP operation and its safety and on those same issues arising from its proposed plant operation extension, Cal Advocates recommends that the Commission direct DCISC to appoint a special rapporteur whenever PG&E issues a LER. In addition to listing its LER findings and recommending corrective actions, the rapporteur should state whether a public inquiry, akin to the Commission's evidentiary hearing, is needed. A public meeting may suffice if the findings are minor in nature, or if the LER evidence is confidential in nature and precludes a public inquiry.

This recent October 23, 2022 LER did generate some concern on the safety of DCPP as reported by the *San Francisco Examiner* in its article, PG&E discovered leaks at the Diablo Power Plant | San Francisco News | sfexaminer.com (Appendix 3-3). Intervenors have filed comments regarding DCPP safety and cost in the current DCPP

[398] PG&E response to Cal Advocates Data Request 13, Question 033.
[399] PG&E response to Cal Advocates Data Request 13, Question 034.
[400] PG&E response to Cal Advocates Data Request 13, Question 033.
[401] PG&E response to Cal Advocates Data Request 13, Question 035.
[402] PG&E response to Cal Advocates Data Request 13, Question 035.
[403] PG&E response to Cal Advocates Data Request 13, Question 063.
[404] PG&E response to Cal Advocates Data Request 13, Question 063.

proceeding R.23-01-007 regarding the extension of DCPP operation. Therefore, having a rapporteur will provide an independent review of the LER, and may help alleviate some concern by the public.

The LER deals with nuclear operation and maintenance, and the NRC is the supreme regulatory authority of those activities. Therefore, the DCISC should confer with the NRC on its findings before releasing the rapporteur report.

While this instant application is not the correct platform to litigate policy issues on DCISC activities and its charter, the Commission should consider raising this issue through other options, such as having DCISC petition to modify D.07-01-028, expanding the scope of the current SB 846 DCPP Operation Extension proceeding R.23-01-007, or using any other appropriate DCPP active or closed dockets.

J. Statement Made by PG&E Spokesperson Suzanne Hosn on the LER Incident

According to the *San Francisco Examiner* article shown in Appendix 3-3, PG&E Spokesperson Suzanne Hosn, on the LER incident, stated, "We identified a pipe associated with a cooling system where a minute amount of dry boric acid crystals accumulated….I can't even characterize it as a crack."

Cal Advocates, in its data request questions, sought an explanation from PG&E on the statement since their spokesperson said it was not a crack. This abridged statement from the *San Francisco Examiner* appears to be contrary to the LER and discovery information provided by PG&E. Cal Advocates asked for the complete press release, the distribution of the press release, PG&E's policy on press releases on nuclear incidents, and the background for the press release in order to understand the reason(s) for the statement made by PG&E spokesperson Suzanne Hosn, and for any other press release information that may differ to what actually occurred and that may not have been provided to Cal Advocates.

PG&E, in another data request response, responded, "No press release was issued by PG&E with respect to this event."[405] However, PG&E did not deny[406] the statement made by the PG&E spokesperson; the latter therefore likely made the statement via telephone, email, social media or other forms of communiqué, other than a press release. And PG&E, in its DR response, did not offer a full transcript, nor even a précis, of the spokesperson's complete statement.[407] As such, Cal Advocates does not know whether the spokesperson provided other information that Cal Advocates has not obtained through discovery, or other information that is different from what is presented in the LER and from what has been obtained through discovery. When asked, PG&E did not respond as to whether there were any other differences between the LER and PG&E Suzanne Hosn's communication.[408]

For those reasons, Cal Advocates requested a copy of the press release in its data request.[409] As noted above, PG&E did not provide the press release requested.

In one data request response, PG&E conceded that the spokesperson's statement was in response to a press inquiry.[410]

PG&E tried to explain the difference between a crack (the term used by PG&E spokesperson) and a leak as follows,

> "A through-wall leak indicates a path exists through the piping system wall for fluid to pass. Such a through-wall leak path could be due to pin-hole flaw, a crack, erosion of material, or corrosion of material. The LER stated that the presumed cause of the degradation was vibration-induced fatigue propagation of a flaw initiated at a weld defect. While the presumed cause would indicate the leak-path is a crack, the material containing the through-wall leak has not been removed from the plant for destructive examination and characterization of the through-wall leak path."[411]

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[405] PG&E response to Cal Advocates Data Request 13, Question 074.

[406] PG&E response to Cal Advocates Data Request 13, Question 074 and 075.

[407] PG&E response to Cal Advocates Data Request 13, Question 074 and 075.

[408] PG&E response to Cal Advocates Data Request 13, Question 075.

[409] PG&E response to Cal Advocates Data Request 13, Question 066.

[410] PG&E response to Cal Advocates Data Request 13, Question 075.

[411] PG&E response to Cal Advocates Data Request 13, Question 074.

Regardless, be it a crack or a leak, there was a boundary degradation which led to the boric acid egression, and that was the focus of the *San Francisco Examiner* article.[412]

K. 10 CFR 50 Appendix B: Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants

The LER incident happened in an area within NRC jurisdiction. As such, Cal Advocates looks at specific issues and activities related to the weld defect and corrective actions for compliance to 10 CFR 50 Appendix B (CFR Appendix B). Each of the below individual issues may relate to more than one CFR Appendix B requirement.

a. Quality Assurance Program: PG&E was able to provide its Diablo Canyon QA Program Description (QA Program). Its QA Program describes its overview to comply with all the 18 criteria of CFR Appendix B.[413] The QA Program does identify welding as a special process that needs to be controlled and performed by qualified personnel using qualified procedures or instructions in accordance with applicable codes, standards, specifications, criteria, or other special requirements.[414]

   Procedurally, PG&E needs to seek NRC approval for QA Program changes if a change reduces commitments.[415] PG&E approves changes that do not reduce commitments.[416] The NRC receives periodic updates for all QA program changes.[417]

   In addition, PG&E was able to furnish the changes made to the QA Program in the last five years.[418]

   PG&E does not have a QA Program for items and activities that fall outside of NRC jurisdiction.[419]

b. Instructions and Procedures: PG&E was able to provide the quality control/ desktop procedures that address activities at the time that the parts were socket welded before the LER incident in 1994, and also

[412] see Appendix 3-3.

[413] PG&E response to Cal Advocates Data Request 13, Question 045, 048, and 049.

[414] PG&E response to Cal Advocates Data Request 13, Question 045.

[415] PG&E response to Cal Advocates Data Request 13, Question 047.

[416] PG&E response to Cal Advocates Data Request 13, Question 047.

[417] PG&E response to Cal Advocates Data Request 13, Question 047.

[418] PG&E response to Cal Advocates Data Request 13, Question 046 and 060.

[419] PG&E response to Cal Advocates Data Request 13, Question 056.

at the time that the repair work was performed in 2022.[420] For example, for the 2022 work, DCPP repaired field weld WIB975D utilizing the ASME BPVC (Section XI Rules for Inservice Inspection of Nuclear Power Components) Code Case N-666-1 : Weld Overlay of Class 1, 2, and 3 Socket Weld Connections.[421]

PG&E also identified the procedures needed to perform the containment walkdown inspection.[422]

c. Corrective Action: PG&E's QA Program establishes the requirements of the Corrective Action Program (CA Program).[423] The CA Program is a tertiary-tier document[424] that provides instructions on how to fulfil the QA Program requirements.[425] PG&E's Corrective Action program is defined through a combination of 15 governing program directives and associated implementing procedures.[426]

DCPP does not require external approval to change the Corrective Action Program.[427] Various outside agencies periodically request Corrective Action program documents.[428] Those agencies include the DCPP Nuclear Safety Oversight Committee (NSOC), DCISC, NRC, and the Institute of Nuclear Power Operations (INPO).[429]

PG&E was able to provide evidence of the aforementioned 15 documents.[430]

d. PG&E's QA auditors are certified in compliance with ANSI N45.2.23.[431] The DCPP certified QA Audit Team Leader certifies

[420] PG&E response to Cal Advocates Data Request 13, Question 084 and 118.

[421] PG&E response to Cal Advocates Data Request 13, Question 121.

[422] PG&E response to Cal Advocates Data Request 13, Question 114 and 116.

[423] PG&E response to Cal Advocates Data Request 13, Question 059.

[424] The primary document requirements are stated in CFR Appendix B, and the secondary tier document, the QA Program, spells out PG&E's requirements.

[425] PG&E response to Cal Advocates Data Request 13, Question 059.

[426] PG&E response to Cal Advocates Data Request 13, Question 058.

[427] PG&E response to Cal Advocates Data Request 13, Question 061.

[428] PG&E response to Cal Advocates Data Request 13, Question 061.

[429] PG&E response to Cal Advocates Data Request 13, Question 061.

[430] PG&E response to Cal Advocates Data Request 13, Question 058.

[431] PG&E response to Cal Advocates Data Request 13, Question 050.

auditors in accordance with ANSI N45.2.23.[432] Their qualification requirements are described in the QA Manual, Appendix B.[433] Among the audits performed in the last five years, 2018 to 2023, PG&E was able to provide the dates of those audits relevant to the LER incident.[434]

e. The QA Records[435] Section 17.0 of the Diablo Canyon Quality Assurance Program Description, provided in response to question 45, provides guidance as to which documents need to be retained as QA records.[436] Procedure AD10.ID1, "Storage and Control of Quality Assurance Records," is attached as "Attach-1-ERRA-2022-PGE-Compliance-DR-CalAdvocates_013-Q052-AD10ID1r21.pdf" and provides additional guidance.[437]

PG&E kept records of its inspection and copies of the CMTRs of the materials in the 1994 socket weld installation and the 2022 repair.[438] The welding standard and the welding procedure used in 1994 and in 2022 were also provided to Cal Advocates.[439] (Some copies of the documents provided to Cal Advocates were faint and barely legible, likely due to the vintage technology of that time.)

Records of receipt inspection for the filler materials, the piping, and coupling were available.[440] Source inspections are not required for purchases made from qualified suppliers, and therefore there are no source inspection records; the only records are the receipt inspection records.[441]

[432] PG&E response to Cal Advocates Data Request 13, Question 050.

[433] PG&E response to Cal Advocates Data Request 13, Question 051.

[434] PG&E response to Cal Advocates Data Request 13, Question 105.

[435] PG&E response to Cal Advocates Data Request 13, Question 052.

[436] PG&E response to Cal Advocates Data Request 13, Question 052.

[437] PG&E response to Cal Advocates Data Request 13, Question 052.

[438] PG&E response to Cal Advocates Data Request 13, Question 092 to 094, 128, 129 and 137.

[439] PG&E response to Cal Advocates Data Request 13, Question 094, 097 and 132.

[440] PG&E response to Cal Advocates Data Request 13, Question 092 and 127.

[441] PG&E response to Cal Advocates Data Request 13, Question 127.

f. The welding procedure used in 1994 and in 2022 was qualified by PG&E personnel.[442] The welders used and the welding positions for which they were certified were also provided in the DR response.[443]

The NDE records for the socket weld work performed in 1994 and 2022 were made available to Cal Advocates.[444]

g. Identification and Control of Items Used for NRC and non-NRC Jurisdictional Systems and Items:[445] Because materials used in NRC-jurisdictional areas require QA controls versus non-NRC areas, PG&E explained its procedure to organize bulk items.

PG&E uses unique locations associated with each item stock code. Each item has a unique item # and a unique location number to prevent the items from being mixed up. In addition, the unique stock code # tends to be D9X-XXXX for safety related material and D7X-XXXX for non-NRC jurisdictional items.

All warehouses use specific warehouse locations (WH, aisle, shelf, or height# off floor) along with the description and unique SAP Material Master code number (a.k.a. stock code #). In this way, nuclear material is segregated from non NRC-jurisdictional items.

As for proper storage of materials, DCPP maintains its warehouse material in accordance with ASME/ANSI standard N45.2.2., *Packaging, Shipping, Receiving, Storage, and Handling of Items for Nuclear Power Plants*. PG&E's warehouses are modern and temperature controlled within level B storage (indoors, 40^{o} F – 140^{o} F), with a designated room for Level A (temperature and humidity controlled, similar to office space). Given the warehouse's proximity to the ocean, the typical warehouse temperature ranges from 40-90 degrees.

III. CONCLUSION AND RECOMMENDATIONS

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

(a) provide, in the next ERRA Compliance filing following the completion of the socket weld failure analysis, a copy of the metallurgical report of the failed weld and its follow-up actions;

[442] PG&E response to Cal Advocates Data Request 13, Question 098, 132 and 133.

[443] PG&E response to Cal Advocates Data Request 13, Question 100 and 134.

[444] PG&E response to Cal Advocates Data Request 13, Question 094 and 129.

