

Rulemaking: 23-01-007
(U 39 E)
Exhibit No.: _____
Date: May 19, 2023
Witness(es): Brian Ketelsen

PACIFIC GAS AND ELECTRIC COMPANY
RULEMAKING TO IMPLEMENT SENATE BILL 846
CONCERNING POTENTIAL EXTENSION OF
DIABLO CANYON POWER PLANT OPERATIONS

PREPARED TESTIMONY

(PUBLIC VERSION)



PACIFIC GAS AND ELECTRIC COMPANY
 RULEMAKING TO IMPLEMENT SENATE BILL 846
 CONCERNING POTENTIAL EXTENSION OF
 DIABLO CANYON POWER PLANT OPERATIONS
 PREPARED TESTIMONY

TABLE OF CONTENTS

A. Introduction.....	1
B. Historical Costs	3
1. Introduction Concerning Cost Presentation.....	3
2. EUCG Accounting Format Description.....	3
3. Cost Presentation Table and Narrative	6
C. Forecast Costs	8
1. Introduction Concerning Cost Presentation.....	8
2. Forecast Cost Data Through 2030	8
D. Cost Categories Identified in Scoping Memo.....	10
1. Maintenance Program.....	10
2. Likely or Potential Improvements That Might Reasonably Be Required as Part of the NRC Licensing Process	12
3. Seismic Safety	13
4. Costs Expected to Be Recovered by DWR Loan and DOE CNC Program	14
5. Future Cost Application.....	15
E. Conclusion.....	16
Attachment A: Nuclear Operating Cost Data (EUCG).....	AtchA-1
Attachment B: Capital Data (EUCG).....	AtchB-1
Attachment C: Nuclear Operating Costs Refueling Outages (EUCG).....	AtchC-1
Appendix A: Statement of Qualifications.....	App-1

1 **PACIFIC GAS AND ELECTRIC COMPANY**
2 **RULEMAKING TO IMPLEMENT SENATE BILL 846**
3 **CONCERNING POTENTIAL EXTENSION OF**
4 **DIABLO CANYON POWER PLANT OPERATIONS**
5 **PREPARED TESTIMONY**

6 **A. Introduction**

7 On September 2, 2022, Governor Newsom signed Senate Bill (SB) 846,¹
8 authorizing continued operations at Diablo Canyon Power Plant (DCPP or
9 Diablo Canyon) beyond the current retirement dates, up to five additional years,
10 under specific conditions. Subsequently, the California Public Utilities
11 Commission (CPUC or Commission) issued Decision (D.) 22-12-005 on
12 December 1, 2022, implementing Sections 712.8(c)(1)(A) and 712.8(e) of the
13 Public Utilities Code (Pub. Util. Code). As required by SB 846, D.22-12-005
14 directed and authorized Pacific Gas and Electric Company (PG&E) to take “all
15 actions that would be necessary”² so as to preserve the option of extended
16 operations at Diablo Canyon beyond the current retirement dates, and to track
17 all costs associated with continued and extended operations. On January 20,
18 2023, the Commission opened this rulemaking to effectuate additional provisions
19 of SB 846.³

20 The April 6, 2023, Assigned Commissioner Scoping Memo and Ruling
21 (Scoping Memo) directed PG&E to submit testimony on May 19, 2023,
22 instructing:

23 PG&E serves testimony on historical and forecast cost data (through 2030)
24 for Diablo Canyon, focusing on costs associated with likely or potential
25 improvements that might reasonably be required as part of the [U.S. Nuclear
26 Regulatory Commission (NRC)] relicensing process. PG&E must also
27 identify whether any of the forecast costs are expected to be recovered

1 SB 846 (Dodd, 2021-2022 Reg. Sess.), Diablo Canyon powerplant: extension of
operations, codified as Public Resources (Pub. Res.) Code §§ 25233, 25233.2, and
25302.7; Pub. Util. Code §§ 712.1 and 712.8; and Water Code § 13193.5.

2 D.22-12-005 at p. 2.

3 Order Instituting Rulemaking to Consider Potential Extension of Diablo Canyon Power
Plant Operations in Accordance with SB 846, Jan. 20, 2023.

1 through the [California Department of Water Resources (DWR)] loan and
2 from the [U.S. Department of Energy (DOE)] Civil Nuclear Credit program.⁴

3 The purpose of this testimony is to present historical and forecast cost data
4 through 2030 for Diablo Canyon.⁵ In this testimony, PG&E presents historical
5 and forecast cost data, consistent with accounting methodologies adopted by
6 the Electric Utility Cost Group (EUCG). PG&E's cost presentation is consistent
7 with PG&E's September 2022 Application for the DOE Civil Nuclear Credit
8 (CNC) Program, which represents PG&E's most recent and complete set of cost
9 information. The cost presentation in this testimony does not capture: property
10 taxes, income taxes, Allowance for Funds Used During Construction,
11 depreciation, interest expense, and revenues. These categories of cost are not
12 captured in either the EUCG methodology or the General Rate Case (GRC) for
13 Nuclear Operations Costs. In PG&E's GRCs, these categories of costs are
14 deemed as corporate GRC items. The excluded categories are also not among
15 the cost categories identified as relevant to this proceeding.⁶ As such, these
16 items are not included in tables presented in this testimony. During extended
17 operations, PG&E may request recovery of these excluded costs categories in a
18 future cost recovery application, as discussed in Section D.5.

19 This chapter is broken into the following sections:

- 20 • **Section B: Historical Costs:** PG&E presents Diablo Canyon historical
21 costs from 2010 through 2022;
- 22 • **Section C: Forecast Costs:** PG&E presents Diablo Canyon forecast costs
23 through 2030; and
- 24 • **Section D: Cost Categories Identified in Scoping Memo:** PG&E
25 addresses those cost categories identified in the Scoping Memo.

4 Rulemaking 23-01-007, Assigned Commissioner's Scoping Memo and Ruling (April 6, 2023) at p. 13.

5 Appendix A to this testimony includes the professional qualifications for Brian Ketelsen who is the sponsor of this Prepared Testimony.

6 Scoping Memo at pp. 8-9 (stating, "Specifically, this proceeding will consider cost data associated with any upgrades necessary to address seismic safety, issues of deferred maintenance, or NRC's potential conditions of license renewal, and any incremental operating costs resulting from these upgrades.").

1 **B. Historical Costs**

2 **1. Introduction Concerning Cost Presentation**

3 PG&E’s most recent and complete set of cost information was
4 presented in its September 2, 2022, Application for the DOE’s CNC
5 Program; thus, the information presented in this testimony is consistent with
6 PG&E’s Application but has been updated to reflect actual 2022 costs, since
7 the DOE CNC Application was submitted before the end of the 2022
8 calendar year.

9 The DOE CNC Application required that costs be presented in the
10 EUCG industry accounting format, which contains differences from the GRC
11 accounting format. PG&E understands that the Commission and parties
12 have become accustomed to reviewing costs presented in the GRC
13 accounting methodology, and therefore, provides a description of the EUCG
14 industry accounting method below, and provides EUCG definitions included
15 as Attachment A to this testimony.

16 **2. EUCG Accounting Format Description**

17 EUCG industry cost definitions are designed to capture all relevant
18 holistic costs to operate a nuclear generation facility. Costs are divided into
19 Dedicated and Non-Dedicated categories to allow for comparison
20 benchmarking across a variety of corporate cost structures. Other than the
21 support services costs that are reflected in line 6 of Table 1 and Table 2,
22 below, Dedicated costs are similar to Major Work Category (MWC) cost
23 categories; however, most EUCG categories co-mingle with MWC cost
24 categories. The co-mingling of categories allows for more effective industry
25 benchmarking as costs are organized in a typical industry nuclear plant
26 structure—these costs are called Nuclear Operating Costs (NOC).

27 Non-Dedicated costs are driven by organizations outside of DCPD such
28 as Information Technology, Insurance, Legal, Finance, Executive
29 Leadership, Communications, Safety and Health, Procurement, and Human
30 Resources. The aforementioned organizations have separate GRC
31 chapters and are not included in the Nuclear chapter in PG&E’s most recent
32 GRC, Application 21-06-021.

