

PUBLIC UTILITIES COMMISSION  
505 Van Ness Avenue  
San Francisco CA 94102-3298



**Pacific Gas & Electric Company**  
**ELC (Corp ID 39)**  
**Status of Advice Letter 7068E**  
**As of December 28, 2023**

Subject: Diablo Canyon Power Plant Transition and Relicensing Memorandum Account Recorded Costs Department of Water Resources Spring 2023 Semiannual True-Up Review Report

Division Assigned: Energy

Date Filed: 11-15-2023

Date to Calendar: 11-17-2023

Authorizing Documents: D2212005

<b>Disposition:</b>	<b>Accepted</b>
<b>Effective Date:</b>	<b>11-15-2023</b>

Resolution Required: No

Resolution Number: None

Commission Meeting Date: None

CPUC Contact Information:

[edtariffunit@cpuc.ca.gov](mailto:edtariffunit@cpuc.ca.gov)

AL Certificate Contact Information:

Kimberly Loo

(279)789-6209

[PGETariffs@pge.com](mailto:PGETariffs@pge.com)

**PUBLIC UTILITIES COMMISSION**  
505 Van Ness Avenue  
San Francisco CA 94102-3298



To: Energy Company Filing Advice Letter

From: Energy Division PAL Coordinator

Subject: Your Advice Letter Filing

The Energy Division of the California Public Utilities Commission has processed your recent Advice Letter (AL) filing and is returning an AL status certificate for your records.

The AL status certificate indicates:

- Advice Letter Number
- Name of Filer
- CPUC Corporate ID number of Filer
- Subject of Filing
- Date Filed
- Disposition of Filing (Accepted, Rejected, Withdrawn, etc.)
- Effective Date of Filing
- Other Miscellaneous Information (e.g., Resolution, if applicable, etc.)

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Energy Division's Tariff Unit by e-mail to  
**[edtariffunit@cpuc.ca.gov](mailto:edtariffunit@cpuc.ca.gov)**



November 15, 2023

**Advice 7068-E**

(Pacific Gas and Electric Company ID U 39 E)

Public Utilities Commission of the State of California

**Subject: Diablo Canyon Power Plant Transition and Relicensing Memorandum Account Recorded Costs Department of Water Resources Spring 2023 Semiannual True-Up Review Report**

**Purpose**

The purpose of this advice letter is to provide the Department of Water Resources (DWR) Spring 2023 Semiannual True-Up Report on costs entered into the Diablo Canyon Power Plant Transition and Relicensing Memorandum Account (DCTRMA) in accordance with Decision (D.) 22-12-005, Ordering Paragraph (OP) 5.

**Background**

On December 1, 2022, the Commission approved D.22-12-005 implementing the requirements of Senate Bill 846. OP 5 of D.22-12-005 directs PG&E to submit the following information via tier 1 advice letter:

*Within 15 days after Pacific Gas and Electric Company (PG&E) receives the result of the Department of Water Resources' semi-annual true-up review, PG&E shall file a Tier 1 Advice Letter containing a report of the costs entered into the Diablo Canyon Power Plant Transition and Relicensing Memorandum Account (DCTRMA), until such time that the DCTRMA is terminated by Commissioner order.*

On April 14, 2023, PG&E submitted its first semiannual true-up for the period September 2, 2022, through March 31, 2023, to the DWR. On November 1, 2023, the DWR issued the *Diablo Canyon Power Plant Spring 2023 Semiannual True-Up Report* (DWR's Report).<sup>1</sup> DWR's Report found "[t]he total costs related to DCPD license renewal for the Spring 2023 Period were \$11,137,992. DWR found these costs to be eligible, reasonable,

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<sup>1</sup> Although DWR's Report states October 31, 2023, as the publishing date, DWR's Report was received by PG&E from DWR on November 1, 2023.

and in the public interest.”<sup>2</sup> A copy of DWR’s Report is provided as Attachment 1 to this advice letter.

On March 1, 2023, PG&E submitted Advice 6870-E requesting the Commission issue a resolution pursuant to D.22-12-005 and General Order 96-B approving two new regulatory accounts, the DCTRMA and the Diablo Canyon Extended Operations Balancing Account.<sup>3</sup> At the time of this submittal, the DCTRMA was pending Commission approval.

### **Protests**

Anyone wishing to protest this submittal may do so by letter sent electronically via E-mail, no later than December 5, 2023, which is 20 days after the date of this submittal. Protests must be submitted to:

CPUC Energy Division  
ED Tariff Unit  
E-mail: EDTariffUnit@cpuc.ca.gov

The protest shall also be electronically sent to PG&E via E-mail at the address shown below on the same date it is electronically delivered to the Commission:

Sidney Bob Dietz II  
Director, Regulatory Relations  
c/o Megan Lawson  
E-mail: PGETariffs@pge.com

Any person (including individuals, groups, or organizations) may protest or respond to an advice letter (General Order 96-B, Section 7.4). The protest shall contain the following information: specification of the advice letter protested; grounds for the protest; supporting factual information or legal argument; name and e-mail address of the protestant; and statement that the protest was sent to the utility no later than the day on which the protest was submitted to the reviewing Industry Division (General Order 96-B, Section 3.11).

### **Effective Date**

Pursuant to General Order (GO) 96-B, Rule 5.1, (and OP 5 of D.22-12-005), this advice letter is submitted with a Tier 1 designation. PG&E requests that this Tier 1 advice submittal become effective upon date of submittal, which is November 15, 2023.

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<sup>2</sup> October 31, 2023, Diablo Canyon Power Plant Spring 2023 Semiannual True-Up Report (For September 2, 2022, through March 31, 2023), p. 4

<sup>3</sup> D.22-12-005, OP 4 (directing PG&E to provide a detailed and complete accounting structure for the DCTRMA and DCEOBA); See also, Advice 6870-E-A submitted on April 12, 2023.

**Notice**

In accordance with General Order 96-B, Section IV, a copy of this advice letter is being sent electronically to parties shown on the attached list. Address changes to the General Order 96-B service list should be directed to PG&E at email address PGETariffs@pge.com. For changes to any other service list, please contact the Commission's Process Office at (415) 703-2021 or at Process\_Office@cpuc.ca.gov. Send all electronic approvals to PGETariffs@pge.com. Advice letter submittals can also be accessed electronically at: <http://www.pge.com/tariffs/>.

\_\_\_\_\_/S/

Sidney Bob Dietz II  
Director, Regulatory Relations  
CPUC Communications

**Attachments**

Attachment 1 - Diablo Canyon Power Plant Spring 2023 Seminannual True-Up Report



# ADVICE LETTER SUMMARY

## ENERGY UTILITY



MUST BE COMPLETED BY UTILITY (Attach additional pages as needed)

Company name/CPUC Utility No.: Pacific Gas and Electric Company (ID U39 E)

Utility type:

- ELC       GAS       WATER  
 PLC       HEAT

Contact Person: Kimberly Loo

Phone #: (279)789-6209

E-mail: PGETariffs@pge.com

E-mail Disposition Notice to: KELM@pge.com

EXPLANATION OF UTILITY TYPE

ELC = Electric      GAS = Gas      WATER = Water  
 PLC = Pipeline      HEAT = Heat

(Date Submitted / Received Stamp by CPUC)

Advice Letter (AL) #: 7068-E

Tier Designation: 1

Subject of AL: Diablo Canyon Power Plant Transition and Relicensing Memorandum Account Recorded Costs Department of Water Resources Spring 2023 Semiannual True-Up Review Report

Keywords (choose from CPUC listing): Compliance, Memorandum Account

AL Type:  Monthly  Quarterly  Annual  One-Time  Other:

If AL submitted in compliance with a Commission order, indicate relevant Decision/Resolution #: D.22-12-005

Does AL replace a withdrawn or rejected AL? If so, identify the prior AL: No

Summarize differences between the AL and the prior withdrawn or rejected AL:

Confidential treatment requested?  Yes  No

If yes, specification of confidential information:

Confidential information will be made available to appropriate parties who execute a nondisclosure agreement. Name and contact information to request nondisclosure agreement/ access to confidential information:

Resolution required?  Yes  No

Requested effective date: 11/15/23

No. of tariff sheets: N/A

Estimated system annual revenue effect (%): N/A

Estimated system average rate effect (%): N/A

When rates are affected by AL, include attachment in AL showing average rate effects on customer classes (residential, small commercial, large C/I, agricultural, lighting).

Tariff schedules affected:

Service affected and changes proposed<sup>1</sup>: N/A

Pending advice letters that revise the same tariff sheets: N/A

<sup>1</sup>Discuss in AL if more space is needed.

**Protests and correspondence regarding this AL are to be sent via email and are due no later than 20 days after the date of this submittal, unless otherwise authorized by the Commission, and shall be sent to:**

California Public Utilities Commission  
Energy Division Tariff Unit Email:  
[EDTariffUnit@cpuc.ca.gov](mailto:EDTariffUnit@cpuc.ca.gov)

Contact Name: Sidnev Bob Dietz II. c/o Megan Lawson  
Title: Director, Regulatory Relations  
Utility/Entity Name: Pacific Gas and Electric Company  
  
Telephone (xxx) xxx-xxxx:  
Facsimile (xxx) xxx-xxxx:  
Email: PGETariffs@pge.com

Contact Name:  
Title:  
Utility/Entity Name:  
  
Telephone (xxx) xxx-xxxx:  
Facsimile (xxx) xxx-xxxx:  
Email:

CPUC  
Energy Division Tariff Unit  
505 Van Ness Avenue  
San Francisco, CA 94102

Clear Form

# **Attachment 1**

**Diablo Canyon Power Plant Spring 2023 Seminannual  
True-Up Report**



Diablo Canyon Power Plant  
Spring 2023 Semiannual True-Up Report  
(For September 2, 2022 through March 31, 2023)

**October 31, 2023**

DEPARTMENT OF WATER RESOURCES

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## 1 Executive Summary

California is transitioning to one hundred percent clean electricity and leading the nation in electrification. At the same time, climate change-induced extreme weather and emergencies are negatively impacting electric reliability.

To address California's growing electricity needs during this energy transition, Senate Bill (SB) 846 (Dodd, Chapter 239, Statutes of 2022) preserves the option of continued operations at the 2,240 megawatt (MW) Diablo Canyon Power Plant (DCPP) to improve statewide electric reliability and reduce greenhouse gas (GHG) emissions while additional renewable and zero-carbon resources are built. DCPP currently supplies approximately 17 percent of California's zero-carbon electricity supply and 8.6 percent of California's total electricity supply but its two nuclear reactors are scheduled to retire in November 2024 and August 2025. SB 846 found that actions to extend DCPP's operations for a renewed license term are prudent, cost effective, and in the best interests of all California electricity customers.