[445] PG&E response to Cal Advocates Data Request 13, Question 101.

(b) file testimony and workpapers on its LERs in all future ERRA Compliance Applications;

(c) explain why it did not adopt American Society of Mechanical Engineers (ASME) NQA-1 definitions of repair and rework;[446]

(d) provide an unabridged transcript of the statement made by a PG&E spokesperson to the media on the socket weld LER incident;[447]

(e) furnish a list of all the contractors working on the socket weld corrective work and identify whether they were certified to work in the area under the jurisdiction of the Nuclear Regulatory Commission (NRC).[448] If the contractors were not qualified to work in an NRC-jurisdictional area, the Commission should order PG&E to seek approval from the NRC for the nonconformance; and

(d) seek approval from the NRC for the socket weld corrective work because the work was a repair not a rework.

Cal Advocates also recommends that the Commission order the DCISC to address the following issues:"

(a) Appoint a rapporteur to investigate PG&E's LERs;

(b) Change the qualification criteria for the selection of the DCISC members to include the member's eligibility for Quality Assurance certification; and

(c) Strengthen the language in the charter section on Committee Member selection to mention specifically the exclusion of PG&E involvement. This is to avoid any perception of conflict of interest.

Cal Advocates may, at a later time, seek a disallowance if the NRC, upon final determination of the LER, establishes that PG&E is at fault in its operation and maintenance activities, including its failure to file, if any, approval for nonconformances.

[446] PG&E response to Cal Advocates Data Request 13, Question 112.

[447] PG&E response to Cal Advocates Data Request 13, Question 067 and 073.

[448] PG&E response to Cal Advocates Data Request 9, Question 053.

Appendix 3-1 License Event Report[449]

Pacific Gas and Electric Company

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PG&E Letter DCL-22-093

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

10 CFR 50.73

Docket No. 50-323, OL-DPR-82
Diablo Canyon Power Plant, Unit 2
Unit 2 Licensee Event Report 2022-001-00, Unit 2 Reactor Coolant System Pressure Boundary Degradation

Dear Commissioners and Staff,

In accordance with the requirements of 10 CFR 50.73(a)(2)(ii)(A), Pacific Gas and Electric Company (PG&E) hereby submits the enclosed Diablo Canyon Power Plant (DCPP) Unit 2 Licensee Event Report regarding a reactor coolant system boundary degradation related to a through-wall leak in a socket weld.

PG&E makes no new or revised regulatory commitments (as defined by NEI 99-04) in this report. All corrective actions identified in this letter will be implemented in accordance with the DCPP Corrective Action Program.

This event did not adversely affect the health and safety of the public.

If you have any questions or require additional information, please contact Mr. James Morris, Regulatory Services Manager, at (805) 545-4609.

Sincerely,

Dennis B. Petersen

12/21/2022
Date

jmsp/51168277-12

Enclosure
cc/enc: Mahdi O. Hayes, NRC Senior Resident Inspector
Samson S. Lee, NRR Senior Project Manager
Scott A. Morris, NRC Region IV Administrator
INPO
Diablo Distribution

[449] https://www.nrc.gov/docs/ML2235/ML22355A081.pdf.

Appendix 3-1 License Event Report (page 2 of 4)[450]

NRC FORM 366 (08-2020) — U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0104 EXPIRES: 08/31/2023

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the FOIA, Library, and Information Collections Branch (T-6 A10M), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by e-mail to Infocollects.Resource@nrc.gov, and the OMB reviewer at: OMB Office of Information and Regulatory Affairs, (3150-0104), Attn: Desk all: oira_submission@omb.eop.gov. The NRC may not conduct or sponsor, and a person is not required to respond to, a collection of information unless the document requesting or requiring the collection displays a currently valid OMB control number.

LICENSEE EVENT REPORT (LER)

(See Page 3 for required number of digits/characters for each block)

(See NUREG-1022, R.3 for instruction and guidance for completing this form http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1022/r3/)

1. Facility Name	2. Docket Number	3. Page
Diablo Canyon Power Plant, Unit 2	05000 00323	1 OF 3

4. Title
Unit 2 Reactor Coolant System Pressure Boundary Degradation

5. Event Date			6. LER Number			7. Report Date			8. Other Facilities Involved	
Month	Day	Year	Year	Sequential Number	Revision No.	Month	Day	Year	Facility Name	Docket Number
10	23	2022	2022	- 001 -	00	12	21	2022		05000
									Facility Name	Docket Number
										05000

9. Operating Mode	10. Power Level
6	000

11. This Report is Submitted Pursuant to the Requirements of 10 CFR §: *(Check all that apply)*

10 CFR Part 20	☐ 20.2203(a)(2)(vi)	☐ 50.36(c)(2)	☐ 50.73(a)(2)(iv)(A)	☐ 50.73(a)(2)(x)
☐ 20.2201(b)	☐ 20.2203(a)(3)(i)	☐ 50.46(a)(3)(ii)	☐ 50.73(a)(2)(v)(A)	**10 CFR Part 73**
☐ 20.2201(d)	☐ 20.2203(a)(3)(ii)	☐ 50.69(g)	☐ 50.73(a)(2)(v)(B)	☐ 73.71(a)(4)
☐ 20.2203(a)(1)	☐ 20.2203(a)(4)	☐ 50.73(a)(2)(i)(A)	☐ 50.73(a)(2)(v)(C)	☐ 73.71(a)(5)
☐ 20.2203(a)(2)(i)	**10 CFR Part 21**	☐ 50.73(a)(2)(i)(B)	☐ 50.73(a)(2)(v)(D)	☐ 73.77(a)(1)(i)
☐ 20.2203(a)(2)(ii)	☐ 21.2(c)	☐ 50.73(a)(2)(i)(C)	☐ 50.73(a)(2)(vii)	☐ 73.77(a)(2)(i)
☐ 20.2203(a)(2)(iii)	**10 CFR Part 50**	☑ 50.73(a)(2)(ii)(A)	☐ 50.73(a)(2)(viii)(A)	☐ 73.77(a)(2)(ii)
☐ 20.2203(a)(2)(iv)	☐ 50.36(c)(1)(i)(A)	☐ 50.73(a)(2)(ii)(B)	☐ 50.73(a)(2)(viii)(B)	
☐ 20.2203(a)(2)(v)	☐ 50.36(c)(1)(ii)(A)	☐ 50.73(a)(2)(iii)	☐ 50.73(a)(2)(ix)(A)	

☐ OTHER (Specify here, in abstract, or NRC 366A).

12. Licensee Contact for this LER

Licensee Contact	Phone Number (Include area code)
David Madsen, Licensing Engineer	805-545-6192

13. Complete One Line for each Component Failure Described in this Report

Cause	System	Component	Manufacturer	Reportable to IRIS		Cause	System	Component	Manufacturer	Reportable to IRIS
X	AB	PSF	-	Yes						

14. Supplemental Report Expected		15. Expected Submission Date	Month	Day	Year
☑ No	☐ Yes (If yes, complete 15. Expected Submission Date)				

16. Abstract (Limit to 1560 spaces, i.e., approximately 15 single-spaced typewritten lines)

At 0830 PDT on 10/23/2022, during routine outage inspections on Unit 2, it was determined that the reactor coolant pressure boundary did not meet American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (BPVC) Section XI acceptance criteria due to finding a through-wall indication at a 2-inch stainless steel socket weld (Weld No. WIB-975D) on the cold leg Loop 1 vacuum refill connecting piping (Line No. 1140), and was therefore reportable.

This event is being reported per 10 CFR 50.73(a)(2)(ii)(A) as a degraded condition.

The presumed cause of the degradation was vibration-induced fatigue propagation of a flaw initiated at a weld defect. Corrective actions to address the condition consisted of performing a weld repair in accordance with ASME BPVC Section XI Case N-666-1 during the refueling outage.

There was no impact to the health and safety of the public or plant personnel.

[450] https://www.nrc.gov/docs/ML2235/ML22355A081.pdf.

Appendix 3-1 License Event Report (page 3 of 4)

NRC FORM 366A (08-2020) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0104 EXPIRES: 08/31/2023

LICENSEE EVENT REPORT (LER) CONTINUATION SHEET

(See NUREG-1022, R.3 for instruction and guidance for completing this form http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1022/r3/)

1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
		YEAR	SEQUENTIAL NUMBER	REV NO.
Diablo Canyon Power Plant, Unit 2	05000-00323	2022	- 001	- 00

NARRATIVE

I. Reporting Requirements

This event is being reported for Diablo Canyon Power Plant (DCPP) Unit 2 in accordance with 10 CFR 50.73(a)(2)(ii)(A) and the associated guidance of NUREG-1022, Revision 3, as a degraded condition due to the failure to meet American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (BPVC) Section XI acceptance criteria for a 2-inch stainless steel socket weld (Weld No. WIB-975D) on the cold leg Loop 1 vacuum refill connecting piping (Line No. 1140).

This event was initially reported in Event Notification 56176 in accordance with the requirements of 10 CFR 50.72(b)(3)(ii)(A) as a degraded condition.

II. Plant Conditions

At the time of the event, DCPP Unit 2 was in MODE 6, Refueling during the twenty-third refueling outage for that unit (2R23).

III. Problem Description

A. Background

Reactor Coolant System (RCS) [AB] Line 1140 serves as a normally closed vacuum refill connection point on the RCS Loop 1 cold leg piping downstream of reactor coolant pump (RCP) 2-1. The subject piping's function is to facilitate the vacuum refill method of filling the RCS when preparing for plant operation at the conclusion of a refueling outage.

DCPP Updated Final Safety Analysis Report (UFSAR) Section 5.2.2.1 states, in part, that the reactor coolant pressure boundary (RCPB) is defined as those piping systems and components that contain reactor coolant at design pressure and temperature. RCPB piping systems and components are defined as Pacific Gas and Electric Company (PG&E) Quality/Code Class I, with the exception of those RCPB components excluded from PG&E Quality/Code Class I requirements by 10 CFR 50.55a, as described in UFSAR Section 3.2.2.3. With the exception of the reactor coolant sampling lines, the entire RCPB, as defined above, is located entirely within the containment structure.

The RCS boundaries are designed to accommodate the system pressures and temperatures attained under all expected modes of plant operation, including all anticipated transients, and to maintain the stresses within applicable limits.

B. Event Description

At 0830 PDT on 10/23/2022, during routine outage inspections on Unit 2, it was determined that the RCPB did not meet ASME BPVC Section XI acceptance criteria due to identification (boric acid residue) of a through-wall indication at a 2-inch stainless steel socket weld (Weld No. WIB-975D) on the cold leg Loop 1 vacuum refill connecting piping (Line No. 1140), and was therefore reportable.

The event was subsequently reported in Event Notification 56176 in accordance with the requirements of 10 CFR 50.72(b)(3)(ii)(A) as a degraded condition.

Appendix 3-1 License Event Report (page 4 of 4)[451]

NRC FORM 366A (08-2020) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0104 EXPIRES: 08/31/2023

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the FOIA, Library, and Information Collections Branch (T-6 A10M), U. S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by e-mail to Infocollects.Resource@nrc.gov, and the OMB reviewer at: OMB Office of Information and Regulatory Affairs, (3150-0104), Attn: Desk Officer for the Nuclear Regulatory Commission, 725 17th Street NW, Washington, DC 20503; e-mail: oira_submission@omb.eop.gov. The NRC may not conduct or sponsor, and a person is not required to respond to, a collection of information unless the document requesting or requiring the collection displays a currently valid OMB control number.

LICENSEE EVENT REPORT (LER) CONTINUATION SHEET

(See NUREG-1022, R.3 for instruction and guidance for completing this form http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1022/r3/)

1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
		YEAR	SEQUENTIAL NUMBER	REV NO.
Diablo Canyon Power Plant, Unit 2	05000- 00323	2022	- 001	- 00

NARRATIVE

C. Status of Inoperable Structures, Systems, or Components (SSCs) that Contributed to the Event

There were no SSCs that were inoperable at the start of the event that contributed to the Event.

D. Method of Discovery

This condition was discovered during a routine piping and valve walkdown as part of the station's boric acid corrosion control program.

E. Operator Actions

None were required. The condition was discovered during routine walkdowns during plant refueling. There was no active leak from the weld observed at the time of discovery.

F. Safety System Responses

None required.

IV. Cause of the Problem

The direct cause of the indication was vibration-induced fatigue propagation initiated at a weld flaw.

V. Assessment of Safety Consequences

The condition did not adversely affect the health and safety of the public or on-site personnel. The boric acid residue found was indicative of a through-wall leak and active leakage was not observed at the time the condition was identified in Mode 6. Calculated total RCS leakage rates for the previous Unit 2 operating cycle were negligible, indicating that any through-wall leakage was minimal. Additionally, the weld indication was localized in nature with no other accompanying indications.