1 Figure 1 below compares the MWC from the GRC to its corresponding
 2 EUCG category.

**FIGURE 1
 GENERAL RATE CASE MWC VS. EUCG CATEGORY**

Line No.	Major Work Category	EUCG Category
1	Maintain Plant Configuration (BV)	Engineering
2	Loss Prevention (BQ), Manage Production (BR), Nuclear Generation Fees (BT)	Loss Prevention
3	Manage DCPD Assets (BS)	Materials and Services
4	Maintain Plant Configuration (BV)	Fuel Management
5	Manage Production (BR), Manage Environmental Operation (AK)	Operations
6	Manage DCPD Business (BP), Manage DCPD Assets (BS), Operational Management (OM), Operational Support (OS)	Support Services
7	Nuclear Generation Fees (BT), Operational Support (OS)	Training – Develop and Conduct
8	Manage DCPD Assets (BS), Operational Management (OM), Operational Support (OS)	Work Management
9		Nuclear Operating Costs
10	DCPD Capital (20)	Total Capital
11	All MWC	Outage
12	Energy Resource Recovery Account	Fuel

3 Capital, Fuel, and Refueling Outages costs are tracked separately.
 4 Refueling costs are a sub-set of total costs but are not included in NOC
 5 costs which represents an operational baseline or non-outage routine
 6 annual cost profile. The DOE's CNC Program required cost information to
 7 be included in the EUCG format as it captures industry accepted total cost
 8 values for operating a nuclear generation facility.

9 The EUCG components of the Total NOCs (line 9 in Table 1 and
 10 Table 2) are described below.

- 11 • **Engineering:** Costs associated with study, design, and implementation
 12 of engineering;

- 1 • **Loss Prevention:** Costs include Security, Quality Assurance/Quality
2 Control, Corrective Action Program & Operating Experience,
3 Safety/Health, Licensing, Emergency Preparedness, and Dedicated Fire
4 Responders;
- 5 • **Materials and Services:** Costs include Materials Management &
6 Warehousing, Contracts & Purchasing, Procurement Engineering, and
7 Unneeded Material Disposal;
- 8 • **Fuel Management:** Administrative and technical activities associated
9 with the fuel cycle process (contract administration, developing core
10 designs, safety analysis calculations and support, monitoring nuclear
11 fuel performance, monitoring and analyzing the fuel market).
- 12 • **Operations:** All activities associated with preparing and placing
13 systems and components in and out of service (e.g., tag-outs and
14 clearances) to support normal and off-normal system operations and
15 actions required to maintain the plant in safe operating conditions;
- 16 • **Support Services:** All activities associated with Information
17 Technology, Business Services, Records Management & Procedures,
18 Human Resources, Housekeeping & Facilities Management,
19 Communications & Community Relations, Nuclear Offices, Executives,
20 Management Assistance and Industry Associations, Employee Incentive
21 Payments, Insurance, Payroll Taxes, Pension & Benefits.
- 22 • **Training – Develop and Conduct:** All activities associated with
23 development and conduction of training programs, including instructor
24 preparation and instruction delivery time, production of class materials
25 and assessment of the training; and
- 26 • **Work Management:** All activities associated with Planning &
27 Scheduling/Outage Management and Maintenance.

28 The following costs are also included in Tables 1 and 2: capital costs,
29 outage costs, and fuel costs, described below.

- 30 • **Capital:** Capital projects, including from the following categories:
31 Enhancements, Infrastructure, Information Technology, Capital Spares,
32 Sustaining. Additional details from EUCG are provided in Attachment B.

- 1 • **Outage:** Refueling outage costs include the costs for labor, materials,
2 equipment, and outside services. Additional details from EUCG are
3 provided in Attachment C.
- 4 • **Fuel:** Provide and Transport Fuel (all activities associated with the
5 provision and transportation of fuel including procurement, enrichment,
6 conversion and fabrication); and Provide Handling, Storage and
7 Disposal of Fuel (all activities associated with receiving and storing new
8 fuel).

9 In Table 1 “Historic Costs,” PG&E has redacted market sensitive
10 information of nuclear fuel costs for the period from 2020 through 2022.
11 Release of this information could put PG&E at a competitive disadvantage
12 with regard to other market participants and could detrimentally impact
13 PG&E’s customers. PG&E has also redacted Support Services and Nuclear
14 Operating Costs (which includes Support Services in its aggregation of
15 costs), from 2020 through 2022 to protect market sensitive fuel costs and to
16 prevent historical fuel costs from being derived from publicly available
17 information.

18 **3. Cost Presentation Table and Narrative**

19 Historical Diablo Canyon costs from 2010 to 2022 are shown in Table 1
20 “Historical Costs” below. The years preceding the issuance of D.18-01-022
21 approving retirement dates of Diablo Canyon are provided to show operating
22 costs from before retirement planning was occurring.

**TABLE 1
HISTORICAL COSTS
(THOUSANDS OF DOLLARS)**

Line No.	Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
1	Engineering	\$32,406	\$32,765	\$34,619	\$38,509	\$36,865	\$36,783	\$41,005	\$48,129	49,749	\$50,033	\$46,723	\$39,542	\$31,990
2	Loss Prevention	53,424	58,989	70,277	64,850	62,261	63,045	72,811	69,343	70,840	74,045	78,778	72,659	72,755
3	Materials and Services	9,015	6,016	5,721	8,917	12,980	8,499	8,648	3,811	3,920	6,000	4,600	4,976	8,468
4	Fuel Management	–	–	4,430	5,987	844	1,053	648	300	0	554	501	832	808
5	Operations	52,941	55,982	58,665	61,427	65,186	55,839	67,903	73,457	75,766	77,567	70,895	71,340	77,593
6	Support Services	146,653	143,618	157,288	134,566	155,377	151,291	147,888	104,299	61,617	98,313			
7	Training – Develop and Conduct	8,911	7,772	7,843	10,987	11,222	9,335	7,318	7,700	7,996	10,343	11,472	9,072	7,551
8	Work Management	80,692	86,295	105,202	96,973	144,842	157,413	141,805	120,992	114,824	137,884	106,288	104,519	112,109
9	Total Nuclear Operating Costs	384,042	391,436	444,044	422,216	489,577	483,257	488,026	428,031	384,712	454,739			
10	Capital	178,313	229,839	251,090	209,296	209,934	217,443	183,121	161,871	106,210	102,476	43,327	34,36	12,995
11	Outage	44,663	43,019	45,587	45,289	87,156	52,333	58,860	64,584	48,086	81,928	44,982	41,466	63,274
12	Fuel	105,278	127,942	128,631	133,152	113,921	125,134	126,909	124,061	128,286	112,605			
13	Total	\$712,296	\$792,236	\$869,352	\$809,953	\$900,588	\$878,167	\$856,916	\$778,547	667,294	\$751,748	\$596,818	\$581,344	\$644,111

1 **C. Forecast Costs**

2 **1. Introduction Concerning Cost Presentation**

3 At this point, PG&E's most complete set of forecasted future costs for
4 2023 and beyond are presented in its DOE CNC Application. The EUCG
5 categories described in Section B., Historical Costs, remain the same so
6 that costs can be reviewed in a like-to-like manner.

7 In presenting its cost forecast for DCP's extended operations
8 (e.g., beyond its current retirement dates), consistent with DOE
9 requirements, PG&E made assumptions to adjust cost estimates in line with
10 previous normal plant operations. For example, line 11 in Table 2 "Forecast
11 Costs" shows projected outages. This line was calculated by considering all
12 the planned maintenance and refueling outages over the past five years
13 (2017-2021), taking the average of each of the outages, and then escalating
14 by 3.5 percent annually. Refueling outage frequency is approximately every
15 18 months with some years having dual unit refueling outages (as there are
16 two 18-month cycles given the two units).

17 Actual costs may vary from the forecast presented below and will be
18 provided in a future cost recovery application, referred to in Section D.5.

19 **2. Forecast Cost Data Through 2030**

20 Forecast Diablo Canyon costs from 2023 to 2030 are presented below:

**TABLE 2
FORECAST COSTS
(THOUSANDS OF DOLLARS)**

Line No.	Year	2023	2024	2025	2026	2027	2028	2029	2030
1	Engineering	\$44,444	\$44,767	\$39,047	\$39,786	\$41,178	\$42,619	\$44,111	\$19,023
2	Loss Prevention	77,614	78,178	68,189	69,479	71,911	74,427	77,032	33,220
3	Materials and Services	7,887	7,944	6,929	7,060	7,308	7,563	7,828	3,376
4	Fuel Management	833	839	732	746	772	799	827	357
5	Operations	76,292	76,847	67,028	68,296	70,687	73,161	75,721	32,655
6	Support Services								
7	Training – Develop and Conduct	9,352	9,420	8,216	8,371	8,664	8,968	9,282	4,003
8	Work Management	108,140	108,926	191,968	142,588	147,579	206,495	158,091	68,177
9	Total Nuclear Operating Costs								
10	Capital	150,180	150,052	150,094	154,312	119,785	123,977	96,237	20,751
11	Outage	46,841	46,841	96,961	50,177	51,933	107,502	55,632	23,991
12	Fuel								
13	Total	\$735,836	\$744,446	\$893,139	\$765,144	\$751,996	\$885,818	\$773,478	\$422,644

1 The following differences exist between the historical costs and the
2 forecast costs:

- 3 • The costs in the forecast table are estimated future costs; and
- 4 • The cost forecast data for years 2023 through 2026 include all costs that
5 are anticipated to be reimbursed by government funding (either through
6 the DWR agreements under Assembly Bill (AB) 180 and SB 846 or the
7 DOE's CNC Program) during that relevant period. Costs that are
8 anticipated to be reimbursed by government funding are shown in
9 Table 4.