SB 846 established the Diablo Canyon Extension Fund and authorized the Department of Water Resources (DWR) to use the fund to enter into a loan agreement with Pacific Gas & Electric Company (PG&E), DCPP's owner and operator. The fund and loan agreement would provide up to \$1.4 billion to facilitate the extension of the operating period of DCPP's two nuclear reactors, extending the retirement date for Unit 1 from November 2, 2024 to no later than October 31, 2029 and for Unit 2 from August 26, 2025 to no later than October 31, 2030.

SB 846 requires DWR, in collaboration with the California Public Utilities Commission (CPUC), to conduct a semiannual true-up, which reviews PG&E's use of loan proceeds. Pursuant to Public Resources Code Section 25548.4, in each review DWR is to determine:

- 1) **Cost eligibility** - Whether PG&E used loan proceeds to pay only for eligible costs and that no loan proceeds were treated as shareholder profits or paid out as dividends;
- 2) **Cost reasonableness** - Whether eligible costs were reasonable;
- 3) **Costs in the public interest** - Whether the costs are in the public interest; and
- 4) **CPUC staff determination** - Whether the CPUC has not authorized rate recovery of the same costs and other considerations deemed appropriate by CPUC staff

The Spring 2023 Semiannual True-up period (Spring 2023 Period) is from September 2, 2022 through March 31, 2023. PG&E submitted a report on April 14, 2023, with all supporting data, including confidential and market sensitive expenditure details and contracts to DWR. The total costs related to DCPD license renewal for this Spring 2023 Period were \$11,137,992. DWR found these costs to be eligible, reasonable, and in the public interest.

Next, DWR collaborated with CPUC to review these costs. The CPUC has confirmed that the costs incurred in 2022 for which PG&E seeks reimbursement have not already been authorized in rate recovery. For 2023 costs, CPUC is conditionally approving the costs at this time pending approval of PG&E's upcoming rate recovery case and completion of scope of work on DCPD tasks.

Table ES - 1 below summarizes the total net allowable loan proceeds for this semiannual true-up period. Column [A] reproduces PG&E's submitted costs by category. Column [B] summarizes any DWR disallowed costs based on eligibility and reasonableness. Column [C] summarizes CPUC staff disallowed costs based on whether the costs have already been authorized in rate recovery and any other CPUC considerations. Column [D] subtracts DWR and CPUC disallowed costs from PG&E's total costs.

**Table ES - 1: Spring 2023 Semiannual True-up Allowable Loan Proceeds**

	<b>[A]</b>	<b>[B]</b>	<b>[C]</b>	<b>[D]</b>
<b>Cost category</b>	<b>PG&amp;E Submitted Costs</b>	<b>DWR Disallowed Costs</b>	<b>CPUC Disallowed Costs</b>	<b>Allowable Loan Proceeds [A] - [B] - [C]</b>
Capital	\$235,515	\$0	\$0	\$235,515
Operating	\$1,099,176	\$0	\$0	\$1,099,176
License renewal	\$4,163,744	\$0	\$0	\$4,163,744
Transition and Fuel	\$5,639,557	\$0	\$0	\$5,639,557
<b>Total</b>	<b>\$11,137,992</b>	<b>\$0</b>	<b>\$0</b>	<b>\$11,137,992</b>

Note: Includes CPUC conditionally approved costs.

For the Spring 2023 Period, DWR found \$11,137,992 of costs incurred related to DCPD license renewal to be eligible, reasonable, in the public interest, and the CPUC has not authorized rate recovery of the same costs pursuant to Public Resources Code Section 25548.4(b). Furthermore, PG&E has certified that loan proceeds are not treated as shareholder profits or paid out as dividends pursuant to Public Resources Code Section 25548.4(c).

There were numerous internal and external factors that slowed the expected rate of spend for each of the five major cost categories compared with previous estimates. PG&E acknowledged and explained each factor but does not

believe any of the delays will negatively impact its progress towards or chance of success in extending operations at DCPD or its continued safe and reliable operation. Furthermore, PG&E does not expect overall expenditures to be substantively less than the previously projected \$1.1 billion in extended operation costs. PG&E expects the rate of expenditures to increase over time and DWR will assess changes in subsequent semiannual true-up reports.

The next major milestone for DCPD is the upcoming scheduled Unit 1 refueling and maintenance outage in October 2023. This is when PG&E will conduct planned maintenance, perform refueling, and better gauge additional needs to support the safe and reliable extended operations at DCPD. DWR will track the progress and findings from this outage.

The remainder of this report is organized as follows. Section 2 provides a more in-depth background. Section 3 details DWR's analysis and determination of PG&E's submission for cost eligibility and reasonableness, in consultation with CPUC staff. Section 4 discusses whether the costs were in the public interest. Section 5 provides the CPUC staff's determination of whether costs were otherwise recovered through authorized rate recovery based on their review of PG&E's submitted costs. Section 6 provides the aggregate allowable loan proceeds from this semiannual true-up period. Section 7 concludes the findings of this semiannual true-up report followed by appendices.

## 2 Background

California is transitioning to one hundred percent clean electricity and leading the nation in electrification. At the same time, climate change-induced extreme weather and emergencies are negatively impacting electric reliability. For example, a massive heatwave across the western United States led to widespread power outages in 2020, while the devastating Bootleg Fire in 2021 threatened electricity transmission lines and significantly reduced power imported into California. During both events, Governor Gavin Newsom issued executive orders to take decisive actions to shore up electric reliability. Specifically, the Governor's July 2021 Executive Order directed the Department of Water Resources (DWR) to secure and deploy temporary and emergency power generation to supplement existing grid resources. In May 2022, analysis by the California Energy Commission (CEC), California Public Utilities Commission (CPUC), and the California Independent System Operator (CAISO) found that additional generating resources were needed to address a number of extraordinary factors such as extreme weather events, massive wildfires, severe drought, and supply chain constraints delaying new electric generation deployment. In June 2022, Assembly Bill (AB) 205 (Committee on Budget,

Chapter 61, Statutes of 2022), AB 178 (Ting, Chapter 56, Statutes of 2022), and AB 180 (Ting, Chapter 44, Statutes of 2021) were signed into law by Governor Newsom. These three pieces of legislation collectively established the state's Strategic Reliability Reserve and within that set forth new responsibilities and project activities in DWR funded by the newly established Electricity Supply Reliability Reserve Fund.

During the same legislative session, Senate Bill (SB) 846 (Dodd, Chapter 239, Statutes of 2022) recognized that the 2,240 megawatt (MW) Diablo Canyon Power Plant (DCPP) currently supplies approximately 17 percent of California's zero-carbon electricity supply and 8.6 percent of California's total electricity supply but its two nuclear reactors are scheduled to retire in November 2024 and August 2025. To address California's growing electricity needs during this energy transition, SB 846 preserves the option of continued operations at DCPP to improve statewide electric reliability and reduce greenhouse gas (GHG) emissions while additional renewable and zero-carbon resources are built. SB 846 found that actions to extend DCPP's operations for a renewed license term are prudent, cost effective, and in the best interests of all California electricity customers.

SB 846 established the Diablo Canyon Extension Fund and authorized DWR to use the fund to enter into a loan agreement with Pacific Gas & Electric Company (PG&E), DCPP's owner and operator. The fund and loan agreement would provide up to \$1.4 billion to facilitate the extension of the operating period of DCPP's two nuclear reactors, extending the retirement date for Unit 1 from November 2, 2024 to no later than October 31, 2029 and for Unit 2 from August 26, 2025 to no later than October 31, 2030.<sup>1</sup> On October 18, 2022, DWR entered into a loan agreement with PG&E for the extension of DCPP's operation per the terms required in SB 846.

SB 846 requires DWR, in collaboration with the California Public Utilities Commission (CPUC), to conduct a semiannual true-up, which reviews PG&E's use of loan proceeds. The semiannual true-up review starts in mid-April and mid-October of each year starting on April 15, 2023, with the last true-up to occur on December 15, 2026. The review begins with the submission of detailed expenditure reports from PG&E. DWR and CPUC work collaboratively to review and validate the submission. DWR also enlists the support of nuclear industry

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<sup>1</sup>Of the \$1.4 billion, up to \$300 million is attributed to Performance-Based Disbursements (PBDs), which may be disbursed to PG&E based on the safe and reliable operation of DCPP. The entire \$1.4 billion loan amount is subject to repayment. DWR has separately reviewed the uses of PBDs and is satisfied with PG&E's explanation and certification that the proceeds are not used for shareholder profits or dividends.

professionals with expertise in nuclear license renewal activities to determine cost eligibility and reasonableness. Pursuant to Public Resources Code Section 25548.4, in each review DWR is to determine:

- 1) **Cost eligibility** - Whether PG&E used loan proceeds to pay only for eligible costs and that no loan proceeds were treated as shareholder profits or paid out as dividends;
- 2) **Cost reasonableness** - Whether eligible costs were reasonable;
- 3) **Costs in the public interest** - Whether the costs are in the public interest; and
- 4) **CPUC staff determination** - Whether the CPUC has not authorized rate recovery of the same costs and other considerations deemed appropriate by CPUC staff

If, upon completing the semiannual true-up review, DWR determines that PG&E's use of loan proceeds did not meet the above requirements, those amounts shall be deemed disallowed costs. DWR would notify PG&E as promptly as possible and take action to recoup the disallowed costs.

### **United States Nuclear Regulatory Commission**

To extend the operating period, PG&E must apply for a license renewal by the United States Nuclear Regulatory Commission (NRC), as well as other applicable regulatory processes. On October 31, 2022, PG&E filed a request with the NRC to either resume review of a prior license renewal application PG&E withdrew in 2018 or exempt it from a timely renewal requirement if a new application is required.<sup>2</sup> In accordance with NRC regulations (10 CFR § 2.109(b)), timely renewal at the NRC requires a nuclear power plant licensee to file a sufficient license renewal application with the NRC at least five years before the expiration of the existing license.<sup>3</sup> On January 24, 2023, the NRC issued a staff decision not to resume the review of the withdrawn DCPD application but instead require a new license renewal application to be submitted.<sup>4</sup> On March 2, 2023, the NRC granted PG&E an exemption to 10 CFR section 2.109(b), which would allow DCPD to continue to operate under its current license until the NRC

<sup>2</sup> PG&E Letter DCL-22-085, *Request to Resume Review of the Diablo Canyon Power Plant License Renewal Application or, Alternatively, for an Exemption from 10 CFR 2.109(b), Concerning a Timely Renewal Application*, Oct. 31, 2022, <https://www.nrc.gov/docs/ML2230/ML22304A691.pdf> (retrieved on Oct. 6, 2023).