VI. Corrective Actions

The weld was repaired in accordance with ASME BPVC Section XI Code Case N-666-1. The weld repair was completed on 10/31/2022 and passed required inspections. This was the only connecting piping of this configuration on the remaining RCS loops. Finalization of the cause evaluation and implementation of corrective actions will be managed in accordance with the DCPP Corrective Action Program.

VII. Additional Information

There have been no similar events at DCPP in the previous three years.

[451] https://www.nrc.gov/docs/ML2235/ML22355A081.pdf.

Appendix 3-2 ASME NQA -1: Definition

guidance: a suggested practice that is not mandatory in programs intended to comply with this Standard. The word *should* denotes guidance; the word *shall* denotes a requirement.

inspection: examination or measurement to verify whether an item or activity conforms to specified requirements.

inspector: a person who performs inspection activities to verify conformance to specific requirements.

item: an all-inclusive term used in place of any of the following: appurtenance, assembly, component, equipment, material, module, part, structure, subassembly, subsystem, system, or unit.

measuring and test equipment (M&TE): devices or systems used to calibrate, measure, gage, test, or inspect in order to control or acquire data to verify conformance to specified requirements.

nonconformance: a deficiency in characteristic, documentation, or procedure that renders the quality of an item or activity unacceptable or indeterminate.

objective evidence: any documented statement of fact, other information, or record, either quantitative or qualitative, pertaining to the quality of an item or activity, based on observations, measurements, or tests that can be verified.

Owner: the organization legally responsible for the construction and/or operation of a nuclear facility including but not limited to one who has applied for, or who has been granted, a construction permit or operating license by the regulatory authority having lawful jurisdiction.

procedure: a document that specifies or describes how an activity is to be performed.

procurement document: purchase requisitions, purchase orders, drawings, contracts, specifications, or instructions used to define requirements for purchase.

Purchaser: the organization responsible for establishment of procurement requirements and for issuance or administration, or both, of procurement documents.

qualification, personnel: the characteristics or abilities gained through education, training, or experience, as measured against established requirements, such as standards or tests, that qualify an individual to perform a required function.

qualified automated means: automated methods of controlling or monitoring processes that have been demonstrated to produce required quality within controlled limits.

qualified procedure: an approved procedure that has been demonstrated to meet the specified requirements for its intended purpose.

quality assurance (QA): all those planned and systematic actions necessary to provide adequate confidence that a structure, system, or component will perform satisfactorily in service.

quality assurance record: a completed document that furnishes evidence of the quality of items and/or activities affecting quality. Types of record media may include paper, electronic (magnetic or optical), or specially processed media such as radiographs, photographs, negatives, and microforms. The term *record*, as used throughout the Standard, is to be interpreted as quality assurance record.

quality standard: a code or standard that provides design inputs, acceptance criteria, or other criteria necessary to assure the quality of the designated item.

receiving: taking delivery of an item at a designated location.

repair: the process of restoring a nonconforming characteristic to a condition such that the capability of an item to function reliably and safely is unimpaired, even though that item still does not conform to the original requirement.

rework: the process by which an item is made to conform to original requirements by completion or correction.

right of access: the right of a Purchaser or designated representative to enter the premises of a Supplier for the purpose of inspection, surveillance, or quality assurance audit.

safety function: the performance of an item or service necessary to achieve safe, reliable, and effective utilization of nuclear energy and nuclear material processing.

service: the performance of activities such as design, fabrication, inspection, nondestructive examination, repair, or installation.

shall: see *guidance*.

should: see *guidance*.

software:[4] computer programs and associated documentation and data pertaining to the operation of a computer system.

special process: a process, the results of which are highly dependent on the control of the process or the skill of the operators, or both, and in which the specified quality cannot be readily determined by inspection or test of the product.

Supplier: any individual or organization who furnishes items or services in accordance with a procurement document. An all-inclusive term used in place of any of the following: vendor, seller, contractor, subcontractor, fabricator, consultant, and their subtier levels.

surveillance: the act of monitoring or observing to verify whether an item or activity conforms to specified requirements.

testing: an element of verification for the determination of the capability of an item to meet specified requirements by subjecting the item to a set of physical, chemical, environmental, or operating conditions.

Appendix 3-3 San Francisco Examiner Article on LER Incident[452]

https://www.sfexaminer.com/news/pge-discovered-leaks-at-the-diablo-power-plant/article_b01a10a4-8d31-11ed-97fc-535a69354162.html

SPOTLIGHT

PG&E discovers issue at Diablo Power Plant

By Jessica Wolfrom | Examiner staff writer
Jan 5, 2023

The Nuclear Regulatory Commission granted an exemption allowing PG&E to continue its operation of the Diablo Canyon Nuclear Plant's twin reactors while its renewal application undergoes a formal review process. The current operating licenses for the plant's two units are set to expire in 2024 and 2025.

Associated Press

Less than a month before California's last nuclear power plant received over a billion dollars in federal funding to extend its operational life, Pacific Gas & Electric reported a leak in one of its reactors at the Diablo Canyon nuclear plant in San Luis Obispo County.

The damage was to part of its reactor cooling system, the utility disclosed in a r

[452] PG&E discovered leaks at the Diablo Power Plant | San Francisco News | sfexaminer.com

Appendix 3-3 San Francisco Examiner Article on LER Incident[453] (pg. 2 of 3)

report to the Nuclear Regulatory Commission after an issue with a weld was discovered in a pipe of Diablo Canyon's Unit 2 reactor, which had already been shut down for routine maintenance.

"We identified a pipe associated with a cooling system where a minute amount of dry boric acid crystals accumulated," Suzanne Hosn, a spokesperson for PG&E. "I can't even characterize it as a crack."

The presumed cause was fatigue triggered by the vibrations at the facility, damage that occurred after the unit was taken offline for a planned refueling outage, PG&E reported.

The utility has since fixed the leak, maintaining the public, and plant workers were never at risk. "The unit has been safely and reliably operating," said Hosn.

But the report has raised questions from critics of the plant, who have expressed concern over the age and stability of the facility.

"The communities near Diablo Canyon deserve to know the full details of the incident, how it happened, why it wasn't discovered earlier, and how long it took for PG&E to identify the damage to the reactor coolant system," said Environmental Working Group President and California resident Ken Cook in a statement.

The 2,250-megawatt power plant, tucked into cliffs along the central coast, was scheduled to be decommissioned by 2025. But it was resuscitated last fall when state lawmakers voted to keep the facility open for five more years, citing energy reliability concerns and the need to fight climate change and transition to renewable energy.

"Amid intensifying climate impacts in the West and across the country, California is focused on meeting our bold climate and clean energy goals while tackling the challenges of extreme weather that puts lives at risk and strains our grid," Gov. Gavin Newsom said in a statement, adding that the extension of the plant will provide an

[453] PG&E discovered leaks at the Diablo Power Plant | San Francisco News | sfexaminer.com

Appendix 3-3 San Francisco Examiner Article on LER Incident[454] (pg. 3 of 3)

onramp for more clean energy projects to come online.

The power generated at Diablo Canyon supplied California with about 9% of its energy in 2021. And though it's not considered a renewable energy source, it is deemed low carbon because it does not produce greenhouse gases.

But critics argue that nuclear power projects of this size and scale no longer make sense amid the influx of wind, solar, and battery alternatives and say the costs, both financial and environmental, far outweigh the benefits.

"At this point, there is so much promise with renewables...that we can get to our climate goals much faster and reliably by investing in those technologies and not in nuclear," said Cook. "The other thing we do worry about -- is what do you do at the end of the service period for these nuclear plants with all of the waste?"

Though its possible to safely dispose of nuclear waste, the radioactive material generated from nuclear power plants is considered "high level waste" by the Environmental Protection Agency. Currently, the United States does not reprocess spent nuclear fuel, nor does it have a disposal facility for such waste, the agency noted, which means most radioactive waste is stored at the facility that produced it.

Still, the Biden Administration counts nuclear power as an important part of its goal to reach 100% clean energy by 2035. In November, it awarded PG&E more than a billion dollars to keep the plant operating beyond its original decommissioning date.

But news of the leak has surfaced fresh questions about the facility's infrastructure from those who want to see the plant shut down. "The main reason for shuttering this aging facility is the potential threat it poses to the public," Cook said. "And PG&E's overall safety record across its vast service area in the state is among the worst of any power company in the country."

jwolfrom@sfexaminer.com

[454] PG&E discovered leaks at the Diablo Power Plant | San Francisco News | sfexaminer.com

LIST OF ATTACHMENTS FOR CHAPTER 3

#	Attachment	Description
1	Attachment 3.1	PG&E Response to Cal Advocates Data Request 9, Question 1 to 60. inclusive (Non-Confidential)
2	Attachment 3.2 (Confidential)	PG&E Response to Cal Advocates Data Request 9, Question 16, 18, 50, 52.
3	Attachment 3.3 (Confidential Info for U.S. Citizens Only)	PG&E Response to Cal Advocates Data Request 9, Question 52.
4	Attachment 3.4	PG&E Response to Cal Advocates Data Request 13, Question 1 to 136. inclusive (Non-Confidential)
5	Attachment 3.5 (Confidential)	PG&E Response to Cal Advocates Data Request 13, Question 84, 93, 94, 97, 118, 128, 129, 132, 134, 137, 138.
6	Attachment 3.6 (Confidential Info for U.S. Citizens Only)	PG&E Response to Cal Advocates Data Request 13, Question 84, 85, 86, 88, 92, 94, 97, 118, 128, 132.

CHAPTER 4 : REVIEW ENTRIES RECORDED IN THE DISADVANTAGED COMMUNITY – GREEN TARIFF BALANCING ACCOUNT AND THE COMMUNITY SOLAR GREEN TARIFF BALANCING ACCOUNT

(Witness: Brian Lui)

I. INTRODUCTION AND SUMMARY

This testimony addresses Chapter 5 of PG&E's 2022 ERRA compliance application, which covers the Disadvantaged Community – Green Tariff (DAC-GT) Balancing Account (DACGTBA) and the Community Solar Green Tariff (CS-GT) Balancing Account (CSGTBA) for the Record Period of January 1, 2022 through December 31, 2022. Both the DACGTBA and CSGTBA are sub-accounts of PG&E's Public Policy Charge Balancing Account (PPCBA).

II. RECOMMENDATIONS

Cal Advocates recommends that the entries recorded to the DACGTBA and CSGTBA be accepted as filed.

III. BACKGROUND

The California Public Utilities Commission (CPUC or Commission) issued Decision (D.) 18-06-027 implementing Assembly Bill (AB) 327. AB 327 required the Commission to develop alternatives to increase the adoption and growth of renewable generation in Disadvantaged Communities (DAC). Pursuant to D.18-06-027, PG&E filed Advice Letter (AL) 5351-E to establish the PPCBA with two subaccounts to track the costs and revenues associated with the DAC-GT and CS-GT programs.[455]

The DACGTBA tracks the annual funding of the program through greenhouse gas (GHG) and public policy revenues compared to costs incurred to implement, operate, maintain, and administer the program.[456]

[455] PG&E Advice Letter 5351-E available at: https://www.pge.com/tariffs/assets/pdf/adviceletter/ELEC_5351-E.pdf . Accessed August 17, 2023.

[456] PG&E Electric Preliminary Statement Part HM, p. 1. Available at: https://www.pge.com/tariffs/assets/pdf/tariffbook/ELEC_PRELIM_HM.pdf. Accessed August 17, 2023.

Table 4-1 below reflects DACGTBA's accounting entries for the 2021 Record Period.

Table 4-1
DAC-GT Expense Activity[457]
Record Period 2022

Line No.	Description	2022 Amount ($)
1	Renewable Resource Costs	2,153,987
2	Revenue Shortfall Based on 20% discount	5,589,389
	Administrative Costs	
A	DAC-GT Information Technology (IT)/(IT/ Billing System)	325,854
B	Program Management	150,052
C	Contact Center Operations	3,724
D	Energy Procurement	85,860
3 (a+b+c+d)	Subtotal – Administrative Costs	565,490
4	Marketing	26,152
5 (Line 1+2+3+4)	**Total DAC-GT Expense Activity**	8,335,018

The CSGTBA tracks the annual funding of the program through GHG and public policy revenues compared to costs incurred to implement, operate, maintain, and administer the program.[458]

Table 4-2 below reflects CSGTBA's accounting entries for the 2022 Record Period.

[457] PG&E Direct Testimony, at.5-4, Table 5-1.

[458] PG&E Electric Preliminary Statement Part HM, p. 1. Available at: https://www.pge.com/tariffs/assets/pdf/tariffbook/ELEC_PRELIM_HM.pdf. Accessed August 17, 2023.