10 In its forecast table, PG&E redacts market sensitive information
11 regarding nuclear fuel costs. Release of this market sensitive information
12 could put PG&E at a competitive disadvantage with regard to other market
13 participants and could detrimentally impact all customers. PG&E also
14 redacts Support Services and Nuclear Operating Costs (which includes
15 Support Services in its aggregation of costs), in the public testimony version
16 to protect market sensitive information of fuel costs.

17 Finally, costs associated with an employee retention program beyond
18 what was already approved in D.18-11-024 are not included in the forecast
19 table presented in this testimony. PG&E anticipates submitting a new
20 application to present PG&E's proposal of the employee retention program,
21 pursuant to Pub. Util. Code § 712.8(f)(2). PG&E will provide an update to its
22 forecasted costs following submission of this application in accordance with
23 guidance by the CPUC.

24 **D. Cost Categories Identified in Scoping Memo**

25 **1. Maintenance Program**

26 The Scoping Memo directs PG&E to:

27 [P]rovide cost estimates associated with likely or potential
28 improvements to address any needed maintenance and/or capital
29 expenditures that were deferred in light of the units' scheduled
30 retirement dates or that might reasonably be required as part of the
31 NRC relicensing process.⁷

7 Scoping Memo at p. 9.

1 PG&E's operation of Diablo Canyon following the Commission's order
2 approving retirement dates for Diablo Canyon in 2024 and 2025⁸ sought to
3 optimize maintenance for those retirement dates. PG&E's repairs and
4 maintenance activities complied on a daily basis in accordance with the
5 NRC Maintenance Rule Program,⁹ regardless of retirement dates. The
6 NRC Maintenance Rule Program establishes the requirements necessary to
7 ensure the safe operations of the plant and will continue to apply during any
8 extended operations.

9 The cost forecast presented in Table 2 reflects PG&E's best available
10 estimated costs of resuming maintenance projects with an optimized 2030
11 end date. Many non-routine maintenance tasks occur only during outages,
12 which represent both repairs and resources, including needing certain staff
13 and equipment to complete the actions. PG&E's cost forecast assumes
14 projects supporting safe and reliable operations through 2030. Such
15 maintenance costs are included amongst costs identified in multiple lines on
16 Table 2 (Forecast Costs) and portions of the capital and transition costs of
17 Table 4 (Forecast Costs Expected to be Recovered through DWR Loan and
18 DOE CNC Program). The project row includes costs for projects that may
19 be considered "deferred maintenance," as described in the Scoping Memo,
20 with an assumption of optimized performance for a 2030 retirement date.

21 Finally, as established by SB 846, Pub. Res. Code
22 Section 25548.3(c)(14) states that as a condition of accessing a loan by
23 DWR, the loan agreement will include:

24 A covenant that the operator shall commission a study by independent
25 consultants to catalog and evaluate any deferred maintenance at the
26 Diablo Canyon powerplant and to provide recommendations as to any
27 risk posed by the deferred maintenance, potential remedies, and cost
28 estimates of those remedies, and a timeline for undertaking those
29 remedies.

30 The process of commissioning a study by independent consultants is in
31 progress. As of the date of this testimony, PG&E does not have a complete
32 estimate of those costs.

8 See D.18-01-022.

9 Title 10 of the Code of Federal Regulations (10 CFR) 50.65.

1 **2. Likely or Potential Improvements That Might Reasonably Be Required**
2 **as Part of the NRC Licensing Process**

3 The Scoping Memo directs:

4 In the absence of a renewed NRC license with conditions or
5 requirements whose costs can be calculated, it is reasonable for PG&E
6 to provide cost estimates associated with likely or potential
7 improvements . . .that might reasonably be required as part of the NRC
8 relicensing process.¹⁰

9 PG&E intends to submit a license renewal application for DCP
10 operations to the NRC by December 31, 2023. As such, the NRC has not
11 established any conditions of a renewed operating license, and PG&E is not
12 able to precisely predict likely or potential improvements that might
13 reasonably be required as part of the NRC relicensing process.¹¹ The NRC
14 actively oversees day-to-day operations at the plant, which includes on-site
15 inspectors stationed at the plant and conducts regular inspections of the
16 plant’s operations.

17 To the extent that “likely or potential improvements that might
18 reasonably be required as part of the NRC Licensing Process” includes the
19 costs of going through the NRC relicensing process, the table below breaks
20 down line 3 from Table 4 on reimbursable costs from the DOE’s CNC
21 Program.

10 Scoping Memo at p. 9.

11 PG&E believes that the NRC will continue the requirement to maintain its Long-Term Seismic Program (LTSP) as a condition of the renewed operation license. The cost of the LTSP has traditionally been included in the cost of PG&E’s Geosciences Department.

**TABLE 3
BREAKDOWN OF FORECASTED RELICENSING COSTS
(THOUSANDS OF DOLLARS)
(LINE 3 FROM TABLE 4)**

Line No.	Cost Area	Q3-Q4 2022	2023	2024	2025	2026
1	PG&E Regulatory Project Team	\$2,549.5	\$6,554.3	\$6,684.7	\$5,919.3	\$3,980.7
2	NRC Review Fees	–	750.0	500.0	250.0	–
3	Technical Update Support and Federal Review Support	125.0	2,325.0	3,525.0	3,550.0	–
4	State and Local Permitting Fees and Support	75.0	2,736.4	5,936.4	5,911.4	1,075.0
5	Aging Management Program Implementation Costs and Activities	267.5	35,295.4	26,650.2	–	–
6	Planning, Development, and Implementation Personnel	2,555.2	4,810.5	4,510.5	4,260.5	–
7	Total	\$5,572.3	\$52,471.5	\$47,806.8	\$19,891.1	\$5,055.7

1 PG&E anticipates the NRC will require as a condition of the renewed
2 license the continuance of the LTSP during extended operations, and
3 forecast LTSP costs are included in the forecast cost table (line 1 from Table
4 2). In below Table 4, PG&E shows relicensing costs estimates that will
5 potentially be eligible for DWR/DOE funding (line 3 from Table 4). Lines 5
6 and 6 of Table 3 above display a further breakdown of costs to perform
7 commitments to support an NRC determination that it is safe to operate
8 DCPP during extended operations. These commitment cost estimates are
9 based on previous DCPP relicensing efforts.

10 **3. Seismic Safety**

11 Extensive scientific re-evaluations performed at the direction of the NRC
12 continue to show that Diablo Canyon can safely withstand earthquakes,
13 tsunamis and flooding that could potentially occur in the region. Updated
14 seismic evaluation provides additional confirmation that the plant is
15 designed to withstand the ground motions, or shaking, from earthquakes.
16 In 2019, the NRC determined that no plant systems, structures, and

1 components needed to safely operate Diablo Canyon were in need of
2 updating to protect against earthquakes.¹²

3 PG&E's flooding hazard re-evaluation determined that Diablo Canyon's
4 key safety systems and components continue to be safe from tsunamis,
5 including those generated from underwater landslides and earthquakes.¹³

6 PG&E is not aware of any seismic upgrades required for reactor safety and
7 license renewal and, as a result, does not anticipate any seismic safety
8 costs.

9 PG&E does not expect any conditions related to seismic safety but
10 should there be subsequent recommendations issued by the Diablo Canyon
11 Independent Safety Committee identified in its June 28-29, 2023 Fact
12 Finding Report, PG&E will provide the information in its July 31, 2023
13 testimony.

14 **4. Costs Expected to Be Recovered by DWR Loan and DOE CNC Program**

15 Costs that are expected to be recovered by government funding streams
16 are provided in Table 4 below.

¹² Letter from NRC to PG&E, titled "Diablo Canyon Power Plant, Unit Nos. 1 and 2 – Staff Review of Seismic Probabilistic Risk Assessment Associated With Reevaluated Seismic Hazard Implementation Of The Near-Term Task Force Recommendation 2.1: Seismic (EPID No. L-2018-JLD-0006) (Jan. 22, 2019), available at <https://adamswebsearch2.nrc.gov/webSearch2/main.jsp?AccessionNumber=ML18254A040>.

¹³ Letter from PG&E to NRC, titled "Final Response to Request for Information Pursuant to 10 CFR 50.54(f) Regarding Recommendation 2.1 Flooding," (March 11, 2015), available at <https://adamswebsearch2.nrc.gov/webSearch2/main.jsp?AccessionNumber=ML15071A045>.