<sup>3</sup> 10 CFR § 2.109 Effect of timely renewal application, <https://www.nrc.gov/reading-rm/doc-collections/cfr/part002/part002-0109.html> (retrieved on Oct. 6, 2023).

<sup>4</sup> Letter from Lauren K. Gibson (NRC) to Paula Gerfen (PG&E), *Diablo Canyon Power Plant, Units 1 and 2 – Staff Decision to Not Resume Review of Withdrawn License Renewal Application*, Jan. 24, 2023, , <https://www.nrc.gov/docs/ML2234/ML22343A179.pdf> (retrieved on Oct. 6, 2023).

has made its final determination on PG&E's new license renewal application.<sup>5</sup> PG&E has publicly committed to submit a sufficient application by the December 31, 2023 deadline.<sup>6</sup> In parallel, PG&E has attended multiple meetings hosted by the NRC where NRC staff and PG&E discussed specific technical topics for the preparation of information to support DCP's license renewal and responded to several requests for information.

### **Diablo Canyon Independent Safety Committee**

In addition to meeting NRC requirements, the Diablo Canyon Independent Safety Committee (DCISC) is tasked with reviewing DCP's safety record. The DCISC is a three-member independent safety committee established in 1988 for the purpose of reviewing and assessing the safety of operations of DCP. DCISC hosts public meetings, conducts fact-finding visits to DCP including interviews with key PG&E personnel, reviews technical documents, and briefs regulatory and appointed officials on DCP safety matters. The DCISC's work culminates in an annual report on the safety of DCP operations. Since SB 846 requires PG&E to simultaneously pursue decommissioning and extended operations,<sup>7</sup> the legislation also requires DCISC to review DCP's extended operations period and provide assessments of its findings.<sup>8</sup> For the semiannual true-up, DWR reviewed DCISC findings and annual reports, attended public meetings and discussions, and consulted with the DCISC as needed.

### **United States Department of Energy Civil Nuclear Credit Program**

Lastly, SB 846 requires that the DCP must be eligible to participate in the United States Department of Energy's (DOE's) Civil Nuclear Credit (CNC) Program. The awards from the CNC Program are the main source of loan repayment. On November 21, 2022, the Department of Energy (DOE) announced the conditional selection of DCP to receive funding from the CNC Program.<sup>9</sup> PG&E

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<sup>5</sup> Letter from Brian K. Harris (NRC) to Paula Gerfen (PG&E), *Diablo Canyon Power Plant, Units 1 and 2 – Exemption from the Requirements Related to Submission of a License Renewal Application*, Mar. 2, 2023, <https://www.nrc.gov/docs/ML2302/ML23026A115.pdf> (retrieved on Oct. 6, 2023).

<sup>6</sup> Enclosure to PG&E Letter DCL-23-020, *Responses to NRC Request for Information Regarding Diablo Canyon Power Plant, Units 1 and 2 – December 8, 2022, Public Meeting*, p. 1, Mar. 17, 2023, <https://adamswebsearch2.nrc.gov/webSearch2/main.jsp?AccessionNumber=ML23076A210> (accessed on Oct. 6, 2023).

<sup>7</sup> Public Resources Code § 25548.2(e).

<sup>8</sup> Public Utilities Code § 712.1.

<sup>9</sup> *Biden-Harris Administration Announces Major Investment to Preserve America's Clean Nuclear Energy Infrastructure*, Nov. 21, 2022, <https://www.energy.gov/articles/biden-harris-administration-announces-major-investment-preserve-americas-clean-nuclear> (accessed on Oct. 6, 2023).

and DOE are currently negotiating a Credit Award and Redemption Agreement (CARA) to finalize the award. In another milestone, on July 31, 2023, the DOE issued a final Environmental Impact Statement (EIS) for DCCP's participation in the CNC Program.<sup>10</sup>

### 3 Cost Eligibility and Reasonableness

This section describes in detail the cost eligibility and reasonableness of PG&E's cost expenditures during this reporting period. SB 846 provided specific guidance on cost eligibility as follows in the Public Resources code:

**Section 25548.3(c)(3)** "A provision that the loan shall be... for the purpose of project costs, operations and maintenance, internal and external labor, capital improvement costs, fuel purchase, fuel storage, regulatory compliance costs, transition fees, and other expenses associated with the extension of the operating periods and current expiration dates, to cover incremental costs incurred by the borrower in its efforts to extend the operating period. Covered costs shall be limited to those necessary to preserve the option of extending the Diablo Canyon powerplant or to extend the Diablo Canyon powerplant's operation to maintain electrical reliability."

In addition, SB 846 also makes clear that loan proceeds may not be treated as shareholder profits or paid out as dividends. This is stated in the Public Resources code:

**Section 25548.3(c)(7)** "No loan proceeds shall be treated as shareholder profits or be paid out as dividends."

To assess cost reasonableness, DWR conducted detailed cost reviews with PG&E, in consultation with nuclear industry experts with experience in license renewal work, and in coordination with the CPUC. The costs were assessed on the amount and timing of the expenditure for its reasonableness.

The following sections discuss the costs PG&E provided to DWR.

#### 3.1 License Renewal Costs

The Spring 2023 Semiannual True-up period (Spring 2023 Period) is from September 2, 2022 through March 31, 2023. PG&E submitted a report on April

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<sup>10</sup> *Civil Nuclear Credit Program Proposed Award of Credits to Pacific Gas and Electric Company for Diablo Canyon Power Plant; San Luis Obispo County, California, July 31, 2023, <https://www.energy.gov/gdo/cnc-cycle-1-diablo-canyon-conditional-award-nepa-documentation> (accessed on Oct. 6, 2023).*

14, 2023, with all supporting data, including confidential and market sensitive expenditure details and contracts to DWR.<sup>11</sup> The total costs related to DCPD license renewal for this Spring 2023 Period were \$11,137,992. PG&E certified that the submission was truthful and costs were not treated as shareholder profits or dividends.

To review the submission, DWR engaged the consulting services of nuclear industry experts with direct experience in license renewal work to conduct the semiannual true-up and review PG&E's activities supporting license renewal throughout the reporting period. In consultation with the CPUC, DWR and its nuclear consultants reviewed PG&E's submission, conducted multiple meetings each week with PG&E management and staff on expenditure details, rationale, and specific project activities and progress.

License renewal-related costs fall into five broad categories listed in Table 1 below.

**Table 1: Total License Renewal Costs by Category and Percentage**

<b>Cost category</b>	<b>Costs from 9/2/22-3/31/23</b>	<b>Percentage of total</b>
Capital	\$235,515	2.1%
Operating	\$1,099,176	9.9%
License renewal	\$4,163,744	37.4%
Transition and Fuel	\$5,639,557	50.6%
<b>Total</b>	<b>\$11,137,992</b>	<b>100%</b>

These categories are based on the Electric Utility Cost Group (EUCG) format PG&E used in its submission to the DOE for the CNC Program. Transition and Fuel Costs have been aggregated to protect confidential, market-sensitive cost information related to fuel purchases and expenditures. Each cost category is discussed in detail below followed by DWR's determination of eligibility and reasonableness.

### **3.1.1 Capital Costs**

This category of costs reflects plant improvements and capital cost expenditures that were not originally accounted for because DCPD was set for decommissioning in 2024 and 2025. The proposed five-year extension necessitated a review of equipment and programs to reassess the need for capital expenditures to support extended operations. These capital costs include projects needed to maintain plant reliability for the extended period

<sup>11</sup> SB 846 was enacted on September 2, 2022.

and tools and materials used in programs to maintain the plant for the extended period.

Capital costs to support extended operations were reviewed and prioritized through a new process at PG&E described in greater detail in Section 3.1.4: Transition Costs below. Once PG&E had identified a number of projects through the new process, the capital cost proposals were provided to PG&E's existing Plant Health Prioritization Committee. This committee is comprised of a cross-functional team of key PG&E site personnel that evaluates and prioritizes projects for implementation at DCPP. The projects approved through the committee are those needed for safety, plant reliability, or to meet regulatory requirements. At the first level of analysis, referred to as Gate 1 Funding, PG&E's engineering teams study a defined problem and provide solution alternatives, recommendations, and develop project costs for the next level of funding. At Gate 2 Funding, specific funding sources are identified to complete the project to resolve the problem statement. This is a standard nuclear industry process for prioritizing and allocating resources. DWR and its nuclear industry consultants reviewed the submitted costs and materials from the Plant Health Prioritization Committee including Gate 1 and 2 Funding documentation.

The capital costs under each category and the total expenditures from September 2, 2022 through March 31, 2023 are listed in Table 2 below.

**Table 2: Capital Costs (9/2/22 – 3/31/23)**

<b>Summary description</b>	<b>Total costs 9/2/22 – 3/31/23</b>
Projects needed to maintain plant reliability and replacement of aging and/or obsolete tools and materials	\$235,515

The most significant expenditures went to support replacement of aging and/or obsolete tools and materials in preparation for extended operations. Since DCPP was on a trajectory for decommissioning in 2024 and 2025, certain tools, equipment, and materials used to maintain reliability need to be replaced to support extended operations. Examples include replacing aging tools such as radiation and contamination detection instruments.

In its CNC application to the DOE, PG&E originally forecasted capital cost expenditures of \$5.0 million in 2022 and \$139 million in 2023. Compared to these estimates, expenditures are lower than anticipated. PG&E explained to DWR that the conceptual estimates originally provided to the DOE in September 2022

were high-level, did not have intra-year breakdowns, and did not have the full benefit of various planning activities that have since taken place.

PG&E also explained that internal and external staff needed to coordinate on planning and prioritizing projects took longer to execute than anticipated due to limited staffing and the need to issue requests for proposals for external consulting services. However, PG&E explained that the lower level of capital cost expenditures currently does not negatively impact its progress towards or chance of success in completing the license renewal application or the safe and reliable operation of DCCP. Furthermore, PG&E does not expect overall expenditures in this category to be less than previously projected but rather that the pace of spending has been slower than expected. PG&E expects capital expenditures to increase at a faster pace by the beginning of 2024 based on the needs assessed by the Plant Health Prioritization Committee and confirmed through inspections during the upcoming refueling outages. (Refueling outages are discussed in more detail in Section 3.1.5: Fuel Costs).