Table 4-2

CS-GT Expense Activity[459]
Record Period 2022

Line No.	Description	2022 Amount ($)
	Administrative Costs	
	CS-GT IT (IT/Billing System)	55,161
	Program Management	28,423
	Energy Procurement	14,014
1	Subtotal – Administrative Costs	97,598
2	Marketing	4,643
3 (Line 1+2)	**Total CS-GT Expense Activity**	102,241

IV. CAL ADVOCATES ANALYSIS

Cal Advocates reviewed PG&E's DACGTBA and CSGTBA for the Record Period to determine whether entries recorded in those accounts were appropriate, correctly stated, and compliant with applicable Commission Decisions. Cal Advocates' procedures included, but were not limited to, the following:

- Review of PG&E's application, testimony, exhibits, and data request responses;
- Review of Balancing Account Electrical Preliminary Statements and associated tariff line-items;
- Review of applicable advice letters, resolutions, and Commission Decisions;
- Selection of a sample of DACGTBA and CSGTBA monthly tariff line items to determine whether adequate support exists;
- Online meetings with PG&E representatives to discuss details of requested documents;

[459] PG&E Direct Testimony at.5-7, Table 5-2.

- Reconciliation of PG&E workpapers with General Ledger entries;
- Examination of invoices, journals, general ledger entries;
- Verification of the mathematical accuracy of accounting worksheets and supporting documentation;
- Review of proof of payments for invoices selected during the audit process;
- Review of monthly interest rates and calculation of monthly interest amounts;

Cal Advocates reviewed a sample of source documents that support the revenues and expenses recorded in the DACGTBA and CSGTBA. Cal Advocate's sample was judgmentally selected by the auditor and based on a nonrandom sample. Auditor assessments of risk include but are not limited to: internal control environment, financial impact, results of prior reviews, changes to accounting practices.

V. CONCLUSION

Cal Advocates review of the DACGTBA and CSGTBA for the 2022 Record Period found no required accounting adjustments, and Cal Advocates does not object to the costs recorded in the DACGTBA and CSGTBA. Cal Advocates found that the 2022 DACGTBA/CSGTBA administrative and outreach expenses are reasonable, appropriate, correctly stated, and in compliance with applicable Commission Decisions. Cal Advocates found that the 2022 DACGTBA/CSGTBA complies with the applicable tariffs and Commission directives.

CHAPTER 5 : CONTRACT ADMINISTRATION

(Witness**:** Helena Oh)

I. INTRODUCTION AND SUMMARY

This chapter presents the Cal Advocates' review of Pacific Gas and Electric Company's (PG&E) contract administration activities during the 2022 Record Period. Cal Advocates examined PG&E's administration of its energy and capacity procurement contracts, including an amendment to a contract that was subject to approval in the ERRA, as well as contract terminations. The purpose of Cal Advocates' analysis in this chapter is to ensure the utility prudently administered its contracts for the benefit of ratepayers and under the guidance set forth by the Commission.

II. BACKGROUND

The ERRA Compliance proceeding requires that each investor-owned utility (IOU) is assessed on an annual basis for compliance regarding their energy resource contract administration. The guidelines for the ERRA are set forth in Commission Decisions (D.) 02-10-062 and D.02-12-074, Public Utilities Code Section 454.5(d), and Rules 2.1 and 3.2 of the Commission's Rules of Practice and Procedure. D.02-10-062 outlines the minimum standards of conduct that the IOUs shall follow in their ERRA Compliance applications, including Standard of Conduct 4 (SOC4), which states that "the utilities shall prudently administer all contracts and generation resources and dispatch the energy in a least-cost manner."[460] These standards are upheld by a "regulatory process to verify and ensure that each contract was administered in accordance with the terms of the contract, and contract disputes that may arise are reasonably resolved."[461] The ERRA framework provides the IOUs with "flexibility in transacting for energy to meet their obligation to serve their customers so that the utilities can take advantage of market opportunities that result in the low and stable prices."[462]

[460] D.02-10-062 at 74.

[461] Public Utilities Code Section 454.5(d)(2).

[462] D.02-10-062 at 2.

III. DISCUSSION

A. New Contracts.

PG&E did not execute any new contracts in the Record Period that are subject to approval in this ERRA application. The Commission separately reviewed and either approved or is still reviewing the 118 energy, capacity, or ancillary services contracts PG&E entered into during the record period.[463] As of February 10, 2023, there were 53 contracts via three Quarterly Compliance Report (QCR) advice letters that were pending CPUC approval.[464]

B. Contract Amendments and Modifications

PG&E executed amendments to 182 contracts and one is subject for review in the ERRA Application.

1. Calpine Russell City Energy Center

PG&E is seeking approval in this ERRA for a mutually agreed upon change to the contract expiration date of a tolling agreement with the Russell City Energy Company for the Calpine Russell City Energy Center project. PG&E and Russel City Energy Company made this amendment in May 2022 to alter the contract expiration date from August 7, 2023 to July 31, 2023. The original power purchase agreement (PPA) set the expiration date for ten years after the initial delivery date (IDD). This amendment would reduce the notional value of the contract because PG&E would otherwise have [redacted].[465] This is a benefit to PG&E's ratepayers because, under the terms of the original PPA, this resource would not have been able to count for resource adequacy (RA) compliance for the month of August with a contract termination date of August 7, 2023, since RA attributes are a monthly product. With the amendment, Calpine will be able to seek a new buyer for the RA attributes of

[463] PG&E response to Cal Advocates' Master Data Request, Q037, Atch 01-CONF.

[464] Advice letters 6670-E, 6751-E, and 6844-E.

[465] PG&E response to Cal Advocates MDR001-Q039, at 3.

the Calpine Russell City Energy Center for the month of August 2023. Cal Advocates supports this amendment.

2. Integrated Resource Planning Procurement Contract Amendments

There were five other contract amendments that resulted in increases to the contract prices;[466] Cal Advocates did not contest these amendments when PG&E proposed them in advice letters 6658-E and 6711-E. PG&E executed these contracts pursuant to procurement orders that the Commission adopted in Order Instituting Rulemakings 16-02-007 and the subsequent R.20-05-003, which were intended to develop and continue the electric Integrated Resource Planning (IRP) process. The Commission ordered procurement in D.19-11-016 (Decision Requiring Electric System Reliability Procurement for 2021-2023) and D.21-06-035 (Decision Requiring Procurement to Address Mid-Term Reliability [MTR] (2023-2026). Resolutions E-5231 and E-5243 approved amendments to two of the contracts PG&E executed pursuant to D.19-11-016 and four of the contracts PG&E had executed pursuant to D.21-06-035. Overall, five of these amendments resulted in increases to their contract prices, and four of the contracts had delayed delivery dates. The amendments to the Canyon Country, Beaumont, and Inland Empire contracts pursuant to D.21-06-035 resulted in both higher contract prices and delays in delivery dates from October 1, 2023; August, 1, 2023; and April 1, 2024, respectively to June 1, 2024.[467] According to PG&E, the price adjustments for these contracts were comparable to the offer prices that PG&E observed in its Phase 2 MTR Request for Offers.[468] Since the time period in which the Commission adopted the procurement orders, there had been increases in global commodity prices for battery storage components, continuing supply chain constraints, inflation, and higher interest rates that necessitated corresponding increases to those contract prices, according to Resolutions E-5231 and E-5243.

[466] Resolution E-5231 at 1 and Resolution E-5243 at 1.

[467] Resolution E-5243 at 3-4.

[468] Resolution E-5231 at 4 and Resolution E-5243 at 4.

Most the other contract amendments were routine amendments to existing contracts or consent to assignments.

C. Expired and Terminated Contracts

There were six contracts that terminated during the Record Period, and security and terminations fees were retained for all except one. The one contract without a termination fee associated with it was for a Qualifying Facility PPA that had not delivered energy since 1985.[469] This project did not have a California Independent System Operator (CAISO) resource ID and never provided RA capacity, so there was no impact on PG&E's bundled portfolio. PG&E finally discovered this contract during a 2021 investigation of Qualifying Facility PPAs that had non-deliveries. PG&E reached out to the Seller and learned that the cogeneration unit had been removed in 1992, so PG&E informed the Seller of their right to terminate the PPA. The Seller did so on January 26, 2022. Cal Advocates does not oppose PG&E's conduct in the termination of contracts in the Record Period.

D. Disputes

PG&E is engaged in one dispute resolution process that is ongoing and was not resolved at the time of the filing.[470] Global Ampersand, LLC (Global) initiated the dispute resolution process on May 18, 2022 because Global disagreed with the calculation of Performance Penalties to PG&E and the settlement of Seller Excuse Hours under the PPAs with its El Nido Biomass Facility and Chowchilla Biomass Facility.[471] PG&E will provide an update on the dispute's status in its ERRA Compliance filing for the 2023 record period.[472] Cal Advocates will review PG&E's resolution process for this dispute in the next ERRA filing.

[469] PG&E response to Cal Advocates Data Request 17, Question 001.

[470] PG&E Direct Testimony at 9-18.

[471] PG&E Direct Testimony at 9-18.

[472] PG&E response to Cal Advocates Data Request No. 17, Question 002.

E. Force Majeure Claims

PG&E received 54 force majeure claims during the record period.[473] Of those, 17 claims were for events that ultimately had no impact on contract performance. PG&E is awaiting the impact of 19 force majeure events on the performance of the contracts. PG&E rejected 12 claims and accepted six claims. Of the total claims in the 2022 record period, PG&E received 11 force majeure claims related to the COVID-19 pandemic for seven projects.[474]

1. COVID-19 Pandemic Force Majeure Claims

In response to a Cal Advocates data request, PG&E provided additional details on six of the seven projects that had force majeure claims related to the COVID-19 pandemic.[475] The seller for the [redacted]. However, PG&E neither accepted nor denied the claims for the [redacted].[476] During the record period, four of those COVID-19 pandemic-related claims were still under review. PG&E had not yet made a determination on two of these because the reasons outlined in the respective claims have not yet impacted the expected online dates for these projects. PG&E explained that in reviewing any force majeure claim, if the force majeure event has no impact on the claiming party's performance under the contract, then PG&E will neither accept nor deny the claim and will consider the force majeure claim closed.[477] PG&E will provide an update on these claims and two others it resolved in 2023.[478] Finally, PG&E did accept one COVID-19 pandemic-related claim during the record period. [redacted]

[473] PG&E Direct Testimony, Table 9-10.

[474] PG&E Direct Testimony, Table 9-10.

[475] The project PG&E did not provide further information on the [redacted]. See PG&E Direct Testimony, Table 9-10.

[476] PG&E response to Cal Advocates Data Request No. 20, Attachment 1-CONF.

[477] PG&E response to Cal Advocates Data Request No. 20 at 2.

[478] PG&E response to Cal Advocates Data Request No. 20, Attachment 1-CONF.

[redacted] PG&E denied other claims by the seller, however, regarding [redacted].[480]

F. Other Issues

PG&E had entered into a 5 MW demand response (DR) contract with Voltus pursuant to D.21-12-005 for the month of September 2022. According to PG&E, the contract contained a [redacted] within the framework of a supply side resource adequacy (RA) contract, which was the first time PG&E had designed such a contract for a DR resource.[481] This contract allowed for the use of CAISO portal data to verify performance and serve as the basis for calculating any payment or penalties.[482] According to PG&E, Voltus had less than 45 days between the filing of advice letter 6619-E on June 16, 2022 and the resource demonstration requirement (i.e. Supply Plan) in July 2022 to register with CAISO for the September showing month.[483] A heat wave that affected the western United States occurred at the beginning of September. The [redacted].[484]

[redacted]

[479] PG&E response to Cal Advocates Data Request No. 15 at 1.

[480] PG&E response to Cal Advocates Data Request No. 15 at 2.

[481] See PG&E Direct Testimony at 9-19 and PG&E Response to Cal Advocates Data Request No. 18 at 2.

[482] PG&E response to Cal Advocates Data Request No. 14, Question 001 at 3 and Question 001, Attachment 2-CONF.

[483] See PG&E See PG&E Direct Testimony at 9-19 at 9-19 and PG&E's response to Cal Advocates Data Request No. 14, Attachment 01-CONF.

[484] PG&E response to Cal Advocates Data Request No. 14, Question 001 at 2.

[redacted].[485] [redacted] [486] Voltus [redacted] [redacted].[487] [redacted] [redacted].[488] PG&E determined that a [redacted] because [redacted] [redacted].[489] In addition, [redacted] [redacted] [redacted] this year.[490] While Energy Division's opinion was that [redacted] "did not raise any red flags"[491], it is disconcerting that an underperforming seller was offered [redacted] [redacted]. Not only could ratepayers have benefitted from [redacted], but underperformance can threaten grid reliability. Cal Advocates disagrees with Energy Division's guidance to PG&E.