**TABLE 4
FORECAST COSTS EXPECTED TO BE RECOVERED THROUGH
DWR LOAN AND DOE CNC PROGRAM
(THOUSANDS OF DOLLARS)**

Line No.	Year	2022	2023	2024	2025	2026
1	Capital	\$5,000	\$139,180	\$138,050	\$49,698	–
2	Operating Costs	16,500	37,164	38,464	87,667	–
3	Relicensing	5,572	52,472	47,807	19,891	\$5,056
4	Transition					
5	Fuel					
6	Total	\$42,072	\$381,816	\$408,321	\$210,256	\$58,056

1 As noted above, PG&E redacts market sensitive information regarding
2 nuclear fuel costs from Table 4. Release of this market sensitive information
3 could put PG&E at a competitive disadvantage with regard to other market
4 participants and could detrimentally impact all customers. So that fuel costs
5 cannot be derived from those public costs shown in Table 4, PG&E also
6 redacts transition costs.

7 As authorized by D.22-12-005, PG&E has requested Commission
8 approval to establish the Diablo Canyon Transition and Relicensing
9 Memorandum Account to track and record all costs, expenses, and financial
10 commitments in furtherance of the directive in SB 846 to preserve the option
11 for extended operations at Diablo Canyon. The costs of the transition and
12 relicensing activities will not be recovered by ratepayers, but rather funded
13 solely through government funding streams. The government funding
14 streams include the amounts allocated by AB 180 and SB 846, the
15 associated loan agreements with DWR, as well as any funding made
16 available through the DOE's CNC Program.

17 **5. Future Cost Application**

18 PG&E reiterates that the cost forecast presented above is based on its
19 best available information at this time. Assuming that the Commission
20 adopts new retirement dates for Diablo Canyon, PG&E expects to file an
21 application for extended operations cost recovery in the first quarter of 2024
22 for rates effective beginning on January 1, 2025. At the time of such
23 application, PG&E's cost recovery request will include a cost forecast that
24 reflects best information available at that time.

1 PG&E's future cost recovery application for extended operations will
2 include all costs relevant to extended operations that are proposed to be
3 recorded and recovered through the Diablo Canyon Extended Operations
4 Balancing Account (DCEOBA).¹⁴ In addition to costs presented in the
5 EUCG cost categories identified herein, PG&E proposes that entries to the
6 DCEOBA include additional costs categories, such as taxes, benefits and
7 standard PG&E overheads, employee retention costs, regulatory
8 compliance items, and statutory charges and fees. In addition, PG&E would
9 record to the DCEOBA, and, in a future cost recovery application, would
10 request recovery thereof, specified amounts associated with PG&E's
11 extended operations that are identified in SB 846 that may not be explicitly
12 included in Table 2, such as the volumetric performance and fixed
13 management payments for extended operations.¹⁵

14 PG&E notes that actual magnitude of forecast costs identified in specific
15 categories included in this testimony may vary from PG&E's current
16 estimate. Potential reasons for this may include additional costs that are
17 incurred, fewer costs incurred, or the amount that PG&E is reimbursed
18 through government funding may be different than anticipated.
19 Consequently, costs included in any future cost recovery application will
20 differ than those presented here.

21 **E. Conclusion**

22 As directed in the Scoping Memo, PG&E provides historical and forecast
23 Diablo Canyon costs, focusing on costs associated with relicensing, and
24 identifies certain forecast costs that are expected to be recovered through the
25 DWR loan and from the DOE's CNC Program. Actual costs may vary from the
26 forecast presented in this testimony and will be provided in a future cost
27 recovery application.

¹⁴ See PG&E Advice 6870-E.

¹⁵ See, e.g., Pub. Util. Code § 712.8 (f)(5)-(6).

PACIFIC GAS AND ELECTRIC COMPANY
ATTACHMENT A
NUCLEAR OPERATING COST DATA (EUCG)

Nuclear Operating Cost Data

(NC-DEF-05)

Getting Started

All financial data should be finalized for your company at the time this survey is completed. High-level financial data is available from your Accounting, Finance, or business operations functions.

The cost data should reflect the total operating costs for labor, materials, equipment, and outside services.

General Instructions

- All financial values should be submitted in thousands of your own country's currency. On screens where costs are submitted, select the country currency that you are using in the dropdown box at the top of the screen. If your currency is not listed, submit in thousands of US dollars.
- Negative balances should not be reported in any accounts in the EUCG surveys. While you can have negative costs, they should net out to zero or a positive number in the EUCG account.
- Data should be provided on a plant basis and includes all costs associated with normal operations, maintenance, and refueling outage periods that occur within the current EUCG data reporting year. All costs (on-line and outage) for the reporting period are to be included in the annual data submittal.
- All cost data should be reported based on your company's annual reporting period for the year (calendar year or fiscal reporting year)
- Comments can be entered on each account line, and should be entered to clarify any costs.
- Dedicated and Non-dedicated costs in support of nuclear as listed in the Annual Corporate Function Checklist must be included in the data submittals. A potential allocation calculation for each listed cost, if necessary, is included in the checklist. It should be indicated for each corporate function listed if these costs were entered as Dedicated, Non-dedicated, or not included at all in the survey.
- Dissimilar units at the same site (i.e., units of significant vintage or design differences), should be reported in separate submittals from one another.
- Costs common to multiple plants should be prorated.

- The following nuclear costs should be excluded from the operating cost database:
 - depreciation, interest, taxes (except Payroll), and NRC (regulatory/civil) penalties.
- Severance pay to employees due to voluntary or involuntary separation packages resulting from a **significant and formal reorganization process** are to be excluded from cost data submittals.
 - A significant and formal reorganization process would be considered a significant workforce reduction effort resulting in layoffs, with normal or enhanced severance packages.
 - These costs are outside normal plant operations and are incurred over a short definitive time period.
 - Routine severance costs for voluntary or involuntary separation are a cost of doing business and are to be included.
- Employee Retention Payments are to be excluded in cost data submittals.
- Depreciation Expense should NOT be included in the Early Data Exchange survey or the Comprehensive Data survey submittals. These are carrying costs and are treated differently depending on if the company operates in a regulated or non-regulated market.
- **Spent Fuel Storage costs and/or reimbursements are not to be included in the Nuclear Operating Cost Data submittal**
- NSSS Owners, Diesel Generator Manufactures, etc. fees should be included in the respective functional category accounts
- EPRI Fees / EPRI Technical Program Costs should be included in the respective functional category accounts
- Fitness for Duty (FFD) should be included in whichever organization (HR, Security, Safety & Health) provides that service
- Plant Access Staff / Cost - include in whichever organization (HR, Security, Safety & Health) provides that service
- Business Continuity Planning Staff/ Cost (Disaster Recovery / Pandemic Planning) include in whichever organization provides that service
- New Plant Expenditures – All costs, etc. for supporting new nuclear generation and licensing efforts should **NOT** be included in the costs of existing operating nuclear facilities
- Capital Write-off Expenditures - If a Capital project is not approved and the preliminary costs are written off to O&M then these costs should be included in the operating costs reported to EUCG in the year of the write-off.
 - If capital costs were incurred in current year and then written off in current year the year-end cash out the door would be expense.
 - If capital costs were incurred in prior year(s), then written off in current year do not include the O&M expenditures due to the write off in the current year data

submittal because no cash went out the door. This is only a company's accounting issue.

- Asset Retirement Obligations (AROs) represent accounting entries that reflect a company's true financial obligation to properly dispose of equipment that requires any kind of special handling after the equipment's removal from service.
 - These AROs are established on the books and amortized over the life of the associated asset. EUCG Nuclear Committee is only interested in reporting capital expenditures incurred to run, construct, or improve the plants.
 - ARO costs (the amortization) would only be reported by those members who want to report total costs and therefore not included in operating cost or capital cost.
- For one-time significant damage settlements or reimbursements that are greater than \$1M which result in either an expense to the company for settlement with an entity or a reimbursement to the company from an entity, should be excluded from the annual data submittals because it will reduce the operation dollars for the given year and the settlement is indirect to the normal plant operations.

Examples of settlements and reimbursements that should NOT be included in the annual data submittals are:

- DOE reimbursements to companies for incurring spent fuel expenses
- Grievance settlement with bargaining units (unions, etc.)
- NRC(regulatory/civil) penalties

Examples of settlements and reimbursements that should be included in the annual data submittals are:

- Minor settlements or reimbursements that are less than \$1M and are directly attributable to the operations of the facility
- Reimbursements from joint nuclear operating companies' associations such as the Utilities Service Alliance (USA), Inc., etc.
- All costs recorded in the Nuclear Operating Cost survey are operating related costs. Capital cost information is submitted separately in the following surveys:
 - Capital Costs – Annual Data
 - Capital Costs – Major Projects Data
 - Capital Costs – Miscellaneous Policy Questions
 - Capitalization Size Threshold
 - Capitalization Included Costs
- If you have reclassified capital expenses to O&M during the current data year make a note in the comments section of the impacted accounts.
- Use your professional judgment to categorize your costs into the categories based on the resource definitions.
- Member companies must submit the following required data for ALL plants by the requested due dates in a complete and accurate manner as per the prescribed format and instructions. This includes submitting data for any plants being decommissioned until the date of permanent cessation of operations is reached.