**DWR determination:** DWR and its nuclear consultants reviewed each cost and conducted thorough discussions with PG&E to ask clarifying questions and receive additional supporting documentation. DWR and its nuclear consultants reviewed the project justifications to ensure projects were eligible and necessary to support continued operation based on industry experience at several utilities that have completed nuclear license renewal efforts. DWR and its nuclear consultants also reviewed the amount and timing of the expenditure for its reasonableness.

DWR found PG&E's submission of capital costs are eligible costs under Public Resources Code Section 25548.3(c)(3), Public Resources Code Section 25548.3(c)(7), and the DWR loan agreement. DWR found the projects approved to date are necessary and deemed reasonable to support continued operation compared to comparable nuclear power plants. In addition, the DCISC found that the Plant Health Prioritization Committee "appeared effective in bringing together the appropriate people to address plant system and component problems and to help maintain systems and components in good health."<sup>12</sup> Although the rate of spend is lower than anticipated, DWR found the actual amounts spent were reasonable for the related activity and the overall slower rate of spend does not jeopardize the license renewal effort or the safe and reliable operation of DCCP. Furthermore, PG&E applied for and received a

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<sup>12</sup> Presentation by the Diablo Canyon Independent Safety Committee, p. 3, Sept. 28, 2022, [https://www.dcisc.org/download/events/39\\_2-f-diablo-canyon-independent-safety-committee-20220928-informational-presentations.pdf](https://www.dcisc.org/download/events/39_2-f-diablo-canyon-independent-safety-committee-20220928-informational-presentations.pdf) (PDF p. 3) (accessed on Oct. 6, 2023).

timely renewal exemption from the NRC which means that once PG&E has submitted a sufficient license renewal application, DCPD can continue to operate beyond its original license expiration dates while the NRC conducts its review. DWR will continue to closely monitor expenditures in this category and related implementation and/or installation of plant improvements to support extended operations.

### 3.1.2 Operating Costs

Operating costs are related to labor, contract services, and other employee expenses for site personnel performing activities necessary to extend plant operations. These costs include incremental staffing and adding personnel in anticipation of attrition.

PG&E completed a major assessment of hiring needs including details around specific positions and critical hiring classes such as Initial Operator and Senior Reactor Operator classes. Training for these classes started in Q1 2023. PG&E expects the newly identified positions may be filled with a mix of internal PG&E employees and external applicants to support the need for reliable operation beyond the current licensing period. DCPD management reviews staffing on a weekly basis and performs monthly “deep dives” of specific departments.<sup>13</sup>

The operating costs from September 2, 2022 through March 31, 2023 are listed in Table 3 below.

**Table 3: Operating Costs (9/2/22 – 3/31/23)**

<b>Summary description</b>	<b>Total costs 9/2/22 – 3/31/23</b>
Personnel costs to support extended operations	\$1,099,176

Balancing staffing levels is a particular challenge for DCPD for two main reasons. First, a significant portion of the DCPD workforce is eligible to retire. According to PG&E, this is 23 percent of the workforce in 2023, increasing to 25 percent in 2024, 29 percent in 2026, and 34 percent in 2028. PG&E is expected to submit an application to the CPUC on a future worker retention program to support DCPD license renewal.<sup>14</sup> Second, PG&E is applying for a license renewal in less than the typical timespan (*i.e.*, five years or more). Given the compressed

<sup>13</sup> Presentation by Adam Peck (PG&E), *Workforce Retention and Continued Operations Diablo Canyon Power Plant*, p. 5, [https://www.dcisc.org/download/events/40\\_2-f-diablo-canyon-independent-safety-committee-20230215-informational-presentations.pdf](https://www.dcisc.org/download/events/40_2-f-diablo-canyon-independent-safety-committee-20230215-informational-presentations.pdf) (PDF p. 81) (accessed on Oct. 6, 2023).

<sup>14</sup> *Id.* at pp. 2-3 (PDF pp. 78-79).

timeline, this means that additional personnel are needed to evaluate and perform the license extension functions while existing operating plant employees focus on the safe and reliable operation of the plant. PG&E intends to have on staff 1,300 full-time equivalent (FTE) DCCP nuclear operations personnel by the end of 2023. 90 external FTEs have been hired since October 2022 bringing the total DCCP headcount to approximately 1,170 FTEs by March 31, 2023, to support site operations with a focus on replenishing staff lost due to attrition.

In its CNC application to the DOE, PG&E originally forecasted operating cost expenditures of \$16.5 million in 2022 and \$37.2 million in 2023. Compared to these estimates, expenditures are lower than anticipated. PG&E has explained that the conceptual estimates originally provided to the DOE in September 2022 were high-level, did not have intra-year breakdowns, and did not have the full benefit of various planning activities that have since taken place. PG&E acknowledged the slower hiring pace for additional staff and thus the lower level of operating cost expenditures, noting that they are making steady progress towards filling needed positions. PG&E does not believe the slower rate of expenditures will negatively impact its progress towards or chance of success in completing the license renewal application or the safe and reliable operation of DCCP. Furthermore, PG&E does not expect overall expenditures in this category to be less than previously projected but rather that the pace of spending has been slower than expected. PG&E expects operating cost expenditures to increase at a faster pace by the second half of 2023 and through 2024, driven by continued hiring.

**DWR determination:** DWR and its nuclear consultants reviewed each cost and conducted thorough discussions with PG&E to ask clarifying questions and receive additional supporting documentation. DWR and its nuclear consultants reviewed the project justifications to ensure projects were eligible and necessary to support continued operation based on industry experience at several utilities that have completed nuclear license renewal efforts. DWR and its nuclear consultants also reviewed the amount and timing of the expenditure for its reasonableness.

DWR found PG&E's submission of operating costs are eligible costs under Public Resources Code Section 25548.3(c)(3), Public Resources Code Section 25548.3(c)(7), and the DWR loan agreement. DWR reviewed PG&E's submitted operating costs and found them to be reasonable, especially hiring ahead of potential attrition. Overall, DWR found PG&E's targeted 1,300 FTEs to be higher than nuclear facilities of a similar size but is still reasonable given that DCCP must simultaneously pursue license extension and decommissioning while addressing attrition, which has particularly impacted the nuclear industry in California.

Furthermore, DWR recognizes that this has been a challenging labor market—particularly for specialized skills—and extensive training is needed to meet nuclear industry requirements. DWR will continue to closely monitor expenditures in this category and progress in training critical staff.

### **3.1.3 License Renewal Costs**

License renewal costs reflect the licensing, engineering, and permitting work associated with obtaining a renewed operating license from the NRC and any necessary state and local permits. This includes costs incurred by contractors or site personnel to perform necessary inspections or modifications to support the license renewal.

The most significant cost under this category is aging management, which is comprised of engineering, operations, and maintenance activities to control age-related degradation and to mitigate failures of systems, structures, or components due to aging. An Aging Management Program (AMP) is an inspection, test, or activity that detects and manages the aging of systems, structures, and components so that the intended function(s) are maintained consistently with the current licensing basis of the facility throughout the period of extended operation. AMPs are used to manage the aging of passive components such as piping, concrete, and electrical cables, whereas active components are already tested periodically by plant personnel in accordance with plant technical specifications to observe flow rates, pressures, valve stroke times, etc. The current licensing basis is the set of NRC requirements applicable to a specific plant and a licensee's written commitments for ensuring compliance with and operation within applicable NRC requirements and the plant-specific design basis.<sup>15</sup> For example, DCCP's current licensing basis is based on two Westinghouse Pressurized Water Reactors that began operation in 1985 and 1986 and have operating terms of 40 years each. The 40-year term is based on economic and antitrust considerations rather than technical limitations.<sup>16</sup> The period of extended operations begins after November 2, 2024 for Unit 1 and after August 26, 2025 for Unit 2.

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<sup>15</sup> 10 CFR § 54.3, <https://www.nrc.gov/reading-rm/doc-collections/cfr/part054/part054-0003.html> (accessed on Oct. 6, 2023).

<sup>16</sup> PG&E Informational Site, *License Renewal Process*, <https://www.pge.com/safety/systemworks/dccp/about/licenseprocess/> (accessed on Oct. 6, 2023).

The NRC requires AMPs as part of the license renewal application. Specifically, PG&E will be required to provide an Integrated Plant Assessment that identifies the following:<sup>17</sup>

1. Systems, structures, and components within the scope of the license renewal;
2. Effects of aging on such systems, structures, and components that require aging management;
3. AMPs that will manage aging of passive components; and
4. Time-limited aging analyses to assess the time-limited assumptions (e.g., a 40-year operating term) that may require revision, validation, or aging management.

After the NRC reviews the license renewal application and issues the renewed operating license, the list of AMPs will be incorporated into the licensing basis in an updated Final Safety Analysis Report for the facility. To support each AMP, PG&E also develops inspection commitments with specific schedules to execute the program. Commitments are complex undertakings as they need to meet industry and NRC standards and execution of the inspections are often coordinated with planned outages months and years in advance, require qualified personnel, and procurement of necessary materials.

The license renewal costs from September 2, 2022 through March 31, 2023 are listed in Table 4 below.

**Table 4: License Renewal Costs (9/2/22 – 3/31/23)**

<b>Summary description</b>	<b>Total costs 9/2/22 – 3/31/23</b>
Licensing, engineering, and permitting work associated with obtaining a renewed operating license	\$4,163,744

PG&E's original license renewal application was withdrawn in 2018.<sup>18</sup> In preparation for a new submission to the NRC by December 31, 2023, PG&E first reviewed its existing list of 41 AMPs and the specific inspection commitments to execute the program for planning purposes. As a priority, PG&E expects to perform 32 current AMP-related inspections planned for the upcoming DCP Unit 1 refueling outage in October 2023 (see discussion in Section 3.1.5: Fuel

<sup>17</sup> 10 CFR § 54.21, <https://www.nrc.gov/reading-rm/doc-collections/cfr/part054/part054-0021.html> (accessed on Oct. 6, 2023).

<sup>18</sup> NRC Site for Diablo Canyon – License Renewal Application Withdrawn on 03/07/2018, <https://www.nrc.gov/reactors/operating/licensing/renewal/applications/diablo-canyon.html> (accessed on Oct. 6, 2023).

Costs for more information on DCPD refueling outages).<sup>19</sup> In addition, PG&E reviewed and updated the implementation schedule for 71 commitments in recognition of extended operations. Such a review also includes “extensive planning for [the] safe and effective implementation, including training, procurement, and development of work packages” for each commitment.<sup>20</sup> Details of the commitments and the timeline for completion of the commitments are scrutinized by the NRC. Once approved by the NRC and as a condition of license renewal approval, the commitments become part of the plant's licensing basis.