Although Cal Advocates less than 45 days may have provided insufficient time for the seller to recruit additional DR capacity, nevertheless these are the terms the seller agreed to in entering this contract with PG&E. Going forward, Cal Advocates recommends that if PG&E engages in a similar contract structure again with a DR provider, PG&E should account for a more reasonable recruitment timeline and enforce the contract stipulations. An insufficient recruitment timeline should not be the basis for [redacted].

[485] PG&E response to Cal Advocates Data Request No. 14, Question 001, Attachment 2-CONF.

[486] PG&E response to Cal Advocates Data Request No. 14, Question 001 at 2.

[487] PG&E response to Cal Advocates Data Request No. 14, Question 001, Attachment 1-CONF.

[488] PG&E response to Cal Advocates Data Request No. 14, Question 001 at 2.

[489] PG&E Direct Testimony at 9-19.

[490] PG&E response to Cal Advocates Data Request No. 14, Question 001 at 2.

[491] PG&E response to Cal Advocates Data Request No. 14, Question 001 at 2.

IV. CONCLUSION/RECOMMENDATION

Based on this review and analysis of PG&E's contracts and other information provided to support their testimony, Cal Advocates does not contest PG&E's contract administration activities during the 2022 Record Period. However, Cal Advocates disagrees with Energy Division's enablement of PG&E's decision to provide Voltus with a full forbearance. Cal Advocates recommends PG&E apply the stipulations of future contracts in the event of DR underperformance.

LIST OF ATTACHMENTS FOR CHAPTER 5

#	Attachment	Description
1	Attachment 5.1 Data Request (Confidential)	Abridged collection of PG&E responses to Cal Advocates data requests sited in testimony. Confidential.
2	Attachment 5.2 MDR (Confidential)	PG&E's responses to Master Data Request question 37, Attachment 1 and question 39. Confidential.

CHAPTER 6 : RESOURCE ADEQUACY

(Witness: Kyle Navis)

I. INTRODUCTION AND SUMMARY

This chapter presents Cal Advocates' review of PG&E's resource adequacy (RA) procurement and sales activities for the Record Period from January 1, 2022 through December 31, 2022. Cal Advocates' review focuses on PG&E's compliance with its Bundled Procurement Plan (BPP) in its efforts to meet RA requirements established by the Commission.

II. RECOMMENDATIONS

Cal Advocates finds that PG&E's efforts to procure and sell RA in its solicitations were in compliance with the requirements of PG&E's BPP.

III. BACKGROUND

The Commission provides the system, local and flexible RA requirements for each jurisdictional load-serving entity (LSE) in September of each year.[492] The Commission requires LSEs to make annual year-ahead compliance showings for system, local and flexible RA for the coming year by October 31st of the current year. By October 31, 2021, LSEs were required to demonstrate that they procured 100% of their local RA obligation for all 12 months of 2022. The 50% local RA requirement for 2023 was eliminated for LSEs by D.20-06-002[493] and re-assigned to the Central Procurement Entity (CPE)[494] created by the same decision. The PG&E-CPE is a separate entity whose procurement activities are walled off from the procurement activities of PG&E as an LSE.[495]

[492] PG&E Testimony, at 8-2.

[493] D.20-06-002, Ordering Paragraph 7, at 93.

[494] D.20-06-002, at 25.

[495] D.20-06-002, Ordering Paragraph 25, at 99-100.

In Decision (D.) 21-06-029[496] the Commission adopted local RA capacity requirements for 2022-2024 and flexible RA capacity requirements for 2022 for Commission jurisdictional LSEs. The Commission declined to make any changes to the system RA requirement methodology, which is based on the California Energy Commission (CEC) 1-in-2 monthly load forecast, plus a 15% planning reserve margin (PRM).[497] Besides the baseline RA program, D.21-12-015 increased the "effective" PRM[498] and directed PG&E to procure a minimum of 900 MW incremental RA capacity for emergency reliability purposes.[499]

IV. DISCUSSION AND ANALYSIS

A. Summary of RA Requirements and PG&E's Positions

PG&E reported its RA position on a quarterly basis in its Quarterly Compliance Report (QCR) filings which were timely filed throughout the Record Period and included as workpapers to the present testimony. PG&E briefed Cal Advocates and other non-market stakeholders on their RA position, sales, and purchases at Procurement Review Group (PRG) meetings. Both QCR and PRG reporting are required by PG&E's BPP.[500]

Table 4-1 shows that PG&E met its system RA requirements for all months in 2022. PG&E was unable to meet the local RA requirements for certain months in the [redacted], and Greater Bay Area local capacity areas (LCA) for the 2022 compliance year.[501] PG&E demonstrated its attempts to procure enough local RA to meet its requirements through a Commission waiver request.[502] The

[496] D.21-06-029, at 7-14.

[497] D.19-06-026, at 12.

[498] The effective PRM was Established in D.21.02-028 and intended by the Commission as an interim approach to procuring additional capacity in a cost-effective manner by assigning incremental procurement goals to the IOUs rather than all LSEs.

[499] D.21-12-015, Ordering Paragraph 3, at 160-161.

[500] PG&E BPP, Section IV, Table 4, Sheets 27-30.

[501] Attachment 4.1.

[502] PG&E Advice Letter 6384-E, *Required Demonstration for PG&E's Disaggregated PG&E Other Local Capacity Area Requirements in Compliance with Ordering Paragraph 22(a) of Decision 20-06-031 for 2022*, November 1, 2021.

Commission's 2020 RA Filing Guide provided a process for LSEs to request a waiver for their local RA obligations.[503]

Decision 20-06-031 added a second component to the local RA waiver process that allowed LSEs to apply for a waiver via Tier 2 Advice Letter provided the LSE "demonstrates procurement of local RA capacity within the PG&E Other LCAs such that the LSE's collective procurement in the six disaggregated PG&E Other LCAs meets the LSE's collective requirement for the disaggregated PG&E Other LCAs."[504] PG&E successfully demonstrated that it had procured sufficient local RA to meet the alternative means of compliance for the aggregated PG&E Other LCAs RA requirements.[505] The Commission's Energy Division (ED) ultimately approved PG&E's local RA procurement in the PG&E Other LCA.[506] ED also waived penalties associated with PG&E's individual LCA deficiencies on the grounds that PG&E pursued all commercially reasonable efforts and met its local RA obligation in the aggregated PG&E Other LCAs.

[503] 2020 Filing Guide for System, Local and Flexible Resource Adequacy (RA) Compliance Filings, July 21, 2020, at 43.

[504] D.20-06-031, Ordering Paragraph 22, at 97.

[505] PG&E Advice Letter 6384-E, *Required Demonstration for PG&E's Disaggregated PG&E Other Local Capacity Area Requirements in Compliance with Ordering Paragraph 22(a) of Decision 20-06-031 for 2022*, November 1, 2021.

[506] Energy Division, Non-Standard Disposition Letter, January 31, 2022.

Table 4-1: PG&E's 2022 Final Net System and Local RA Positions (MW)[507]

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
System	[redacted]											
Greater Bay Area												
Humboldt												
North Coast/North Bay												
Sierra												
Stockton												
Greater Fresno												
Kern												
Aggregated PG&E-Other Areas												

PG&E attempted to procure RA for each of the six LCAs in the PG&E Other LCA, while maintaining surplus positions in some of those areas in order to meet the aggregated PG&E Other RA requirements, although the aggregated showing was reduced by deficiencies in some LCAs.[508] Although surplus RA positions should be minimized in order to obtain ratepayer value through RA sales, Cal Advocates finds PG&E's surplus RA positions in the PG&E Other LCAs to be reasonable and necessary to meet the PG&E Other requirement, given PG&E's failure to procure sufficient local RA in the constituent LCAs.

B. Compliance with BPP Appendix S

1. PG&E's RA Sales framework

PG&E engaged in various solicitations to purchase RA, as well as monetize surplus RA positions. PG&E's BPP provides for Commission-authorized strategies and

[507] Data in the "System" row comes from Attachment 4.2 and represents the system RA capacity available to PG&E after subtracting system RA requirements, PG&E's own portfolio reserves, operational constraints, and RA sales. Data in all other rows comes from Attachment 4.1.

[508] PG&E Advice Letter 6384-E, *Required Demonstration for PG&E's Disaggregated PG&E Other Local Capacity Area Requirements in Compliance with Ordering Paragraph 22(a) of Decision 20-06-031 for 2022*, November 1, 2021.

approval structures for RA transactions, including the use of competitive solicitations and bilateral and brokered transactions.[509] PG&E reported its RA sales and purchases in its four Record Period QCR filings which Cal Advocates reviewed upon issuance. Cal Advocates did not protest any of PG&E's 2022 QCRs.

PG&E's BPP requires it to make available for sale [redacted].[510] The amount available for sale is limited by [redacted].[511] PG&E held five solicitations to sell excess RA capacity, including three quarterly Balance of Year Solicitations (in January 2022 for Q2, April 2022 for Q3, and July/August 2022 for Q4).[512] Additionally, PG&E held an all-months of 2023 RA sale in Q3 of 2022, and a Balance of Year 2023 solicitation in November 2022.[513] Appendix S of PG&E's BPP provides the standards and criteria for PG&E's management and sales of RA products. Appendix S requires PG&E to use a forecasted supply price curve to set floor prices for sales of RA when evaluating bids in the solicitations during the record period.[514]

Cal Advocates recommends that the Commission find that PG&E's efforts to procure and sell RA in its solicitations for Record Period 2022 were in compliance with the requirements of PG&E's BPP.

V. CONCLUSION

Cal Advocates finds that PG&E's efforts to procure and sell RA in its solicitations were in compliance with the requirements of PG&E's BPP.

[509] PG&E BPP, Appendix B, Table B-1, Sheets 56-57.

[510] PG&E BPP Appendix S, Section B.3, Sheets 266.

[511] PG&E BPP Appendix S, Sheets 261-268.

[512] PG&E Testimony, at 8-10.

[513] PG&E Testimony, at 8-10.

[514] PG&E Testimony, at 8-8.

LIST OF ATTACHMENTS FOR CHAPTER 6

#	Attachment	Description
1	Attachment 6.1	PG&E Response to Cal Advocates Data Request 23-Q001
2	Attachment 6.2 (Confidential)	PG&E Summary of end-of-record period RA positions, from PG&E AL 6844-E, *Procurement Transaction Quarterly Compliance Submittal (Q4, 2022)*, Attachment E, January 30, 2023 – ERRA-2022-PGE-Compliance_DR_CalAdvocates_023-Q001_Attach1CONF (Available via Email)

CHAPTER 7 : GREENHOUSE GAS COMPLIANCE INSTRUMENTS

Cal Advocates is not filing this chapter.

CHAPTER 8 : REVIEW ENTRIES RECORDED IN THE GREEN TARIFF SHARED RENEWABLES MEMORANDUM ACCOUNT AND THE GREEN TARIFF SHARED RENEWABLES BALANCING ACCOUNT

(Witness: Brian Lui and Craig Jenquin)

I. INTRODUCTION AND SUMMARY

Cal Advocates reviewed Chapter 11 of PG&E's 2022 ERRA testimony regarding costs incurred and recorded in the Green Tariff Shared Renewables Memorandum Account (GTSRMA) and the Green Tariff Shared Renewables Balancing Account (GTSRBA) for the Record Period January 1, 2022 through December 31, 2022.

II. RECOMMENDATIONS

Cal Advocates recommends that the entries recorded in the GTSRBA and GTSRMA be accepted as filed. PG&E agreed to adjust the GTSRMA in the 2023 record period to account for small charges originating from the Energy Efficiency working group that were accidentally included in the GTSRMA. On July 31, 2023, PG&E reclassified $(5,597.93) from the Solar Choice Marketing order number of the GTSRMA to order numbers pertaining to energy efficiency evaluation. Cal Advocates found no issues with the workpapers PG&E provided as supporting evidence of the reclassification. Cal Advocates found that all other 2022 GTSRMA and GTSRBA entries are appropriate, correctly stated, and in compliance with applicable Commission Decisions.

III. GREEN TARIFF SHARED RENEWABLES MEMORANDUM ACCOUNT

In Decision (D.) 15-01-051, the Commission required that administrative and marketing costs for the Green Tariff Shared Renewable (GTSR) program be tracked in a memorandum account and be subject to reasonableness review in each investor-owned utility's (IOU) annual ERRA compliance review. Costs that are found to be unnecessary to fulfill the administrative and marketing needs of the GTSR Program, or costs that are unreasonably incurred above market price cannot be collected from program participants

and will be borne by shareholders. Program startup costs that are found to be reasonable can be amortized.[515] PG&E incurred $313,708 in expenses in the 2022 Record Period.[516]

Table 8-1 shows the breakdown of costs for the Green Tariff Shared Renewables Memorandum Account by category.