- Early Exchange
- Plant / Unit Information
- Nuclear Operating Cost Total / Outage
- Capital Costs - Annual
- Staffing

Dedicated Cost Types

Dedicated Costs: These are costs expended or incurred by nuclear site personnel, fleet personnel, or corporate personnel who perform their job duties (directly) exclusively for the nuclear site/fleet.

- Typically, personnel stationed at a nuclear site are considered Dedicated. However, offsite personnel can also be classified as Dedicated if they perform their function exclusively for the nuclear site or the nuclear fleet, even if other members of their group perform similar functions for other parts of the company.
- The guiding principal here is that **Dedicated charges are incurred by personnel who perform their job function exclusively in support of the nuclear site/fleet.**

Dedicated charges are classified into four separate cost types: Labor, Materials and Equipment, Outside Services, and Other.

Labor

Labor costs are to be reported in the applicable EUCG accounts (ENG, LP, MS, NF, OP, SS, TR, WM) as incurred by the respective functional groups.

- Payroll taxes, pensions, and benefits are reported in EUCG account SS10
- Employee Incentive pay is reported in EUCG account SS08

Examples may include:

- Dedicated personnel payroll cost
- Shift and overtime premium pay
- Paid absence
- Incentive costs
- Payroll taxes

Materials and Equipment

Materials and Equipment costs are to be reported in the applicable EUCG accounts (ENG, LP, MS, NF, OP, SS, TR, WM) as incurred by the respective functional groups.

Examples may include:

- Materials used and consumed during plant operations, maintenance, testing, and monitoring
- Cost of replacing spare parts and miscellaneous equipment
- Fuels, oils, chemicals, gases, resins
- General office supplies

Outside Services

Outside Services costs are to be reported in the applicable EUCG accounts (ENG, LP, MS, NF, OP, SS, TR, WM) as incurred by the respective functional groups.

Examples may include:

- Craft support
- Data processing
- Technical/Engineering Services
- Security, if outsourced
- Consulting services

Other

Other costs are to be reported in the applicable EUCG accounts (ENG, LP, MS, NF, OP, SS, TR, WM) as incurred by the respective functional groups.

- Insurance (liability, property, and replacement power) is reported in EUCG account SS09

Examples may include:

- Travel
- Staff development
- Regulatory fees
- Internal utility or company services such as computer, microfilm, duplicating, etc.

Non-Dedicated Cost Types

Non-Dedicated Costs: These are costs expended or incurred by personnel in support of nuclear activities, but who are not dedicated nuclear employees, (i.e. individuals who typically perform their job function for both nuclear and non-nuclear groups such as fossil or distribution.)

- Non-dedicated costs should include all costs that are in support of Nuclear. This should even include costs that would remain with a company if their Nuclear Operations no longer existed.
- If your company does not allocate all non-dedicated costs to Nuclear, then the data provider will need to determine the appropriate allocation method to get the appropriate dollars to Nuclear.
- Potential allocation methods are shown in the Annual Corporate Function Checklist.
- Non-Dedicated Charges apply to all cost accounts except for SS09 - Insurance

Examples of Non-dedicated costs may include:

- Expenses incurred by IT personnel in support of initiatives or projects completed in support of both nuclear and non-nuclear organizations.
- Corporate HR costs associated with company-wide employee surveys with respondents from both nuclear and non-nuclear organizations.

Nuclear Operating Cost Account Definitions

Engineering

ENGTOT Engineering

All costs associated with the following technical/engineering activities from the standpoint of **STUDY, DESIGN, and IMPLEMENTATION**:

Engineering support, contractor coordination, performance monitoring/analysis, code compliance (ASME, NFPA, IEEE, etc.) engineering required for plant modification, base design data base and design document maintenance, technical/engineering support for operations and maintenance, nondestructive examination and in-service inspection programs, and systems engineering. Also includes general analysis engineering and estimating services.

Evaluate Identified Problem or Desired Change - Preliminary engineering and evaluation work on a proposed modification to establish objectives, scope, success criteria, and viability of a project. Includes evaluation of regulatory, design basis, and business factors. Change Design Requirements - Development of new design or modification of existing design documents, based on project requirements.

Examples may include:

- Design analysis, calculations, drawings, data bases, procedures, instructions, etc.
- Planning, identifying and tracking documents needing revision
- Tracking and/or documenting specifications of design, procurement, installation, testing, and close-out activities
- Updating administrative, operational and technical documentation and design basis identifying modified functional & physical characteristics
- Reviewing and verifying the adequacy of design

Change Physical Configuration - Constructing, implementing, or testing a modification project.

Examples may include:

- Planning, pre-installation preparations, and fabrication
- Visual inspection of installed change and change documentation
- Quality control activities
- Identification of exceptions to approved design, including equivalency evaluations
- Post-installation acceptance testing
- Operational testing
- Acceptance of change and/or declaration of operability

Change Facility Configuration Information - Modify all affected existing sources of facility configuration information.

Examples may include:

- Revising existing “as-built” and/or “as-engineered” information
- Developing and issuing for use new facility configuration information
- Reviewing, approving and issuing for use vendor-provided information including drawings, vendor manuals, calculations, design basis documents, licensing documents, databases and procedures, which contain facility configuration information

Long Term Planning & Life Cycle Management - Encompasses all aspects of developing a long-term planning and life cycle management strategy and maintenance plan to ensure the optimum performance of plant structures, systems and components.

Examples may include:

- Prioritization of activities and integration into the business plan
- System health assessment and reporting

Performance Monitoring - All activities associated with planning, performing, evaluating, and monitoring required “Repetitive Testing” of systems, components, or systems required by the plant technical specifications, and includes materials and services for performance of surveillances and testing activities.

Examples may include:

- Evaluating system and component performance
- Thermal performance/efficiency monitoring.
- Maintaining logs, reports and records regarding equipment performance to determine conditions adverse to quality
- In-service inspections and tests (ISI/IST)
- Performance of LLRT or ILRT or other code required hydrostatic testing (when not included in support of corrective maintenance or modification activity)
- Testing equipment, and any engineering evaluations in support of testing requirements or evaluating results
- Quality control activities such as ensuring and verifying component integrity, performing quality inspections, quality monitoring, reviewing safety related and quality related work orders, and implementing a non-destructive examination program
- Development and implementation of predictive maintenance for structures, systems, components or equipment. This includes the identification and integration of the technologies and equipment to be used (vibration analysis, thermography, oil analysis, motor current analysis/motor health analysis and airborne ultrasonic analysis) for preventive maintenance, and the development of qualification/certification of personnel in these areas

Continuous Equipment Reliability Improvement - Activities associated with improving overall equipment reliability. Involves establishing, maintaining, and analyzing information associated with the condition and efficiency of structures, systems, and components.

Examples may include:

- Analysis of identified plant problems
- Trending and evaluating system and component performance
- Thermal performance/efficiency monitoring and studies
- Maintaining logs, reports and records regarding equipment performance to determine conditions adverse to quality
- Development and use of PM templates and documentation of PM Technical bases
- Maintenance rule programs including EPIX reporting

Loss Prevention

LP01 Security

All activities associated with managing access control, providing physical security, managing security regulatory and administrative matters, and protecting plant resources and public safety.

Examples may include:

- Response to alarms and administering/participating in fitness for duty (if Security provides that service) processing, excluding training
- Plant access staff and costs (if Security provides that service)
- Administration of plant fire protection programs in accordance with NEPA codes, NML, NRC, and technical specification requirements (control of temporary structures, welding permit systems, and general area fire watches not associated with a specific project)

Note: Maintenance of fire protection equipment (fixed and portable) would be charged to the appropriate maintenance process.

LP02 Quality Assurance / Quality Control

All activities associated with the quality assurance program involved in operational quality assurance.

Examples may include:

- Quality audits of plant activities and vendors
- Quality surveillance of plant activities
- In-line review of documents and procedures by QA
- Maintenance of QA program manuals and QA procedures
- Administer vendor verification program

All activities associated with quality control involved in plant inspection including nondestructive examinations, receiving inspections, and plant modification surveillance.