Figure 1 below is from PG&E's presentation to NRC staff at a pre-application public meeting for DCPD's license renewal application on September 13, 2023.<sup>21</sup> The figure summarizes PG&E's findings and expectations based on its review of current AMPs and identification of needed enhancements for the upcoming license renewal application. PG&E expects 57% of the 71 commitments to be completed by November 2024, the start of the period of extended operations for Unit 1, also referred to as the period of timely renewal. Once the commitments are implemented, recurring inspections will take place. PG&E also expects an additional 34% of commitments specific to Unit 2 to be implemented by August 2025, followed by recurring inspections. In total, PG&E is working towards having 91% of all commitments implemented before Unit 2 enters the period of extended operations. This leaves only 9% of commitments left to be completed during the period of extended operations up through 2028. To accommodate the additional AMP-related work, the upcoming October 2023 and April 2024 outages are expected to last longer than typical refueling and maintenance outages. (See Section 3.1.5: Fuel Costs for a detailed discussion on refueling outages.)

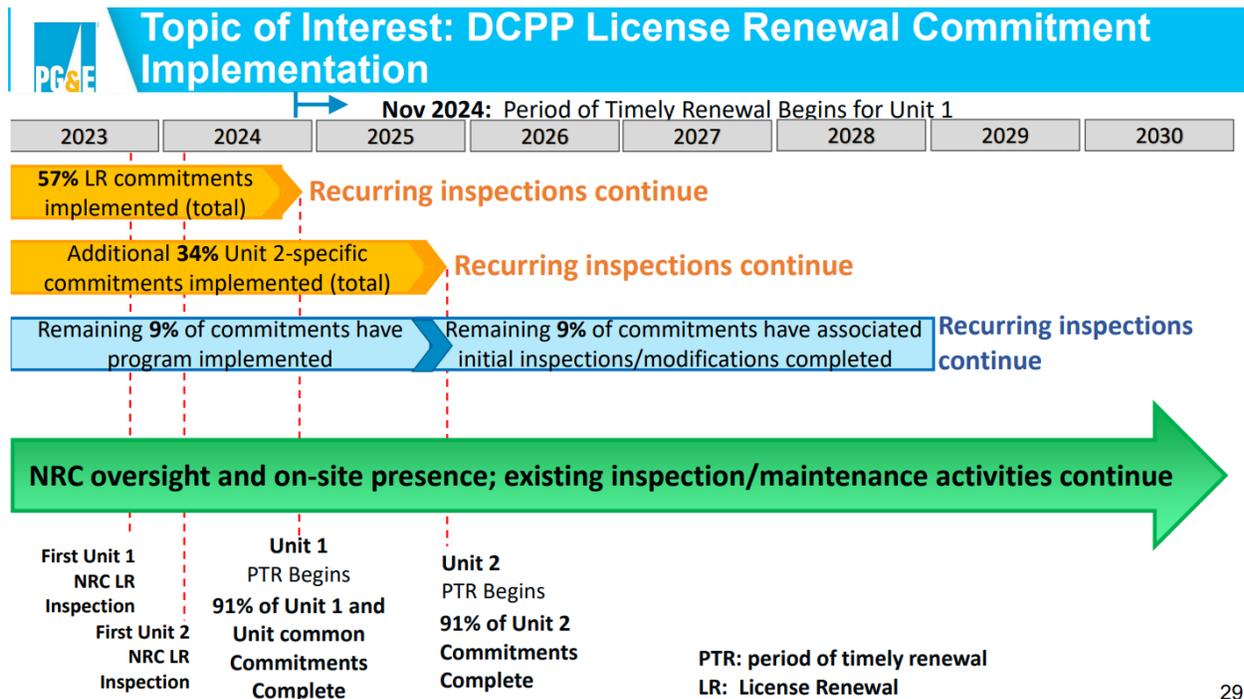
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<sup>19</sup> Enclosure to PG&E Letter DCL-23-020, *Responses to NRC Request for Information Regarding Diablo Canyon Power Plant, Units 1 and 2 – December 8, 2022, Public Meeting*, p. 1, Mar. 17, 2023, <https://adamswebsearch2.nrc.gov/webSearch2/main.jsp?AccessionNumber=ML23076A210> (accessed on Oct. 6, 2023).

<sup>20</sup> *Id.* at p. 2.

<sup>21</sup> Presentation by Maureen Zawalick, et. al. (PG&E) to NRC Staff, *Diablo Canyon Power Plant (DCPD) License Renewal Application*, September 13, 2023, <https://adamswebsearch2.nrc.gov/webSearch2/main.jsp?AccessionNumber=ML23255A001> (accessed on Sep. 13, 2023).

**Figure 1: DCPD License Renewal Commitment Implementation**



Source: <https://adamswebsearch2.nrc.gov/webSearch2/main.jsp?AccessionNumber=ML23255A001>

PG&E staff is currently developing a gap analysis to reconcile any differences between current AMPs and additional work that should be documented in a new license renewal application to the NRC.

In its CNC application to the DOE, PG&E originally forecasted license renewal cost expenditures of \$5.6 million in 2022 and \$52.5 million in 2023. Compared to these estimates, expenditures are lower than anticipated. PG&E has explained that the conceptual estimates originally provided to the DOE in September 2022 were high-level, did not have intra-year breakdowns, and did not have the full benefit of various planning activities that have since taken place. PG&E acknowledged the slower rate of expenditures but based on its presentation to the NRC, PG&E does not believe this will negatively impact its progress towards or chance of success in completing the license renewal application or the safe and reliable operation of DCPD. Furthermore, PG&E does not expect overall expenditures in this category to be less than previously projected but rather that the pace of spending has been slower than expected. Based on PG&E's forecast, license renewal expenditures are expected to increase steadily through 2024.

**DWR determination:** DWR and its nuclear consultants reviewed each cost and conducted thorough discussions with PG&E to ask clarifying questions and

receive additional supporting documentation. DWR and its nuclear consultants reviewed the justifications to ensure license renewal costs were eligible and necessary to support continued operation based on industry experience at several utilities that have completed nuclear license renewal efforts.

Specifically, DWR and its nuclear consultants review each AMP and its commitments as they are completed. DWR and its nuclear consultants also reviewed the amount and timing of the expenditure for its reasonableness.

DWR found PG&E's submission of license renewal costs are eligible costs under Public Resources Code Section 25548.3(c)(3), Public Resources Code Section 25548.3(c)(7), and the DWR loan agreement. The most significant costs incurred during this reporting period were related to review of current AMPs, identifying and coordinating inspections that can be and should be scheduled for the upcoming refueling outages, coordinating additional commitments leading up to the period of extended operations, and continued efforts to identify new AMPs, if any. These activities required both PG&E internal personnel and qualified external specialists. DWR reviewed PG&E's submitted license renewal costs and found them reasonable because DWR and its consultants compared these costs to plants who successfully renewed licenses in the past. As with other costs, DWR found the expenditure rate to be slower than forecasted. However, for this reporting period, sufficient progress has been made to re-evaluate current AMPs and their commitments. Furthermore, PG&E applied for and received a timely renewal exemption from the NRC which means that once PG&E has submitted a sufficient license renewal application, DCPP can continue to operate beyond its original license dates while the NRC conducts its review. DWR expects PG&E to conduct more analysis to identify whether there are additional AMPs and commitments in light of extended operations and as more information becomes available from inspections during the upcoming refueling outage in October 2023. DWR will continue to monitor the progress of the AMP gap analysis and license renewal commitment implementation.

#### **3.1.4 Transition Costs**

Transition costs are related to labor, contract services, and other employee expenses for site personnel performing activities necessary to extend plant operations. These costs include training programs and project management activities. In addition, this category of costs also include costs related to dry fuel storage (see detailed discussion in Section 3.1.5: Fuel Costs).

The transition costs from September 2, 2022 through March 31, 2023 are redacted in Table 5 below and aggregated with fuel costs to protect market sensitive fuel costs. Disclosure of fuel costs could put PG&E at a competitive disadvantage and negatively impact PG&E's customers.

**Table 5: Transition Costs Aggregated with Fuel Costs (9/2/22 – 3/31/23)**

Summary description	Total costs 9/2/22 – 3/31/23
Transition costs	REDACTED
Fuel costs	REDACTED
Total	\$5,639,557

The majority of the costs within transition costs are associated with training due to the highly specialized nature of work in and around nuclear power plants. PG&E conducted licensed operator classes to ensure sufficient training and certification as well as training for engineering and maintenance personnel. In addition to the classes conducted during this reporting period, PG&E is also planning for a future Senior Licensed Operator class in late 2023.

The second largest cost component is related to project management. According to PG&E, DCPD has and will continue to perform all maintenance and make all necessary investments to ensure continued safe and reliable operation as required by regulations and consistent with its operating license.<sup>22</sup> However, extended operations will require additional maintenance and capital investments consistent with the duration of the extension. To address this need, PG&E launched the Preventive Maintenance Optimization (PMO++) initiative to conduct a comprehensive system-by-system review of the maintenance and plant modifications for DCPD. The PMO++ initiative was staffed by a diverse group of plant specialists from major departments including engineering, maintenance, operations, outage and planning, and risk management. Through the initiative, over 200 maintenance projects were identified, ranked, and prioritized. This task is critical because some additional maintenance projects are necessary to address future AMP commitments, support license renewal, and need to be conducted during the upcoming planned refueling and maintenance outages in fall 2023 and spring 2024. (See Section 3.1.5: Fuel Costs for a discussion on refueling and maintenance outages.) Materials, equipment, services, and other support needed to carry out the maintenance were also identified. PMO++ projects were further screened by the existing Plant Health Prioritization Committee for funding approval and scheduling.

<sup>22</sup> See, e.g., Pacific Gas and Electric Company, *Rebuttal Testimony on Rulemaking to Implement Senate Bill 846 Concerning Potential Extension of Diablo Canyon Power Plant Operations*, Revised Testimony, CPUC Rulemaking 23-01-007, Aug. 25, 2023, p. 3-26.

In its CNC application to the DOE, PG&E originally forecasted transition and fuel cost expenditures of \$15.0 million in 2022 and \$153 million in 2023. Compared to these estimates, expenditures are lower than anticipated. PG&E has explained that the conceptual estimates originally provided to the DOE in September 2022 were high-level, did not have intra-year breakdowns, and did not have the full benefit of various planning activities that have since taken place. PG&E acknowledged the slower spend rate but at this time does not believe this will negatively impact its progress towards or chance of success in completing the license renewal application or the safe and reliable operation of DCP. Furthermore, PG&E does not expect overall expenditures in this category to be less than previously projected but rather that the pace of spending has been slower than expected. Based on PG&E's forecast, transition and fuel costs expenditures are expected to increase at a faster pace by the end of 2023.