Table 7-1[517]
PG&E GTSRMA Recorded Costs
Record Period 2022

Description	Amount
Program Management	$186,117
IT/ Billing System	$16,620
Energy Procurement	$105,066
Contact Center Operations	$TBD
Outreach	$5,905
Total	**$313,708**

IV. GREEN TARIFF RENEWABLES BALANCING ACCOUNT

In D.15-01-051, PG&E's GTSR program design was approved with modifications. The purpose of the GTSRBA is to track revenues received and actual expenses incurred to procure renewable generation resources for customers participating in the GTSR program. In 2022, the ending balance of the GTSRBA was a debit of $7,308,476.

Table 8-2 shows the breakdown of expenses and revenues for the Green Tariff Shared Renewables Balancing Account.

[515] D.15-01-051 at 113.

[516] A.23-02-018 PG&E Direct Confidential Testimony, Chapter 11, at 11-3 lines 10-11.

[517] A.23-02-018 PG&E Direct Confidential Testimony at 11-3, Table 11-1.

Table 7-2[518]
PG&E GTSRBA Expenses and Revenues
Record Period 2022

#	Description	Amount
1	Beginning Balance 1/1/2022	[redacted]
2	2022 YTD Net Revenues – GT Subaccount	[redacted]
3	2022 YTD Net Expenses – GT Subaccount	[redacted]
4	2022 YTD Interest – GT Subaccount	[redacted]
5	Interim Pool True-Up Transfer (PABA)	[redacted]
6 (2+3+4+5)	Disposition	[redacted]
7	**Ending Balance 12/31/2022**	[redacted]

V. CAL ADVOCATES' ANALYSIS

Cal Advocates reviewed PG&E's GTSRBA and GTSRMA for the Record Period to determine whether entries recorded in the GTSRBA and GTSRMA were appropriate, correctly stated, and compliant with applicable Commission Decisions. Cal Advocates' procedures included, but were not limited to, the following:

- Review of PG&E's application, testimony, exhibits, and data request responses;
- Review of Balancing Account Electrical Preliminary Statements and associated tariff line-items;
- Review of applicable advice letters, resolutions, and Commission Decisions;
- Selection of a sample of GTSRBA and GTSRMA monthly tariff line items to determine whether adequate support exists;
- Online meetings with PG&E representatives to discuss details of requested documents;
- Reconciliation of PG&E workpapers with General Ledger entries;
- Examination of invoices, journals, general ledger entries;

[518] A.23-02-018, PG&E Direct Testimony, Ch 11 at 11-11.

- Verification of the mathematical accuracy of accounting worksheets and supporting documentation;
- Review of proof of payments for invoices selected during the audit process;
- Review of monthly interest rates and calculation of monthly interest amounts;

Cal Advocates reviewed a sample of source documents that support the revenues and expenses recorded in the GTSRBA and GTSRMA. Cal Advocate's sample was judgmentally selected by the auditor based on nonrandom sample Auditor assessments of risk which include but are not limited to: internal control environment, financial impact, results of prior reviews, changes to accounting practices.

VI. CONCLUSION

Cal Advocates' review of the GTSRMA and GTSRBA for the 2022 Record Period found one required accounting adjustment. Aside from the noted adjustment, Cal Advocates found that the 2022 GTSRMA administrative and outreach expenses are reasonable, appropriate, correctly stated, and in compliance with applicable Commission Decisions. Cal Advocates found that the 2022 GTSRBA complies with the applicable tariffs and Commission directives.

LIST OF ATTACHMENTS FOR CHAPTER 8

#	Attachment	Description
1	Attachment 8.1	A.23-02-018 - PG&E Data Request 24, ERRA-2022-PGE-Compliance_DR_CalAdvocates_024-Q005
2	Attachment 8.2	A.23-02-018, Chapter 1 Workpapers, ERRA-2022-PGE-Compliance_DR_CalAdvocates_024-Q006
3	Attachment 8.3	A.23-02-018 - PG&E Data Request 24, ERRA-2022-PGE-Compliance_DR_CalAdvocates_024-Q006-Atch01 (Available via Email)

CHAPTER 9 : SUMMARY OF PORTFOLIO ALLOCATION BALANCING ACCOUNT ENTRIES FOR THE RECORD PERIOD

(Witness: Brian Lui and Craig Jenquin)

I. INTRODUCTION AND SUMMARY

This testimony addresses Chapter 12 of PG&E's 2022 ERRA Compliance application, which covers the Portfolio Allocation Balancing Account (PABA) for the Record Period of January 1, 2022 through December 31, 2022. PG&E's Portfolio Allocation Balancing Account (PABA) activity for the Record Period resulted in an over-collection amount of $(333,829,165.83).

II. RECOMMENDATIONS

Cal Advocates finds that the 2022 accounting entries recorded into PABA are appropriate, correctly stated, and in compliance with applicable Commission Decisions. Cal Advocates does not recommend accounting adjustments and does not object to the costs recorded in the PABA.

III. BACKGROUND

D.18-10-019, issued in the Power Charge Indifference Adjustment (PCIA) Rulemaking 17-06-026, significantly modified the accounting for the PCIA by requiring that PCIA revenues from customers and costs be trued-up on an annual basis.[519] Pursuant to D.18-10-019 Ordering Paragraph 7, the investor owned utilities were required to establish the PABA, a two-way cost balancing account with subaccounts for each vintaged portfolio including categories for billed revenues, generation resource costs, net California Independent System Operator (CAISO) market revenues associated with energy and ancillary services, and revenues associated with RPS resources and Resource Adequacy capacity. PG&E Advice Letter 5440-E established the PABA, and updated the ERRA balancing account, Modified Transition Cost Balancing Account (MTCBA) and Utility Owned Balancing Account (UGBA) to be consistent with the PABA.

[519] D.18-10-019, at 161, Ordering Paragraph 6.

The purpose of the PABA is to record the above-market costs for all generation resources eligible for recovery through PCIA rates.[520] The PCIA is recovered from both bundled and departing load customers. The PCIA assigns cost responsibility for vintages of generation resources based upon when the customer departed bundled service. The PABA is comprised of subaccounts for each year's vintage portfolio that record the costs and revenues for categories of generation resource activities executed or approved by the Commission for cost recovery that year.

D.22-01-023, issued in the PCIA Rulemaking 17-06-026 requires that IOUs transfer the year-end ERRA balance to the most recent vintage PABA subaccount following approval of a Tier 2 advice letter.[521]

Activity recorded to the PABA include the following categories: Revenues from Customers; Renewable Portfolio Standard (RPS) Activity; Resource Adequacy (RA) Activity; Adopted Utility Owned Generation (UOG) Revenue Requirements; California Independent System Operator (CAISO) Related Charges and Revenues, Fuel Costs, Contract Costs, Greenhouse Gas (GHG) costs, and Miscellaneous costs.

[520] PG&E's PABA Electric Preliminary Statement Part HS available at ELEC_PRELIM_HS.pdf (pge.com) accessed on July 14, 2023.

[521] Ordering Paragraph 4, at 28.

Table 8-1 below reflects PG&E's PABA accounting entries for the Record Period.

Table 8-1[522]
PG&E PABA Accounting Entries
Record Period 2022

PABA Beginning Balance – 1/1/2022	$(99,511,174)
PABA Net Activity Before Interest	$(236,593,535)
PABA Net Interest	$ 2,275,543.33
PABA Ending Balance – 12/31/2022	$(333,829,166)
PCIA[523] Subaccount Beginning Balance	$0
PCIA Subaccount Ending Balance	$0
Total PABA Ending balance – 12/31/2022	**$(333,829,166)**

IV. CAL ADVOCATES ANALYSIS

Cal Advocates reviewed PG&E's PABA for the Record Period to determine whether entries recorded in the PABA were appropriate, correctly stated, and compliant with applicable Commission Decisions. Cal Advocates' procedures included, but were not limited to, the following:

- Review of PG&E's application, testimony, exhibits, and data request responses;
- Review of Balancing Account Electrical Preliminary Statements and associated tariff line-items;
- Review of applicable advice letters, resolutions, and Commission Decisions;
- Selection of a sample of PABA monthly tariff line items to determine whether adequate support exists;
- Online meetings with PG&E representatives to discuss details of requested documents;
- Reconciliation of PG&E workpapers with General Ledger entries;

[522] A.23-02-018 PG&E Direct Confidential Testimony at 12-32, Table 12-8.

[523] Power Charge Indifference Adjustment

- Examination of invoices, journals, general ledger entries;
- Verification of the mathematical accuracy of accounting worksheets and supporting documentation;
- Review of proof of payments for invoices selected during the audit process;
- Review of monthly interest rates and calculation of monthly interest amounts;

When reviewing the PABA, Cal Advocates also verifies that expenses and revenues are appropriately allocated to PABA vintage subaccounts. Appropriate allocation methodologies include the application of an allocation percentage approved by the Commission in a prior proceeding, or the allocation of expenses and revenues proportional to the output of vintage-dedicated resources.

Cal Advocates reviewed a sample of source documents that support the revenues and expenses recorded in the PABA. Cal Advocate's sample was judgmentally selected by the auditor based on a nonrandom sample. Auditor assessments of risk include but are not limited to: internal control environment, financial impact, results of prior reviews, changes to accounting practices.

V. CONCLUSION

Auditors found no mathematical errors in the calculation of entries recorded in the 2022 PABA Closing Sheet or any documents provided by PG&E to support the requested audit sample. All dollar values included in screenshots of the PG&E accounting System of Record retrieved by auditors were consistent with other PG&E workpapers supporting the calculation of PABA Closing Sheet entries.

CHAPTER 10 : SUMMARY OF ENERGY RESOURCE RECOVERY ACCOUNT ENTRIES FOR THE RECORD PERIOD

(Witness: Brian Lui and Craig Jenquin)

I. INTRODUCTION AND SUMMARY

Cal Advocates reviewed chapter 13 of PG&E's 2022 ERRA testimony for Record Period January 1, 2022 through December 31, 2022. As of December 31, 2022 the balance in PG&E's ERRA balancing account was an under-collection of $560.19 million.

II. RECOMMENDATION

Excepting one transfer and the calculation of one amortization, Cal Advocates found that the 2022 accounting entries recorded into ERRA were appropriate, correctly stated, and in compliance with applicable Commission Decisions. Cal Advocates recommends the 2022 accounting entries recorded into ERRA regarding all Electric Preliminary Statement tariff line-items besides 5.j and 5.ah be accepted as filed.

III. BACKGROUND

Pursuant to D.02-10-062, D.02-12-074 and Public Utilities Code Section 454.5(d)(3), the purpose of the ERRA balancing account is to account for the actual ERRA revenues and electric procurement costs for revenue recovery. The ERRA balancing account was substantially modified by D.18-10-019, issued in the Power Charge Indifference Adjustment (PCIA) rulemaking R.17-06-026. D.18-10-019 ordered the implementation of the Portfolio Allocation Balancing Account (PABA) and included revisions to the ERRA balancing account. The revised ERRA records power costs applicable solely to PG&E's bundled customers. Power costs incurred on behalf of both bundled and departing load customers are recorded in the PABA, the Modified Transition Cost Balancing Account (MCTBA), the New System Generation Balancing Account (NSGBA), the Tree Mortality Non-Bypassable Charge Balancing Account (TMNBCBA), the Public Purpose Charge Balancing Account (PPCBA), or the Bioenergy Market

Adjusting Tariff (BioMAT) Non-bypassable Charge Balancing Account (BMNBCBA).[524]

Table 9-1 below reflects ERRA's accounting entries for the Record Period.

Table 9-1[525]
PG&E ERRA Accounting Entries
Record Period 2022

#		Amount ($)
1	ERRA Beginning Balance – 1/1/2022	[redacted]
2	ERRA Net Activity Before Interest[526] - FY 2022 YTD	[redacted]
3	ERRA Interest and Other	[redacted]
4 = (1+2+3)	ERRA Ending Balance	[redacted]
5	PCIA Subaccount Beginning Balance	[redacted]
6	PCIA Subaccount Net Activity – FY 2022 YTD	[redacted]
7 = (5+6)	PCIA Subaccount Ending Balance	[redacted]
8 = (4+7)	**Total ERRA Ending balance – 12/31/2022**	[redacted]

IV. CAL ADVOCATES ANALYSIS

Cal Advocates reviewed PG&E's ERRA for the Record Period to determine whether entries recorded in the ERRA were appropriate, correctly stated, and compliant with applicable Commission Decisions. Cal Advocates' procedures included, but were not limited to, the following:

- Review of PG&E's application, testimony, exhibits, and data request responses;
- Review of Balancing Account Electrical Preliminary Statements and associated tariff line-items;
- Review of applicable advice letters, resolutions, and Commission Decisions;

[524] PG&E Direct Testimony at 13-2 and Footnote 2 (at 13-1).