Examples may include:

- Visual inspection/ASME section XI program
- Performance nondestructive examinations (MT, PT & UT flaw)
- Tech spec surveillance on snubbers and fire barrier seals
- Inspection of maintenance modifications activities
- Review and reporting of nuclear reliability data system (NPRDS)
- Nonconformance material report (NMR) processing
- Review and closeout of work request and preventive maintenance
- Perform material testing for commercial grade dedication program

- Receipt inspection of equipment and materials
- Quality control tasks associated with reviewing safety related and quality related work orders.
- Quality control activities such as ensuring and verifying component integrity
- Performing quality inspections and monitoring
- Visual inspection of installed changes and change documentation

- Provide for authorized nuclear inspection activities

Note: NSSS Owners, Diesel Generator Manufactures, etc. fees should be included in the respective functional category accounts. EPRI Fees / EPRI Technical Program Costs should be included in the respective functional category accounts

LP03 Corrective Action Program & Operating Experience

All activities associated with the Corrective Action Program organization and Operating Experience group.

Note: Personnel in groups other than the Corrective Action organization who are performing root cause investigations and corrective action implementations are considered part of line activities and their costs are not charged to this account but charged to their respective organizations.

LP04 Safety / Health

All activities associated with the preparation, research and interpretation of regulations. Also covers the implementation of safety procedures, industrial hygiene programs, and medical services.

Examples may include:

- Routine safety meetings
- Hazardous materials response service
- Safety and medical supplies and equipment
- Various safety training, including supplies and equipment
- CPR training
- Emergency Medical Technicians for outage support
- Fitness for duty (if Safety/Health provides that service)
- Plant access staff and costs (if Safety/Health provides that service)
- Non-prescription drugs for nurses' station
- Supplies for first aid stations

LP05 Licensing

All activities associated with managing regulatory (NRC and non-NRC) relationships, obtaining and maintaining the operating license, providing regulatory guidance and interpretation, monitoring and evaluating regulatory and industry trends, and evaluating, assessing and negotiating current and future commitments.

Examples may include:

- Licensee Event Reports (LERs)
- Notices of Violations (NOVs)
- 50.59 evaluations
- License and Final Safety Analysis Report (FSAR) amendments
- Institute of Nuclear Power Operations (INPO) and Nuclear Regulatory Commission (NRC) user fees
- Department of Energy (DOE) high level waste fee
- Responding to generic letters
- Obtaining and maintaining environmental permits
- Reviewing and evaluating proposed legislation, rulemaking and issues

Note: Include all fees in the “Other” category.

LP06 Emergency Preparedness

All activities associated with developing, conducting and supporting Emergency Preparedness (EP) plan and the maintenance of emergency equipment.

Examples may include:

- Disaster Recovery/Pandemic planning
- Graded exercises and time spend to coordinate them
- Drill and rehearsals
- EMC bill
- Meals and travel for emergency planning
- Maintenance of alert radio notification system
- Emergency communication equipment
- Repair/replacement of transient signs, batteries, and tone alert radios
- Contract for beeper system service to notify on-call emergency response organization
- Federal Emergency Management Agency (FEMA) fees

LP07 Dedicated Fire Responders

For those companies with full time fire responders / departments, this includes all activities associated with maintaining the fire responders' organization, e.g., staffed fire station. Companies without full time fire responders will not have costs identified in this category.

This category does NOT include costs for developing, administering and supporting fire protection programs. For example, fire brigade activities, maintenance of fire protection equipment, and engineering of fire systems are included in their respective organizations.

Materials and Services

MS01 Materials Management & Warehousing

All activities associated with inventory planning, inventory control and optimization, the development of inventory management control policies/procedures, and the identification of unneeded inventory and scrap materials. The actual cost of the unneeded inventory or scrap materials should be reported in account MS04.

Examples may include:

- All activities relating to receipt, inspection, storage, counting, distribution, issuance and shipping of equipment and materials
- Onsite and offsite repairs
 - If a pump/motor is removed during an outage and sent off for repair, the repair costs should be considered part of that outage
- Refurbishment and returns (including quality control activities and disposition of discrepant repaired, refurbished, and returned materials)
- Labor or contract expenses required to identify scrap/obsolete/surplus material and equipment
- Identification and documentation of required parts and equipment, and
- Providing special nuclear materials accountability
- Overtime meal expenses
- Outage overtime/off-day mileage expenses
- Refilling propane gas bottles
- Equipment rental
- Safety awards and appreciation celebrations
- Travel for industry meetings and vendor interface meetings

MS02 Contracts & Purchasing

All activities associated with contract services and the evaluation and purchasing of materials and services.

Examples may include:

- Developing, negotiating and monitoring service contracts from outside agencies/vendors
- Processing and administration of purchase requisitions, purchase orders and internal supply request, contracts and leases
- Expediting materials
- Filing claims for damage
- Resolution of shipping discrepancies

- Life cycle cost planning
- Decisions to make/buy
- Standardization of materials/variety reduction
- Customer contact/service
- Activities associated with the planning and development of contracting and leasing strategies
- Market intelligence and performance
- Strategic sourcing of materials and services

MS03 Procurement Engineering

All activities associated with qualification and technical specifications of plant materials, parts, and equipment.

Examples may include:

- Parts substitution
- Identification and resolution of supplier non-conformance
- Commercial parts dedication testing
- Like-for-like replacement analysis
- Other functions in support of procurement (e.g., commercial grade dedication, procurement engineering and quality related receipt inspection)
- Other functions in support of periodic nuclear vendor qualification and oversight related to procurement

MS04 Unneeded Material Disposal

The cost of unneeded material being disposed due to obsolete inventory as a result of technological advances and/or design changes; inventory in excess supply and therefore not useful (whether discarded or sold to outside parties as investment recovery); and the book value of unneeded material written off to expense (net of investment recovery). This is the cost of the material only. Labor or contract expenses required to identify the material to be disposed should be reported in account MS01.

Examples may include:

- Activities to dispose of obsolete inventory due to technological advances and/or design changes
- Activities to disposition inventory that may not be obsolete but may be in excess supply and therefore not useful (whether discarded or sold to outside parties as investment recovery)
- The book value of unneeded material written off to expense (net of investment recovery)

Nuclear Fuel

NFTOT Fuel Management

All activities associated with procurement, conversion, and enrichment of uranium.

Examples may include:

- Contract administration
- Specialized costs associated with receipt inspection of fuel assemblies and core components
- Developing core designs
- Providing safety analysis calculations and support
- Monitoring nuclear fuel performance
- Strategies for reactivity management (i.e., xenon oscillation control strategies)
- Maintaining the tools, i.e., computer programs, used to support the described activities
- Monitoring and analyzing the fuel market
- Selection of alternative fuel designs

Provide and Transport Fuel

All activities associated with the provision and transportation of fuel, including contract negotiations, contract administration, and transportation.

Note: Does NOT include the cost of fuel.

Provide Handling, Storage and Disposal of Fuel

All activities associated with receiving and storing new fuel. This would not include any costs associated with Spent Fuel Storage.

Examples may include:

- Storage analyses
- Managing spent fuel shipping and storage
- Cask fleet
- Irradiated channel disposal

Operate Plant

OP01 Operations

All activities associated with preparing and placing systems and components in and out of service, e.g., tag-outs and clearances, to support normal and off-normal system operations and actions required to maintain the plant in a safe operating condition.

Examples may include:

- Costs associated with inside company purchased power agreements
- Forced outage operating costs
- Plant walkdowns and inspections
- Plant problem identification (generation of a trouble ticket)
- Maintenance of operations logs, reports and records regarding equipment performance
- Routine system and component lineup changes
- Actions required to address abnormal occurrences, including reducing power or removing and restoring the unit to service
- Routine actions required for fuel burnup, i.e., dilution at a Pressurized Water Reactor (PWR) or control rod sequence exchanges at a Boiling Water Reactor (BWR)
- Fuel shuffling and actions required to maintain the plant in a safe operating condition in all modes of operation
- Writing routine and emergency operating procedures that address this activity
- Water rights
- Disposable supplies
- Related meals and travel
- Tagging supplies
- Secondary side consumables
- Safety supplies
- Overtime meals

OP02 Chemistry / Environmental

All activities associated with establishing and maintaining chemistry programs, monitoring and controlling plant chemistry, and managing any chemical use and safety programs to maintain component integrity and optimize plant efficiency. Also includes collecting and processing analytical chemistry samples and preparing reports.

All activities associated with establishing and maintaining environmental programs and monitoring the environment.

Examples may include:

- Sampling

- Reporting
- Hazardous material response, contamination, and clean up

OP03 Radiation Protection / Radwaste

All activities associated with providing radiation exposure control.

Examples may include:

- Establishing and monitoring health physics program
- Controlling and monitoring personnel work and their work locations
- Performing activities necessary to maintain ALARA (as low as reasonably achievable) such as shielding, respiratory protection, calculations, stay times, radiation work permits, etc.
- All activities associated with providing contamination control
- Controlling and monitoring contaminated areas of plant
- Providing decontamination services

All activities associated with treatment, measurement, control, minimization, collection, compaction, storage, filtration, ion exchange, and other processing, reporting, handling, shipping.