**DWR determination:** DWR and its nuclear consultants reviewed each cost and conducted thorough discussions with PG&E to ask clarifying questions and receive additional supporting documentation. DWR and its nuclear consultants reviewed the project justifications to ensure projects were eligible and necessary to support continued operation based on industry experience at several utilities that have completed nuclear license renewal efforts. DWR and its nuclear consultants also reviewed the amount and timing of the expenditure for its reasonableness. Furthermore, PG&E applied for and received a timely renewal exemption from the NRC which means that once PG&E has submitted a sufficient license renewal application, DCP can continue to operate beyond its original license dates while the NRC conducts its review.

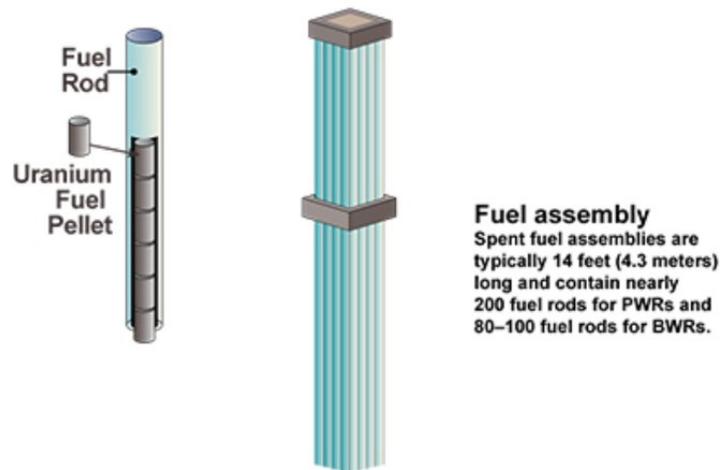
DWR found PG&E's submission of transition costs are eligible costs under Public Resources Code Section 25548.3(c)(3), Public Resources Code Section 25548.3(c)(7), and the DWR loan agreement. DWR reviewed PG&E's submitted transition costs and found them to be reasonable, especially in support of PMO++. PMO++ is critical because it developed the roadmap to coordinate and prioritize license renewal projects that may require multiple years of planning and need to be completed by specific dates.

### 3.1.5 Fuel Costs

This category summarizes costs associated with fuel procurement and transportation including enrichment, conversion, fabrication, handling, refueling, and wet storage. As noted above, dry storage costs are accounted for under transition costs.

Nuclear power plants depend on uranium to produce electricity. DCPD has 193 separate fuel assemblies in each reactor (*i.e.* unit) composed of over 50,000 fuel rods and 18 million fuel pellets as shown in Figure 2 below.

**Figure 2: Illustrative Fuel Assembly Components**



Source: <https://www.nrc.gov/reading-rm/basic-ref/glossary/fuel-assembly-fuel-bundle-fuel-element.html>

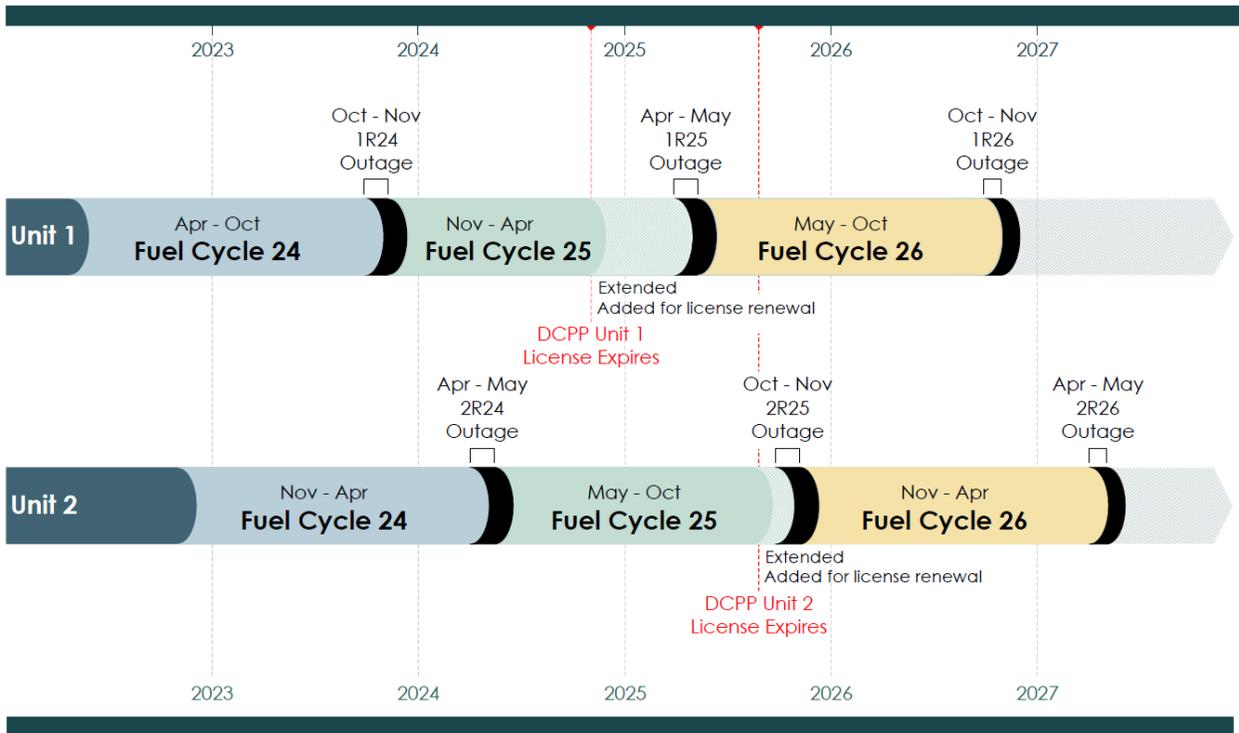
The uranium fuel lasts for three fuel cycles (approximately 4.5 years) but replacement of the fuel assemblies is staggered so that only one unit is undergoing refueling at a time. Approximately one-third of the 193 fuel assemblies are replaced from each core during a refueling outage.<sup>23</sup> The duration between refueling is referred to as a fuel cycle and lasts for approximately 18 months. To replace a portion of the reactor fuel, PG&E carefully plans for and schedules a refueling outage, typically in the spring or fall when demand for electricity is lower. Simultaneously, PG&E performs any required maintenance and testing that can only be performed when the reactor is shut down. These activities can require more than 250,000 person-hours to perform during the 30 to 45 days of a planned outage.<sup>24</sup> Figure 3 below shows the estimated timing of the fuel cycles leading up to and just after the period of extended operations from 2022 through 2026. Each fuel cycle and its outage is numbered. The current fuel cycle is number 24. Its corresponding

<sup>23</sup> U.S. Nuclear Regulatory Commission, *Environmental Assessment Related to the Construction and Operation of the Diablo Canyon Independent Spent Fuel Storage Installation*, NRC Dkt. No. 72-26, p.2, October 2003, <https://adamswebsearch2.nrc.gov/webSearch2/main.jsp?AccessionNumber=ML032970370> (accessed on Oct. 6, 2023).

<sup>24</sup> *Diablo Canyon Power Plant Begins Planned Maintenance and Refueling Outage on Unit 1*, October 5, 2020, [https://www.pge.com/en\\_US/safety/how-the-system-works/diablo-canyon-power-plant/news-and-articles/diablo-canyon-power-plant-begins-planned-maintenance-and-refueling-outage-on-unit-1-2020.page](https://www.pge.com/en_US/safety/how-the-system-works/diablo-canyon-power-plant/news-and-articles/diablo-canyon-power-plant-begins-planned-maintenance-and-refueling-outage-on-unit-1-2020.page) (accessed on Oct. 6, 2023).

outage is numbered by unit number (1 or 2), "R," and the consecutive outage number. For example, "1R24" is the twenty-fourth refueling outage for Unit 1 since operations began and is planned for October 2023. The figure below shows the current fuel cycle number 24 in blue, the planned outages to replace (approximately one third of) the used fuel assemblies with new fuel and conduct maintenance in black, and the upcoming fuel cycles 25 and 26 in green and yellow, respectively.

**Figure 3: Estimated Timing for Fuel Cycles and Outages Leading up to the Period of Extended Operations**

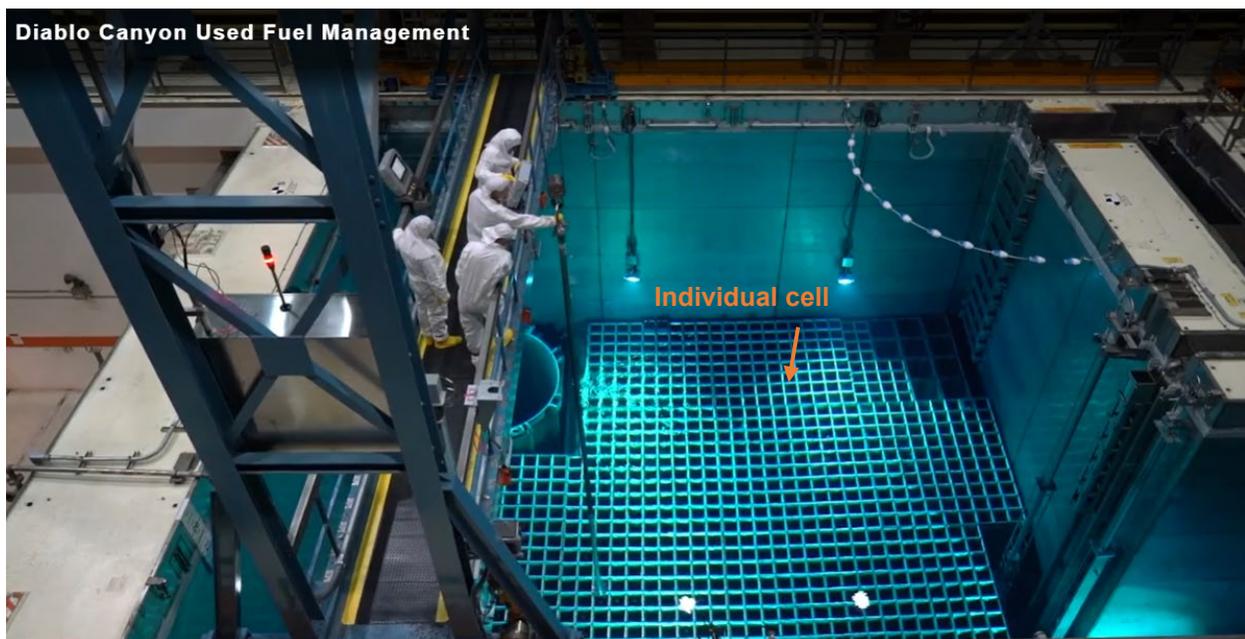


Note that the current retirement dates for the reactors fall within cycle 25 for Unit 1 on November 2, 2024, and Unit 2 on August 26, 2025. Consequently, cycle 25 needs to be extended to support operations for the full 18-month fuel cycle, rather than the end of the license. Therefore, PG&E must purchase additional nuclear fuel material from enrichment providers who ship the required enriched and natural uranium products to the fabricator where it is converted to fuel pellets, loaded into the fuel rods, and then bundled into fuel assemblies for use in the reactor. The procurement process may take as long as 24 months and requires PG&E to issue a request for proposals from enrichment and fabrication services, review bids, award the winning contract, and take receipt of the

nuclear fuel several months before the targeted planned outage.<sup>25</sup> Nuclear fuel procurement can be impacted by global supply chains and demand.