[525] A.23-02-018 PG&E Direct Confidential Testimony at 13-12 - 13-14, Table 13-2.

[526] Amount includes ERRA Revenues (credit) totaling [redacted] and ERRA Net Costs and Expenses (debit) totaling [redacted].

- Selection of a sample of ERRA monthly tariff line items to determine whether adequate support exists;
- Online meetings with PG&E representatives to discuss details of requested documents;
- Reconciliation of PG&E workpapers with General Ledger entries;
- Examination of invoices, journals, general ledger entries;
- Verification of the mathematical accuracy of accounting worksheets and supporting documentation;
- Review of proof of payments for invoices selected during the audit process;
- Review of monthly interest rates and calculation of monthly interest amounts;

Cal Advocates reviewed a sample of source documents that support the revenues and expenses recorded in the ERRA. Cal Advocate's sample was judgmentally selected based on a nonrandom sample. Auditor assessments of risk include but are not limited to: internal control environment, financial impact, results of prior reviews, changes to accounting practices.

Cal Advocates recommends the disallowance of $239,862.00 and $29,662.30 recorded to ERRA under Preliminary Statement accounting procedures 5.j and 5.ah, respectively. PG&E stated in discovery that both amounts relate to the AT&T Park Solar Arrays and SF Service Center Solar Plant, which PG&E states to be utility-owned but not PCIA-eligible.

Advice Letter (AL) 5429-G/6407-E authorizes PG&E to recover $115.77 million through the PABA equal to the electric generation portion of the $445.4 million WEMA revenue requirement. AL 6407-E does not indicate that the ERRA is associated with the recovery of the electrical generation expenses recorded in the WEMA. Of the $115.77 million that was authorized for recovery through the PABA, PG&E transferred $115.74 million to the PABA and the remaining $29,662.30 to the ERRA for recovery, stating that "[PG&E] considered recording an accounting reserve due to the ambiguity of authority for transfer but due to the immateriality, [PG&E] decided to transfer the

$29,662 to ERRA account consistent with the rate recovery presented in its 2022 ERRA Forecast Application and approved in D.22-02-002."[527] Cal Advocates recommends that the Commission disallow the recovery of $29,662.30 transferred from WEMA to ERRA in March 2022 because PG&E made the transfer (1) without obtaining explicit authority for the transfer through the Advice Letter or other process and (2) without disclosing the deviation from AL 6407-E in PG&E's testimony served in this or other proceedings.

PG&E's ERRA Electric Preliminary Statement (EPS) tariff line-item 5.j (Accounting Procedures; Utility-Owned Generation Related Entries) records "ESA[528] costs associated with bundled customer portfolio/procurement activity (which is embedded in the annual authorized revenue requirements associated with PG&E's owned generation)." Cal Advocates found that PG&E inappropriately included $239,862 of non-ESA charges in an amortization submitted for recovery under EPS item 5.j, which explicitly recovers ESA costs only. PG&E stated that non-ESA costs recorded for recovery in ERRA include decommissioning costs, O&M costs, and some expenses associated with depreciation and return. However, PG&E confirmed that depreciation and expenses related to return on equity specifically should not be included in the ERRA. Cal Advocates found that PG&E (1) inappropriately included depreciation and return costs in the ERRA (2) included non-ESA costs under a tariff line-item which explicitly records ESA costs and (3) did not appropriately notify the Commission of these deviations from existing directives in its accounting records and testimony filed in this proceeding.

V. CONCLUSION

Cal Advocates found that, with two exceptions contributing to EPS tariff line-items 5.j and 5.ah, the 2022 accounting entries recorded into ERRA were reasonable, correctly stated, and in compliance with applicable Commission Decisions.

[527] ERRA-2022-PGE-Compliance_DR_CalAdvocates_010-Q001_F42-CONF.

[528] Electric Supply Administration.

Cal Advocates recommends that the commission disallow the recovery of $29,662.30 transferred from the WEMA and recorded to tariff line-item 5.ah of the ERRA. PG&E did not obtain prior authorization for the transfer. The transfer also conflicts with the language approved in AL 6407-E. PG&E failed to disclose in its testimony that its accounting entries deviated from what was previously authorized by the Commission.

Cal Advocates also recommends that the Commission disallow the recovery of $239,862 of non-ESA costs contributing to the amortization of GRC UOG revenue requirement recorded in tariff line-item 5.j of the ERRA. The recovery of non-ESA costs under accounting procedure 5.j of the ERRA Electric Preliminary Statement conflicts with PG&E's tariff. As a result, PG&E included depreciation and return costs (non-ESA costs) inappropriately for recovery through the ERRA.

LIST OF ATTACHMENTS FOR CHAPTER 10

#	Attachment	Description
1	Attachment 10.1	AL 6407-E
2	Attachment 10.2	A.23-02-018 - PG&E Data Request 24, ERRA-2022-PGE-Compliance_DR_CalAdvocates_024-Q002.
3	Attachment 10.3	A.23-02-018 - PG&E Data Request 24, ERRA-2022-PGE-Compliance_DR_CalAdvocates_024-Q003-Atch01. (Available via Email)
4	Attachment 10.4	A.23-02-018 - PG&E Data Request 24, ERRA-2022-PGE-Compliance_DR_CalAdvocates_024-Q004.
5	Attachment 10.5 (Confidential)	A.23-02-018 - PG&E Data Request 10, ERRA-2022-PGE-Compliance_DR_CalAdvocates_010-Q001_F42-CONF. (Available via email)
6	Attachment 10.6	A.23-02-018 - PG&E Data Request 22, ERRA-2022-PGE-Compliance_DR_CalAdvocates_022-Q001.
7	Attachment 10.7	A.23-02-018 - PG&E Data Request 22, ERRA-2022-PGE-Compliance_DR_CalAdvocates_022-Q002Supp001.
8	Attachment 10.8	A.23-02-018 - PG&E Data Request 22, ERRA-2022-PGE-Compliance_DR_CalAdvocates_022-Q004Supp001.
9	Attachment 10.9 (Confidential)	A.23-02-018 - PG&E Data Request 22, ERRA-2022-PGE-Compliance_DR_CalAdvocates_010-Q001_F17_Pt02-CONF. (Available via email)

CHAPTER 11 : REVIEW ENTRIES RECORDED IN THE DISADVANTAGED COMMUNITY – SINGLE FAMILY AFFORDABLE SOLAR HOMES BALANCING ACCOUNT AND THE DISADVANTAGED COMMUNITY – SINGLE FAMILY AFFORDABLE SOLAR HOMES MEMORANDUM ACCOUNT

(Witness: Brian Lui and Craig Jenquin)

I. INTRODUCTION AND SUMMARY

This testimony addresses Chapter 15 of PG&E's 2022 ERRA compliance application, which covers the Disadvantaged Community – Single Family Affordable Solar Homes Memorandum Account (DACSASHMA) and Disadvantaged Community – Single Family Affordable Solar Homes Balancing Account (DACSASHBA) for the Record Period of January 1, 2022 through December 31, 2022. The DACSASHBA is a sub-account of PG&E's Public Policy Charge Balancing Account (PPCBA).

II. RECOMMENDATIONS

Cal Advocates found that 2022 accounting entries recorded into DACSASHBA were appropriate, correctly stated, and in compliance with applicable Commission Decisions. Cal Advocates recommends the 2022 accounting entries recorded into the DACSASHBA be accepted as filed.

III. BACKGROUND

Assembly Bill 327 required the Commission to develop alternative programs to increase the adoption and growth of renewable generation in disadvantaged communities. Commission Decision (D.) 18-06-027 adopted the Disadvantaged Community – Single-Family Affordable Solar Housing (DAC SASH) Program, along with the Disadvantaged Community Green Tariff (DAC-GT) and Community Solar Green Tariff (CS-GT) programs.

PG&E filed Advice Letter 5351-E establishing the Public Purpose Charge Balancing Account (PPCBA) with two subaccounts to track the costs and revenues associated with the DAC-GT and CS-GT programs.

Pursuant to Ordering Paragraph 8 of D.18-06-027, the DAC SASH Program has an annual budget of $10 million per year beginning on January 1, 2019 and continuing through the end of 2030. PG&E's proportionate share of the $10 million per year is 43.7 percent, or $4.37 million per year.[529] In accordance with D.18-06-027, PG&E filed Advice Letter 5363-E to implement the DACSASHBA.[530] PG&E Advice Letter 5363-E was approved by the Commission on January 24, 2019 and effective as of September 19, 2018.

D.18-06-027 also required that start-up costs for the DAC-SASH program be tracked in a memorandum account and reviewed in each investor-owned-utility's ERRA proceeding.[531] PG&E filed Advice Letter 5361-E to establish the DACSASHMA.[532] PG&E Advice Letter 5361-E was approved by the Commission on December 14, 2018 and effective as of August 20, 2018.

[529] D.18-06-027, Appendix A, at A-6.

[530] PG&E Advice Letter 5363-E https://www.pge.com/tariffs/assets/pdf/adviceletter/ELEC_5363-E.pdf, accessed on August 17, 2023.

[531] D.18-06-027 Ordering Paragraph 10, at 103.

[532] PG&E Advice Letter 5361-E https://www.pge.com/tariffs/assets/pdf/adviceletter/ELEC_5361-E.pdf, accessed on August 17, 2023.

Table 10-1 below reflects DACSASHBA's expenses for the Record Period.

Table 10-1
PG&E DACSASHBA Recorded Expenses[533]
Record Period 2022

Line No	Description	Amount ($)
1	PG&E Program Management	$44,306
2	Independent Evaluation Contract Expenses	$131,048
3	Program Administrator (PA) Administrative Expenses	$696,467
4	Incentives	$3,866,544
	Total	$4,738,365

For the 2022 record period, no additional start-up costs and no additional expenses were incurred in the DACSASHMA.[534] PG&E requested to retire the DACSASHMA in its 2021 ERRA Compliance proceeding.[535]

IV. CAL ADVOCATES ANALYSIS

Cal Advocates reviewed PG&E's DACSASHBA for the Record Period to determine whether entries recorded in the DACSASHBA were appropriate, correctly stated, and compliant with applicable Commission Decisions. Cal Advocates' procedures included, but were not limited to, the following:

- Review of PG&E's application, testimony, exhibits, and data request responses;
- Review of Balancing Account Electrical Preliminary Statements and associated tariff line-items;
- Review of applicable advice letters, resolutions, and Commission Decisions;

[533] PG&E Direct Testimony, Table 15-1 at 15-2.

[534] PG&E Direct testimony at 15-4, 7-9.

[535] A.22-02-015, PG&E Direct Confidential Testimony, Chapter 15 at 15-4.

- Selection of a sample of DACSASHBA monthly tariff line items to determine whether adequate support exists;
- Online meetings with PG&E representatives to discuss details of requested documents;
- Reconciliation of PG&E workpapers with General Ledger entries;
- Examination of invoices, journals, general ledger entries;
- Verification of the mathematical accuracy of accounting worksheets and supporting documentation;
- Review of proof of payments for invoices selected during the audit process;
- Review of monthly interest rates and calculation of monthly interest amounts;

Cal Advocates reviewed a sample of source documents that support the revenues and expenses recorded in the DACSASHBA. Cal Advocate's sample was judgmentally selected by the auditor and based on a nonrandom sample. Auditor assessments of risk include but are not limited to: internal control environment, financial impact, results of prior reviews, changes to accounting practices.

V. CONCLUSION

Auditors found no mathematical errors in the calculation of entries recorded in the 2022 DACSASHBA Closing Sheet or documents provided by PG&E to support the requested audit sample. All screenshots of PG&E Systems of Record were consistent with other PG&E workpapers supporting the calculation of DACSASHBA Closing Sheet entries.

CHAPTER 12 : CENTRAL PROCUREMENT ENTITY ENTRIES RECORDED TO THE CENTRALIZED LOCAL PROCUREMENT SUB-ACCOUNT

(Witness: Brian Lui and Craig Jenquin)

I. INTRODUCTION AND SUMMARY

This testimony addresses Chapter 16 of PG&E's 2022 ERRA compliance application, which covers the administrative costs for the Central Procurement Entity (CPE) recorded to the Centralized Local Procurement Sub-Account (CLPSA) for the Record Period of January 1, 2022 through December 31, 2022.