Examples may include:

- Liquid radwaste
- Gaseous radwaste
- Dry active radwaste
- Hazardous waste
- Mixed waste
- Industrial solid waste
- Industrial air emissions
- Non-radioactive liquid effluents

OP04 Disposal Cost

All activities associated with disposing of low-level waste and effluents.

Support Services

SS01 Information Technology

All activities associated with planning, development, maintenance and operation of the company's information systems (enterprise, departmental, individual).

Examples may include:

- Operation and maintenance of the supporting network and mainframe infrastructure
- Planning, designing, constructing, operating and maintaining telecommunications facilities and equipment
- Electronic mail services
- Providing telecommunications consulting services
- Administrative oversight of maintaining the plant process computer and digital embedded devices, including resource management, telecommunications, network services, mainframe and desktop services, applications, and process computer
- Corporate related information technology expenses associated with nuclear to support corporate infrastructure tools/applications/processes (payroll, employee benefits, etc.) not 100% dedicated to nuclear operations.

SS02 Business Services

All activities associated with budgeting, cost control, and accounting.

Examples may include:

- Development and administration of the strategic plan
- Development, monitoring, forecasting, and reporting the budget
- Preparation of financial/regulatory statements
- Maintaining fuel, tax, and joint owner data
- Providing accounting research and cost reporting data
- Analyzing fixed asset records
- Controlling fixed asset accounting system reporting
- Processing invoices, load profile translations, time-of-use and large power bills
- Administering company payroll
- Maintaining subsidiary ledgers
- Generating customer reports
- Scheduling and outage scheduling not associated with a specific activity
- Managing the workers compensation self-insured program (administering claims for and performing loss control analysis)

- Submitting claims on permanent and non-permanent plant equipment (loss control analysis, compiling costs associated with losses for insurers)
- Legal activities unrelated to regulatory activities
- Cost for non-required property and personal liability insurance (operating equipment failure, excess liability, property damage, etc.)

SS03 Records Management & Procedures

All activities associated with processing records to ensure they are legible, identifiable, and retrievable by establishing and complying with procedures which provide for their collection, review indexing, protection and disposition.

Examples may include:

- Publishing and maintaining guidelines, approval documents, processes, programs, procedures, manuals and revision maintenance, files, and distribution lists
- Administrative support that cannot be directly related to a specific activity such as maintaining office supplies (inventory and ordering), furniture (inventory and ordering), air charter reservations, conference room reservations, etc.

Note: Does NOT include procedure writing activities attributable to the appropriate sub process (Operations, Maintenance, etc.). Pooled clerical and procedure writing groups should be allocated to the sub processes they are supporting.

SS04 Human Resources

All activities associated with providing compensation and benefits, workforce planning, organizational development, performance management, employee/labor relations and human resource management.

Examples may include:

- Compensation and benefits
Compensation review, development of job competencies, position descriptions, benefits, and incentive programs.
- Workforce planning
Needs analysis, recruitment and staffing, supplemental workforce planning, retention, succession planning, diversity management, compliance, HR information systems inputs, displacement, redeployment and HR-related community relations.
- Organizational development
Organizational culture (including safety culture), change management, leadership development, first line supervisor development, employee development, and organizational design.
- Performance management
Performance planning and review (setting individual performance goals, measures, monitoring performance, and providing feedback), employee recognition, coaching/mentoring and the discipline process.
- Employee/labor relations

Employee feedback/surveys, management feedback, employee issues identification, investigations and resolution, labor strategy, corporate OSHA/safety, wellness, medical, EAP, nuclear employee concerns (including Safety Conscious Work Environment), quality of life and conflict resolution.

- Human resource management

HR administration, employee-management facilitation and consulting, benefits administration, in-processing, out-processing, new employee orientation, retirement programs, HR communications, HR policies and procedures/compliance, job postings, testing and plant access (if HR provides that service), HR Information System requirements, educational assistance, Fitness for duty (if HR provides that service), and relocation/employee expenses.

SS05 Housekeeping & Facilities Management

All activities associated with the planning, administration and maintenance of non-permanent plant equipment, buildings and facilities.

Examples may include:

- Janitorial services
- Grounds maintenance
- Simulator hardware maintenance
- Off-site facilities
- Activities associated with providing transportation services
- Maintenance of other company fleet vehicles, (such as tractors, fire trucks, etc.)

SS06 Communications & Community Relations

All activities associated with the various methods the company uses to establish and maintain a mutually beneficial relationship with the communities in which it operates.

Examples may include:

- Visitor center and public communications
- Activities associated with the political action committee (PAC) and governmental affairs, including filing reports and informational requests.

SS07 Nuclear Officers, Executives, Management Assistance and Industry Associations

All activities by senior nuclear officers and executives.

Examples may include:

- Executive salary and executive-only incentive payouts (separate from a company-wide program)
- Executive assistants, secretaries, and administrative support

All activities, including legal and legal consulting, associated with assisting management but not included in any other functional activity. Also includes all activities associated with efforts to

represent the company and provide technical input to committees, owner groups, and industry, professional and trade associations that support the electric utilities' interest. Includes full-time employees loaned to NEI, INPO, etc.

SS08 Employee Incentive Payments

All costs associated with the payout of annual and/or outage incentive programs applicable to all employees at the site. Excludes any incentive payments or stock options paid to executives and not provided to the general employee population. Does NOT include costs associated with paid time off granted as an incentive for outage performance, which should instead be included with the function the employee supports.

Include Incentive Payouts for Company Wide Programs-including Executive related distributions.

Do NOT include hiring bonuses, retention bonuses, operator bonuses, stock/deferred compensation, etc. as these types of payments should be reported as labor dollars in the respective functional account. For example, Operator Bonuses would be reported in OP01 (Operations) labor dollars.

Note: For Dedicated Employees, incentive dollars should be reported in the Labor column of the survey. For Non-Dedicated Employees, incentive dollars should be reported in the Non-Dedicated column in the survey.

SS09 Insurance

Cost for all non-employee benefit insurance costs, such as American Nuclear Insurers (ANI) and Nuclear Electric Insurance Limited (NEIL). For all plants this includes liability, property, and replacement power insurance.

Examples may include:

- Refunds or recoveries (net costs)
- Required regulatory insurance costs
- Inspection fees for personal and public liability (American Nuclear Insurers)
- Nuclear mutual limited insurance premiums

Note: Insurance dollars should be reported in the Other resource type column in the survey.

SS10 Payroll Taxes, Pension & Benefits

Cost of direct payments or company-paid employee-related insurance for any activity benefiting the employee. These costs are typically defined as labor loading and are entered as a labor cost.

Examples may include:

- Payroll Taxes – taxes based on payroll to provide for unemployment insurance, social security, and other benefits provided for in the U.S. under the Social Security Act.
- Accident or death benefits
- Hospitalization

- Medical Insurance
- Recreational allowances
- Company supported or matched savings funds
- Long Term Disability
- Post-retirement Benefits Other Than Pensions (PROP) (FASB 106)

Do not include:

- Centrally held pension costs
 - such as interest costs on the accrued benefit obligations for both active and inactive members,
 - the expected return on pension plan assets, amounts in respect of past service costs, and amounts in respect of actuarial gains and losses.

Note: For Dedicated Employees, Payroll Taxes, Pension & Benefits dollars should be reported in the Labor column of the survey. For Non-Dedicated Employees, Payroll Taxes, Pension & Benefits dollars should be reported in the Non-Dedicated column in the survey.

Training

TRTOT Training - Develop and Conduct

All activities associated with the development and conduction of training programs, including instructor preparation and instruction delivery time, production of class materials and the assessment of the training.

Examples may include:

- Institute of Nuclear Power Operations (INPO) accreditation activities
- Human performance improvement
- Qualification/certifications
- Fire drills
- Employee development training
- Job specific (discipline) training and operator training
- All upgrades to training software including changes to the simulator software
- Simulator Expenses

Note: Training associated with EP drills and exercises should be charged to Perform Emergency Preparedness, LP06.

Personnel in other groups participating in and attending training are considered part of line activities and are not charged to this account.

Work Management (WM)

WM01 Planning & Scheduling / Outage Management

All activities associated with planning and scheduling required to maintain all structures, systems, and components in optimum condition including formal evaluations required to support outage and on-line activity. Includes job package development, assembling, completing and reviewing documentation associated with the maintenance effort; scheduling of outages, corrective, preventive and plant improvement maintenance and surveillance and performance testing.

Examples may include:

- Includes the scheduling of all related supporting tasks such as clearance application/removal, scaffold erection/removal, radiological protection and industrial safety.
- Includes planning and scheduling of non-outage work activities.
- Includes coordinating with maintenance, construction management, and engineering for daily schedule review and update.
- Includes planning and scheduling of refueling outage activities, maintenance outage activities, and forced outage activities.
- Includes dedicated outage work window managers.
- Quality control tasks associated with reviewing safety related and quality related work orders

WM02 Maintenance

All activities directly associated with the planned, periodic, and preventive maintenance of structures, systems, components or equipment.