After the fuel cycle is complete, the spent nuclear fuel assemblies are kept in wet storage for cooling before being transferred to dry storage. As shown in Figure 4 below, wet storage occurs in a specially made fuel storage pool built into the bedrock at the DCPD site with six feet thick reinforced concrete walls lined with stainless steel and that are seismically designed.<sup>26</sup> The pool is 40 feet deep which accommodates the 14 feet tall fuel assemblies and is filled with circulating borated water which shields against radiation and stops the fission process.<sup>27</sup> Specialized racks at the bottom of each pool create a grid to separate each fuel assembly into individual cells and keeps them upright.

**Figure 4: Nuclear Fuel Wet Storage**



Source: PG&E Informational Site, Pacific Gas and Electric, *Diablo Canyon Used Fuel Management*, video, [https://www.pge.com/en\\_US/safety/how-the-system-works/diablo-canyon-power-plant/diablo-canyon-power-plant/decommissioning-used-fuel.page](https://www.pge.com/en_US/safety/how-the-system-works/diablo-canyon-power-plant/diablo-canyon-power-plant/decommissioning-used-fuel.page) (retrieved on Oct. 6, 2023).

<sup>25</sup> Presentation by Tom Jones (PG&E), *DCPP Potential Continued Operations Overview*, September 28, 2022, p. 4, [https://www.dcpsc.org/download/events/39\\_2-f-diablo-canyon-independent-safety-committee-20220928-informational-presentations.pdf](https://www.dcpsc.org/download/events/39_2-f-diablo-canyon-independent-safety-committee-20220928-informational-presentations.pdf) (PDF p. 73) (accessed on Oct. 6, 2023).

<sup>26</sup> PG&E Informational Site, Pacific Gas and Electric, *Diablo Canyon Used Fuel Management*, transcript, [https://www.pge.com/en\\_US/safety/how-the-system-works/diablo-canyon-power-plant/diablo-canyon-power-plant/decommissioning-used-fuel.page](https://www.pge.com/en_US/safety/how-the-system-works/diablo-canyon-power-plant/diablo-canyon-power-plant/decommissioning-used-fuel.page) (accessed on Oct. 6, 2023).

<sup>27</sup> PG&E Informational Site, *Spent Fuel Management, Spent Fuel Pools*, <https://diablocanyonpanel.org/decom-topics/spent-fuel-management/> (accessed on Oct. 6, 2023).

After the assemblies have undergone sufficient radioactive decay, they are moved to dry storage in casks at a separate location on the DCPD premises as shown in Figure 5. Removal of spent fuel follows a detailed process that seals the spent fuel assemblies in several protective canisters and carefully transports them to the Independent Spent Fuel Storage Installation (ISFSI) where it is sealed again in a cylindrical stainless steel cask reinforced with concrete. Completed in 2009, the ISFSI is located 300 feet above sea level to protect against severe waves and rising sea levels and is separately licensed and inspected by the NRC.<sup>28</sup> The ISFSI is comprised of individual pads made of seven and a half foot thick, steel-reinforced concrete built into solid bedrock to ensure seismic stability.<sup>29</sup> Each 20-foot high, 360,000 pound cask is fastened to the pad's surface. The dry cask storage system is engineered to withstand extreme natural hazards and seismic events.

**Figure 5: Independent Spent Fuel Storage Installation**



Source: PG&E Informational Site, Pacific Gas and Electric, *Diablo Canyon Used Fuel Management*, video, [https://www.pge.com/en\\_US/safety/how-the-system-works/diablo-canyon-power-plant/diablo-canyon-power-plant/decommissioning-used-fuel.page](https://www.pge.com/en_US/safety/how-the-system-works/diablo-canyon-power-plant/diablo-canyon-power-plant/decommissioning-used-fuel.page) (retrieved on Oct. 6, 2023).

<sup>28</sup> PG&E Informational Site, Pacific Gas and Electric, *Diablo Canyon Used Fuel Management*, transcript, [https://www.pge.com/en\\_US/safety/how-the-system-works/diablo-canyon-power-plant/diablo-canyon-power-plant/decommissioning-used-fuel.page](https://www.pge.com/en_US/safety/how-the-system-works/diablo-canyon-power-plant/diablo-canyon-power-plant/decommissioning-used-fuel.page) (accessed on Oct. 6, 2023).

<sup>29</sup> PG&E Informational Site, *Spent Fuel Management, Independent Spent Fuel Storage Installation (ISFSI)*, <https://diablocanyonpanel.org/decom-topics/spent-fuel-management/> (accessed on Oct. 6, 2023).

The fuel costs from September 2, 2022 through March 31, 2023 are redacted in Table 6 below (which is reproduced from Table 5 above) and instead aggregated with transition costs to protect market sensitive fuel costs. Disclosure of fuel costs could put PG&E at a competitive disadvantage and negatively impact PG&E's customers.

**Table 6: Fuel Costs Aggregated with Transition Costs (9/2/22 – 3/31/23)**

Summary description	Total costs 9/2/22 – 3/31/23
Transition costs	REDACTED
Fuel costs	REDACTED
Total	\$5,639,557

During this reporting period, PG&E focused on and completed contracting for the cycle 25 extension to ensure there is sufficient fuel to support the period of extended operations. Contracting for cycle 25 was also critical in order to coordinate with upcoming refueling outages, 1R24 and 2R24. Fuel related costs incurred during this reporting period largely reflect labor and activities to support the cycle 25 extension but not the fuel purchases themselves. Those costs will be reviewed in a subsequent semiannual true-up. PG&E also began work on cycle 26 and expects execution of a contract by the end of 2023. PG&E is also preparing for a spent fuel loading campaign including the purchase of storage casks and movement of spent fuel from the fuel pool to the ISFSI. However, as mentioned in Section 3.1.4: Transition Costs, these costs are accounted for under transition costs. PG&E is evaluating vendor options for the spent fuel loading campaign in Q3 2024.

In its CNC application to the DOE, PG&E originally forecasted transition and fuel cost expenditures of \$15.0 million in 2022 and \$153 million in 2023. Compared to these estimates, expenditures are lower than anticipated. PG&E has explained that the conceptual estimates originally provided to the DOE in September 2022 were high-level, did not have intra-year breakdowns, and did not have the full benefit of various planning activities that have since taken place. PG&E acknowledged the slower rate of expenditures but does not believe this will negatively impact its progress towards or chance of success in extending operations at DCPD or its continued safe and reliable operation. Furthermore, PG&E does not expect overall expenditures in this category to be less than previously projected but rather that the pace of spending has been slower than expected. Based on PG&E's forecast, transition and fuel costs expenditures are expected to increase at a faster pace by the end of 2023.

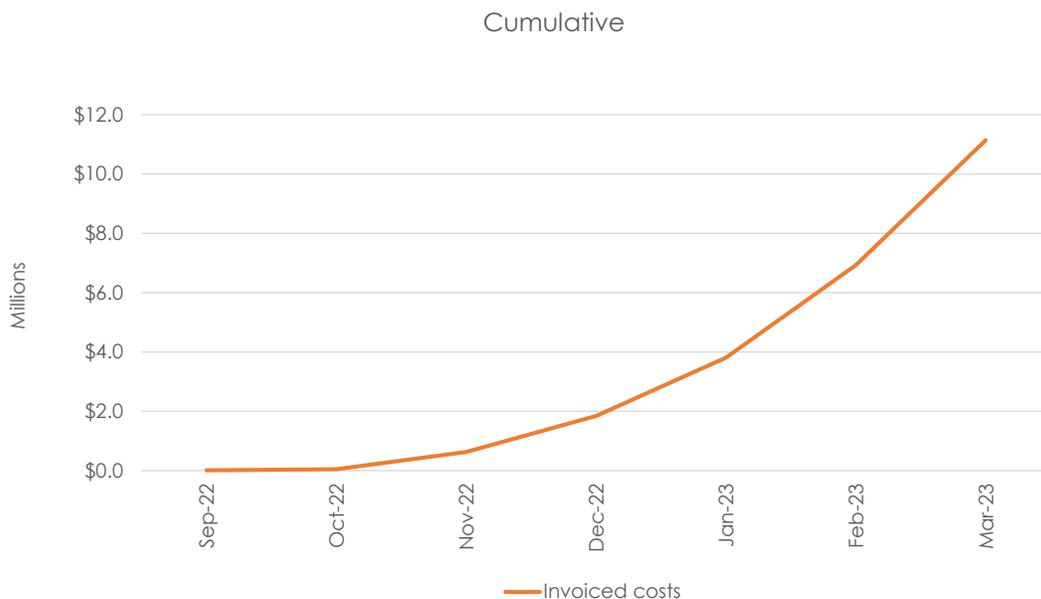
**DWR determination:** DWR and its nuclear consultants reviewed each cost and conducted thorough discussions with PG&E to ask clarifying questions and receive additional supporting documentation. DWR and its nuclear consultants reviewed the project justifications to ensure projects were eligible and necessary to support continued operation based on industry experience at several utilities that have completed nuclear license renewal efforts. DWR and its nuclear consultants also reviewed the amount and timing of the expenditure for its reasonableness.

DWR found PG&E's submission of fuel costs are eligible costs under Public Resources Code Section 25548.3(c)(3), Public Resources Code Section 25548.3(c)(7), and the DWR loan agreement. DWR reviewed PG&E's submitted fuel costs and found them to be reasonable, especially to extend cycle 25 to ensure there is fuel available for the period of extended operations. DWR will continue to closely monitor expenditures in this category and PG&E's progress in securing fuel contracts and coordinating with refueling outages and storage of spent fuel.