II. RECOMMENDATIONS

Cal Advocates recommends the CPE administrative costs recorded in the CLPSA for the 2022 Record Period be accepted as filed.

III. BACKGROUND

The Commission issued Decision (D.) 20-06-002 on June 17, 2020. D.20-06-002 ordered PG&E to serve as the CPE for PG&E's distribution service area for the multi-year local Resource Adequacy (RA) program beginning for the 2023 RA compliance year.[536] D.20-06-002 directed PG&E to submit the administrative costs in the ERRA forecast and compliance proceedings.[537]

The Commission approved PG&E Advice Letter (AL) 5919-E, effective September 16, 2020.[538] PG&E AL 5919-E established the CLPSA as a sub-account of the New System Generation Balancing Account (NSGBA). The CPE administrative costs are among other costs outlined in the CLPSA. Chapter 16 of PG&E's testimony deal solely with the CPE administrative costs in the CLPSA.

[536] D.20-06-002, at 91, Ordering Paragraph 2.

[537] D.20-06-002 at 55-56.

[538] PG&E AL 5919-E available at: https://www.pge.com/tariffs/assets/pdf/adviceletter/ELEC_5919-E.pdf. Accessed July 14, 2023.

Table 11-1 below reflects PG&E's CPE administrative costs for the Record Period.

Table 11-1
PG&E CPE Administrative Costs[539]
Record Period 2022

Line No	Description	Amount ($)
1	CPE Implementation Team Costs	1,215,939
2	CPE Supporting Function Costs	306,152
3	Independent Evaluator (IE) Cost	100,454
4	Total	$1,622,545

IV. CAL ADVOCATES ANALYSIS

Cal Advocates reviewed PG&E's CLPSA for the Record Period to determine whether entries recorded in the CLPSA were appropriate, correctly stated, and compliant with applicable Commission Decisions. Cal Advocates' procedures included, but were not limited to, the following:

- Review of PG&E's application, testimony, exhibits, and data request responses;
- Review of Balancing Account Electrical Preliminary Statements and associated tariff line-items;
- Review of applicable advice letters, resolutions, and Commission Decisions;
- Selection of a sample of CLPSA monthly tariff line items to determine whether adequate support exists;
- Online meetings with PG&E representatives to discuss details of requested documents;
- Reconciliation of PG&E workpapers with General Ledger entries;
- Examination of invoices, journals, general ledger entries;

[539] PG&E Direct Testimony, Table 16-1 at 16-2.

- Verification of the mathematical accuracy of accounting worksheets and supporting documentation;
- Review of proof of payments for invoices selected during the audit process;
- Review of monthly interest rates and calculation of monthly interest amounts;

Cal Advocates reviewed a sample of source documents that support the administrative costs recorded in the CLPSA. Cal Advocate's sample was judgmentally selected by the auditor and was based on a nonrandom sample. Auditor assessments of risk include but are not limited to: internal control environment, financial impact, results of prior reviews, changes to accounting practices.

V. CONCLUSION

Cal Advocates recommends the CPE administrative costs recorded in the CLPSA for the 2022 Record Period be accepted as filed.

APPENDIX A

QUALIFICATIONS OF WITNESESS

QUALIFICATIONS AND PREPARED TESTIMONY
OF
KARL STELLRECHT

Q.1 Please state your name and business address.

A.1 My name is Karl Stellrecht and my business address is 505 Van Ness Avenue, San Francisco, CA 94102. I am a Public Utilities Regulatory Analyst in the Electric Pricing and Customer Programs Branch of the Office of Ratepayer Advocates.

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

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

Q.3 Briefly state your educational background and experience.

A.3 I have a Bachelor of Arts in Environmental Studies from the University of California, Santa Barbara, and a Masters of Arts in International Environmental Policy from the Monterey Institute of International Studies. I started working at the Commission in 2017 in the Public Advocates Office's Electricity Planning and Policy Branch. In the Public Advocates Office, I am involved in the ERRA Forecast and Compliance proceedings as well as Direct Access and Provider of Last Resort Proceedings. My previous experience includes working on energy industry issues for the consulting firm Eastern Research Group and as a program coordinator at the National Association of Regulatory Utility Commissioners (NARUC).

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

A.4 I am the Project Coordinator and am responsible for Chapter 1 – Executive Summary.

Q.5 Does this complete your testimony at this time?

A.5 Yes, it does.

PREPARED TESTIMONY AND QUALIFICATIONS
OF
STANLEY KUAN

Q1. Please state your name, business address, and position with Cal Advocates.

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 Cal Advocates as a Regulatory Analyst.

Q2. Please summarize your educational 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 in Washington D.C. I have been employed by Cal Advocates on the Procurement Cost Recovery team of the Electricity Planning and Policy Branch for 1 year and 9 months. Before that, I was an analyst with the Cal Advocates on the Customer Programs team of the Electric Pricing and Customer Programs Branch for approximately 4 years. In my experience at the CPUC, I have worked on or am working on proceedings related to the Energy Resources Recovery Account (ERRA), the Power Charge Indifference Adjustment (PCIA) Rulemaking (R.17-06-026), the Net Energy Metering (NEM) Disadvantaged Communities (DAC) (Rulemaking (R.) 14-07-002, San Joaquin Valley (SJV) DAC proceeding (R.15-03-010), Demand Response Auction Mechanism (DRAM) (Application (A.) 17-01-012, SDG&E Maritime Rate Application (A.17-09-005).

Q3. What is your responsibility in this proceeding?

A3. I am responsible for Chapter 2 "Least Cost Dispatch."

Q4. Does this conclude your prepared direct testimony?

A4. Yes, it does.

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 the 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 3 – Utility-Owned Generation – Hydroelectric.

Q.5 Does this complete your testimony at this time?

A.5 Yes, it does.

QUALIFICATIONS AND PREPARED TESTIMONY
OF
HELENA OH

Q.1 Please state your name and business address.

A.1 My name is Helena Oh. My business address is 505 Van Ness Avenue, San Francisco, CA 94102.

Q.2 By whom are you employed and what is your job title?

A.2 I am employed by the California Public Utilities Commission as a Public Utilities Regulatory Analyst in the Electricity Planning and Policy Branch of the Public Advocates Office.

Q.3 Will you please briefly state your educational background and experience?

A.3 I hold a Master of Arts in International Relations with a concentration in Energy, Resources and Environment from the Johns Hopkins University and a Bachelor of Science degree in Journalism and Economics from Northwestern University. I joined the Public Advocates Office in October of 2015 and I joined the Procurement team in September 2018. In my first three years at the Public Advocates Office, I advocated for ratepayers in customer program proceedings, such as net energy metering, behind-the-meter battery storage projects and demand response. On the procurement team, I am the lead analyst for the Public Advocates Office's Integrated Resource Planning modeling efforts.

Q.4 What testimony are you sponsoring in this proceeding?

A.4 I am responsible for the analysis and the testimony of the contract administration chapter; Chapter 9.

Q.5 Does this complete your testimony at this time?

A.5 Yes, it does.

QUALIFICATIONS AND PREPARED TESTIMONY
OF
KYLE NAVIS

Q.1 Please state your name and business address.

A.1 My name is Kyle Navis and my business address is 505 Van Ness Avenue, San Francisco, CA 94102. I am a Public Utilities Regulatory Analyst in the Electricity Planning and Policy Branch of the Office of Ratepayer Advocates.

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

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

Q.3 Briefly state your educational background and experience.

A.3 I have a Bachelor of Arts in Peace Studies from Whitworth University (Spokane, WA), and a Master of Arts in International Affairs from the University of California, San Diego. I started working at the Commission in 2020 in the Electricity Planning and Policy Branch. In the Public Advocates Office, I am involved in ERRA Compliance proceedings as well as the Resource Adequacy, Emergency Reliability, Integrated Resource Planning, and Provider of Last Resort proceedings. I also contribute to Public Advocates Office engagement at the California Independent System Operator's Resource Adequacy Enhancements stakeholder initiative. My previous experience includes researching the use of mobile platforms for delivering government services at the Center For Global Development (Washington, DC), managing community development programs for the Mennonite Central Committee (Santa Cruz, Bolivia), and teaching science for the School District of Philadelphia (PA).

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

A.4 I am the witness for Chapter 7 – Contract Administration.

Q.5 Does this complete your testimony at this time?

A.5 Yes, it does.

QUALIFICATIONS AND PREPARED TESTIMONY
OF
BRIAN LUI AND CRAIG JENQUIN

Q.1 Please state your name and business address.

A.1 My name is Brian Lui. My business address is 505 Van Ness Ave, San Francisco, California, 94102.

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

A.2 I am employed by the California Public Utilities Commission (CPUC) as a Public Utilities Financial Examiner in the Public Advocates Office, Electricity Planning & Policy Branch.

Q.3 Please describe your educational and professional experience.

A.3 I hold a Masters Degree in Accounting from Golden Gate University in San Francisco. I also received a Bachelors of Science Degree in Biochemistry from the University of California, Riverside. I joined the Commission on January 7, 2014 in the Public Advocates Office's Electricity Planning and Policy Branch. In the Public Advocates Office, I am involved in the ERRA Forecast and ERRA Compliance proceedings. Immediately prior to joining the Commission, I worked for the California State Board of Equalization as a tax auditor. I have over 9 years of experience working as an auditor in the public sector.

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

A.4 I am responsible for:

- Chapter 4: Review Entries Recorded in the Disadvantaged Community – Green Tariff Balancing Account and the Community Solar Green Tariff Balancing Account;
- Chapter 5: Generation Fuel Costs;
- Chapter 9: Review Entries Recorded in the Green Tariff Shared Renewables Memorandum Account and the Green Tariff Shared Renewables Balancing Account;
- Chapter 10: Summary of Portfolio Allocation Balancing Account Entries for the Record Period;
- Chapter 11: Summary of Energy Resource Recovery Account Entries for the Record Period;
- Chapter 12: Review Entries Recorded in the Disadvantaged Community – Single Family Affordable Solar Homes Balancing Account and the Disadvantaged Community – Single Family Affordable Solar Homes Memorandum Account; and

- Chapter 13: Central Procurement Entity Entries Recorded to the Centralized Local Procurement Sub-Account.

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 Bachelors of Science in Applied Mathematics and a Bachelors of Arts in Linguistics from the University of California, San Diego (UCSD). I joined the Commission on August 29th, 2022 in the Electricity Planning and Policy branch of Public Advocates Office in the Procurement Cost Recovery Department. At the Public Advocates Office, I am involved in ERRA Forecast and ERRA Compliance proceedings. Prior to joining the Commission, I worked for over a year as a quality assurance assistant for a neurological and sociological study operating out of UCSD.

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

A.4 I am responsible for:

- Chapter 4: Review Entries Recorded in the Disadvantaged Community – Green Tariff Balancing Account and the Community Solar Green Tariff Balancing Account;
- Chapter 5: Generation Fuel Costs;
- Chapter 9: Review Entries Recorded in the Green Tariff Shared Renewables Memorandum Account and the Green Tariff Shared Renewables Balancing Account;
- Chapter 10: Summary of Portfolio Allocation Balancing Account Entries for the Record Period;
- Chapter 11: Summary of Energy Resource Recovery Account Entries for the Record Period;
- Chapter 12: Review Entries Recorded in the Disadvantaged Community – Single Family Affordable Solar Homes Balancing Account and the Disadvantaged Community – Single Family Affordable Solar Homes Memorandum Account; and

- Chapter 13: Central Procurement Entity Entries Recorded to the Centralized Local Procurement Sub-Account.

Q.5 Does this complete your testimony at this time?

A.5 Yes, it does.

QUALIFICATIONS AND PREPARED TESTIMONY
OF
THOMAS GARIFFO

Q.1 Please state your name and business address.

A.1 My name is Thomas Gariffo. 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 Public Utilities Regulatory Analyst in the Public Advocates' Office (Cal PA) Electricity Planning and Policy Branch.

Q.3 Briefly state your educational background and experience.

A.3 I have a Master of Public Policy degree from the Luskin School of Public Affairs at the University of California, Los Angeles. I also have a Bachelor of Arts degree in Political Science with a minor in Public Policy from the University of California, Berkeley. I have worked as a greenhouse gas policy subject matter expert in the Climate Change Initiatives section of Cal PA for seven years, along with providing analysis for policies in proceedings regarding transportation electrification, Low Carbon Fuel Standards (LCFS), the Electric Program Investment Charge (EPIC), California's Renewable Portfolio Standards (RPS), and biofuels.

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

A.4 I am responsible for reviewing GHG compliance reporting in the filing.

Q.5 Does this complete your testimony at this time?

A.5 Yes, it does.