### 3.2 Total Costs

Figure 6 below reflects the cumulative costs across all five categories discussed above from September 2, 2022 through March 31, 2023. At the end of this semiannual true-up period, PG&E submitted \$11,137,992 in costs.

**Figure 6: Cumulative Total Costs**



As noted above, the rate of spend has been slower than anticipated but PG&E does not expect overall expenditures to be substantively less than the previously

projected \$1.1 billion in extended operation costs provided to the DOE for the CNC Program.<sup>30</sup>

## 4 Costs in the Public Interest

Public Resources Code Section 25233.2(c) requires the CEC, in consultation with the CAISO and the CPUC, to make a public determination on the prudence of extending DCP. To inform this determination, the CEC analyzed the level of peak electricity demand in the state and concluded that through 2035 electricity demand is increasing faster than previously forecasted. The increase reflects climate change impacts that increase the probability and frequency of extreme peak temperatures occurring at the same time the state is pursuing building and transportation electrification goals. Although the supply of electricity is also growing, the rapid pace of new construction is both unprecedented and experiencing growing pains. The CEC report<sup>31</sup> specifically cited to supply chain disruptions, interconnection delays, and permitting delays that are jeopardizing the expected online dates of new, and particularly emission-free, resources.

At the CEC's public business meeting on February 28, 2023, the CEC adopted resolution 23-0228-09,<sup>32</sup> which includes adoption of the final report, concluding that the CEC:

*determines and finds that the state's electricity forecasts for the calendar years 2024 to 2030, inclusive, show potential for reliability deficiencies if the Diablo Canyon powerplant operation is not extended beyond 2025 and extending operations of the Diablo Canyon powerplant to at least 2030 is prudent to ensure reliability in light of any potential for supply deficiency and is consistent with the emissions reduction goals of Section 454.53 of the Public Utilities Code.*

**DWR determination:** Pursuant to Public Resources Code Section 25548.4.(b)(3), DWR has found that the costs incurred are prudent because they support the extended operations of DCP.

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<sup>30</sup> For cost estimates see Table 4 of PG&E Prepared Testimony, Rulemaking to Implement Senate Bill 846 Concerning Potential Extension of Diablo Canyon Power Plant Operations, May 19, 2023, CPUC Rulemaking 23-01-007.

<sup>31</sup> Erne, David, Mark Kootstra. 2023. Draft Diablo Canyon Nuclear Power Plant Extension – CEC Analysis of Need to Support Reliability. California Energy Commission. Publication Number: CEC-200-2023-004, pp 3-4.

<sup>32</sup> CEC Resolution 23-0228-09, p. 1, ¶ 1, February 28, 2023, <https://www.energy.ca.gov/filebrowser/download/5294> (accessed on Sep. 13, 2023).

## 5 CPUC Staff Determination

Public Utilities Code Section 451 requires that the CPUC approve the rates each electric utility charges its customers by determining whether a utility's proposed rates, services, and charges are just and reasonable. Should the CPUC make a just and reasonable determination, a utility may recover its revenue requirements through rates set in formal CPUC proceedings. One such ratemaking proceeding is the General Rate Case (GRC), which is used to address the costs of operating and maintaining the utility system and the allocation of those costs among customer classes. The GRC occurs every three to four years for the three large utilities. Pursuant to Public Resources Code Section 25548.4(b)(4), each semiannual true-up report shall determine whether the CPUC has not authorized rate recovery of the same costs for which PG&E wishes to use funds disbursed under the loan agreement with DWR. Furthermore, Public Resources Code Section 25548.4(b)(5) allows for the semiannual true-up to review other considerations deemed appropriate by the CPUC.

DWR collaborated with CPUC to review PG&E's submitted costs. The CPUC has confirmed that the costs incurred in 2022 for which PG&E seeks reimbursement have not already been authorized in rate recovery. For 2023, some of the costs for which PG&E seeks reimbursement include staff who also work on GRC-funded tasks. However, the CPUC anticipates that across the 2023-2026 GRC period, PG&E's expenditures on DCPD work scoped into the 2023-2026 GRC will be exceeded by the amount of funds for which PG&E seeks reimbursement, in which case the costs associated with these staff will not represent "payment for the same costs that have been authorized for rate recovery by the CPUC." Consequently, reimbursement of these costs is conditionally approved at this time, pending (a) the CPUC approval of PG&E's 2023-2026 GRC and (b) the completion of the 2023-2026 GRC scope of work on DCPD tasks. In the event that PG&E does not fully spend its 2023-2026 GRC-authorized expenditures for DCPD, the amount of reimbursement for License Renewal work performed by staff who also work on GRC-funded tasks will be reduced commensurately, to ensure that PG&E does not receive payment for the same costs that have been authorized for rate recovery by the CPUC.

The next section discusses the total net costs allowed in this semiannual true-up period.

## 6 Spring 2023 Semiannual True-Up Allowable Loan Proceeds

Table 7 below summarizes the total net allowable loan proceeds for this semiannual true-up period. Column [A] reproduces PG&E's submitted costs by cost category. Column [B] summarizes any DWR disallowed costs based on eligibility and reasonableness. Column [C] summarizes CPUC staff disallowed costs based on whether the costs have already been authorized in rate recovery and any other CPUC considerations. Column [D] subtracts DWR and CPUC disallowed costs from PG&E's total costs. For this semiannual true-up period, DWR allows \$11,137,992 of costs submitted by PG&E.

**Table 7: Spring 2023 Semiannual True-up Allowable Loan Proceeds**

	<b>[A]</b>	<b>[B]</b>	<b>[C]</b>	<b>[D]</b>
<b>Cost category</b>	<b>PG&amp;E Submitted Costs</b>	<b>DWR Disallowed Costs</b>	<b>CPUC Disallowed Costs</b>	<b>Allowable Loan Proceeds [A] - [B] - [C]</b>
Capital	\$235,515	\$0	\$0	\$235,515
Operating	\$1,099,176	\$0	\$0	\$1,099,176
License renewal	\$4,163,744	\$0	\$0	\$4,163,744
Transition and Fuel	\$5,639,557	\$0	\$0	\$5,639,557
<b>Total</b>	<b>\$11,137,992</b>	<b>\$0</b>	<b>\$0</b>	<b>\$11,137,992</b>

Note: Includes CPUC conditionally approved costs.

## 7 Conclusion/Next Steps

For the Spring 2023 Period, DWR found \$11,137,992 of costs incurred related to DCPD license renewal to be eligible, reasonable, in the public interest, and the CPUC has not authorized rate recovery of the same costs pursuant to Public Resources Code Section 25548.4(b). Furthermore, PG&E has certified that loan proceeds are not treated as shareholder profits or paid out as dividends pursuant to Public Resources Code Section 25548.4(c).

As documented in this report, numerous internal and external factors slowed the expected rate of spend for each of the five major cost categories. PG&E acknowledged and explained each factor and does not believe any of the delays will negatively impact its progress toward extended operations at DCPD or the plant's continued safe and reliable operation. Furthermore, PG&E does not expect overall expenditures to be substantively less than the previously projected \$1.1 billion in extended operation costs provided to the DOE for the

CNC Program. PG&E expects the rate of expenditures to increase over time and DWR will assess changes in subsequent semiannual true-up reports.

DWR will continue to participate and monitor relevant regulatory processes such as NRC public meetings, DCISC meetings and publications, CPUC proceedings, CEC dockets and publications, and any public engagement on the U.S. Department of Energy's CNC Program.

The next major milestone for DCPD is the upcoming scheduled Unit 1 refueling and maintenance outage in October 2023. This is when PG&E will conduct planned maintenance pursuant to AMP commitments, perform refueling, and better gauge additional needs to support safe and reliable extended operations at DCPD. DWR will track the progress and findings from this outage.

The next semiannual true-up will begin in October 2023, for the period from April 1, 2023 through September 30, 2023.

**PG&E Gas and Electric  
Advice Submittal List  
General Order 96-B, Section IV**

AT&T  
Albion Power Company

Alta Power Group, LLC  
Anderson & Poole

Atlas ReFuel  
BART  
Buchalter  
Barkovich & Yap, Inc.  
Braun Blaising Smith Wynne, P.C.  
California Community Choice Association  
California Cotton Ginners & Growers  
Assn California Energy Commission

California Hub for Energy Efficiency  
Financing

California Alternative Energy and  
Advanced Transportation Financing  
Authority  
California Public Utilities Commission  
Calpine

Cameron-Daniel, P.C.  
Casner, Steve  
Center for Biological Diversity

Chevron Pipeline and Power  
City of Palo Alto

City of San Jose  
Clean Power Research  
Coast Economic Consulting  
Commercial Energy  
Crossborder Energy  
Crown Road Energy, LLC  
Davis Wright Tremaine LLP  
Day Carter Murphy

Dept of General Services  
Don Pickett & Associates, Inc.  
Douglass & Liddell  
Downey Brand LLP  
Dish Wireless L.L.C.

East Bay Community Energy Ellison  
Schneider & Harris LLP

Electrical Power Systems, Inc.  
Fresno  
Engineers and Scientists of California

GenOn Energy, Inc.  
Green Power Institute  
Hanna & Morton  
ICF

iCommLaw  
International Power Technology  
Intertie

Intestate Gas Services, Inc.

Johnston, Kevin  
Kelly Group  
Ken Bohn Consulting  
Keyes & Fox LLP  
Leviton Manufacturing Co., Inc.

Los Angeles County Integrated  
Waste Management Task Force  
MRW & Associates  
Manatt Phelps Phillips  
Marin Energy Authority  
McClintock IP  
McKenzie & Associates

Modesto Irrigation District  
NRG Solar

OnGrid Solar  
Pacific Gas and Electric Company  
Peninsula Clean Energy

Pioneer Community Energy

Public Advocates Office

Redwood Coast Energy Authority  
Regulatory & Cogeneration Service, Inc.

Resource Innovations

SCD Energy Solutions  
San Diego Gas & Electric Company

SPURR  
San Francisco Water Power and Sewer  
Sempra Utilities

Sierra Telephone Company, Inc.  
Southern California Edison Company  
Southern California Gas Company  
Spark Energy  
Sun Light & Power  
Sunshine Design  
Stoel Rives LLP

Tecogen, Inc.  
TerraVerde Renewable Partners  
Tiger Natural Gas, Inc.

TransCanada  
Utility Cost Management  
Utility Power Solutions  
Water and Energy Consulting Wellhead  
Electric Company  
Western Manufactured Housing  
Communities Association (WMA)  
Yep Energy