Examples may include:

- Staging/acquiring parts
- Post-maintenance testing
- Cleanup of job site during and after work
- Writing of procedures
- Documentation closeout (signatures and delivery for storage)
- Engineering evaluations in support of this activity.

All activities directly associated with the maintenance surveillance testing of systems, components, and equipment.

All activities directly associated with the repair, restoration, and rework of structures, systems, components and equipment that fail to perform their designed function.

Examples may include:

- All tasks associated with emergent work (excluding minor maintenance and Fix-It-Now maintenance)
- Staging parts
- Tagout requests/submittals
- Cost to repair fuel assemblies or core components that were damaged after receipt inspection
- Performance of the work
- Post-maintenance testing
- Cleanup of job site during and after work
- Writing of procedures
- Documentation closeout (signatures and delivery for storage)
- Any engineering evaluations in support of this activity.

All activities associated with the planning, administration and maintenance of non-plant equipment and tool room support.

Examples may include:

- Activities associated with maintenance of Health Physics instruments and measurement and testing equipment (M&TE)
- Routine tool maintenance
- Tool control and tool room activities
- Consumable / free issue management
- Records maintenance.

All activities associated with constructing, implementing, or testing modification projects

Examples may include:

- Project planning and project management
- Pre-installation preparations and fabrication
- Visual inspection of installed change and change documentation
- Identification of exceptions to approved design
- Post-installation acceptance testing
- Operational testing
- Acceptance of change and/or declaration of operability
- Corresponding simulator modifications
- Dedicated Fix-It-Now Teams

PACIFIC GAS AND ELECTRIC COMPANY
ATTACHMENT B
CAPITAL DATA (EUCG)

Capital Data

(NC-DEF-07)

Getting Started

You will need a list of all capital projects with reporting period costs by plant, then by the categories listed below:

- Enhancements (in the following subcategories)
 - Reliability Improvements
 - Performance Improvements
 - Life Extension
 - Uprates – also enter increase in MW capacity and Uprate Type
 - Steam Generator
 - Reactor Vessel Head
 - Other
- Infrastructure (Non-Power Block)
- Information Technology
- Regulatory (in the following subcategories)
 - Nuclear Safety
 - Emergency Preparedness
 - Personnel Safety
 - ALARA
 - Security
 - Environmental
 - Other
 - Fukushima Response
- Capital Spares
- Sustaining

General Instructions

- All dollar values should be submitted in thousands of your own currency dollars. On screens where costs are submitted, select the country currency that you are using in the

dropdown box at the top of the screen. If your country is not listed, submit in thousands of US dollars.

- Negative balances should not be shown in any accounts in the EUCG surveys. While you can have negative costs, they should net out to zero or to a positive number in the EUCG account.
- Certain nuclear plant costs should **not** be included in this Capital database. These costs include depreciation, interest, taxes (except Payroll) and NRC civil penalties.
- **Spent Fuel Storage costs and/or reimbursements are not to be included in the Capital Data submittal**
- Definitions of costs are provided in the appropriate sections. Dissimilar units (significant vintage or design differences) at the same site should be reported separately. Common costs should be allocated.
- All costs provided should be on a total plant basis.
- Common nuclear capital costs should be allocated to each nuclear plant (per your own methodology).
- In all cases the data should be consistent with internal reported company data for the respective plant.
- The Capital data submittal is intended to provide actual data on an annual basis. The database program contains all of your plants' historical data that was available. Historical records will be retained from year to year.
- Comments can be entered to clarify any information entered in the comments text box.
- Please complete the information for each plant contained in your database for the reporting year.
- Use your professional judgment to categorize your costs into these standard definitions. You cannot redefine or add categories to the spreadsheets in the program.
- All capital labor dollar values submitted should be fully loaded costs which include pensions, benefits and payroll taxes excluding AFUDC.
- **Exclude** AFUDC and Interest.
- Member companies must submit the following required data for ALL plants by the requested due dates in a complete and accurate manner as per the prescribed format and instructions. This includes submitting data for any plants being decommissioned until the date of permanent cessation of operations is reached.
 - Early Exchange
 - Plant / Unit Information
 - Nuclear Operating Cost Total / Outage
 - Capital Costs - Annual
 - Staffing

Survey 1: Capitalization Size Thresholds

Getting Started

Refer to the appropriate section in your Company Financial Policy Binder or contact and work with your Financial Policy Manager in Finance to ensure that you are correctly reflecting the thresholds for capitalization in these categories.

Each organization's capitalization policy information, once entered, should only require a brief review in future years to identify any policy changes or to respond to survey changes (if any).

If your responses to the questions on the "Size Thresholds", "Cost Components", and/or "Misc Questions" worksheets are the same for all of your reporting nuclear stations, you only need to provide a single set of responses to those questions. These questions apply only to nuclear plant capitalization policies.

General Instructions

This data is requested on a company level, and is prepopulated from the prior year data that you entered. Please review and adjust accordingly for the reporting year.

List the size threshold for capitalizing additions or replacements of each item shown. List the minimum size threshold for capitalizing additions or replacements of each item (e.g., 6 inches for valves, 4160 volts for breakers, \$500,000 for software, "all" for buildings, etc.) in these two columns.

Column: Enter Size Threshold of Measure

This will be a drop down list including: \$s, inches, feet, gallons, GPM, HP, volts, MVA, all, other, n/a

Column: Enter Size Threshold

List the numeric value for the minimum size threshold for capitalizing additions or replacements of each item.

Column: Comments

Elaborate on the response included in the two previous columns

Survey 2: Capital Costs Included

Getting Started

Refer to the appropriate section in your Company Financial Policy Binder or contact and work with your Financial Policy Manager in Finance to ensure that you are correctly reflecting the thresholds for capitalization in these categories.

Each organization's capitalization policy information, once entered, should only require a brief review in future years to identify any policy changes or to respond to survey changes (if any).

If your responses to the questions on the "Size Thresholds", "Cost Components", and/or "Misc Questions" worksheets are the same for all of your reporting nuclear stations, you only need to provide a single set of responses to those questions. These questions apply only to nuclear plant capitalization policies.

General Instructions

This data is requested on a company level, and is prepopulated from the prior year data that you entered. Please review and adjust accordingly for the reporting year.

For each item below, identify if this item is included in your capital costs. For user convenience - each item has a dropdown menu asking IF the item is included in the company's capitalized cost. The menu includes dropdown menu Always, Usually, Sometimes, Never, or N/A if not applicable. Elaborate on the response in the Comments section, if necessary.

Survey 3: Capital Costs-Annual Data

Getting Started

You will need a list of all capital projects with reporting period costs by plant, then by the categories listed below:

- Enhancements (in the following subcategories)
 - Reliability Improvements
 - Performance Improvements
 - Life Extension
 - Upgrades – also enter increase in MW capacity and Upgrade Type
 - Steam Generator
 - Reactor Vessel Head
 - Other
- Infrastructure (Non-Power Block)
- Information Technology
- Regulatory (in the following subcategories)
 - Nuclear Safety
 - Emergency Preparedness
 - Personnel Safety
 - ALARA
 - Security
 - Environmental
 - Other
 - Fukushima Response
- Capital Spares
- Sustaining

General Instructions

- This data is requested on a plant level.
- All costs associated with improvements and modifications made during the reporting year. These costs should include design and installation costs in addition to equipment costs.
- Other miscellaneous capital additions such as facilities, computer equipment, moveable equipment and vehicles should also be included. These costs should be fully burdened with indirect costs.
- **Exclude** AFUDC/Interest.

- All dollar values should be submitted in thousands of your own currency dollars. Select the country currency that you are using in the dropdown box at the top of the screen. If your country is not listed, submit in thousands of US dollars.
- Comments can be entered in the comments text box and should be used to clarify any costs.
- Removal Costs – dependent on Capital Policy – If included as part of the capital project then should be reported to EUCG
 - i.e. Company treats this as part of the capital project and is included in our numbers.
- **Spent Fuel Storage costs and/or reimbursements are not to be included in the Capital Data submittal**
- Preliminary Capital Costs – dependent on the respective company's Capital Policy
 - If the company includes preliminary capital costs as part of the capital project costs then these costs should be included in the capital costs reported to EUCG.
 - If the company holds preliminary capital costs in a balance sheet account and does not include the preliminary capital costs as part of the capital project costs then these costs should not be included in the capital costs reported to EUCG.
 - If the Capital project is approved and the preliminary costs are journaled to the Capital project then these costs should be included in the capital costs reported to EUCG.
 - If the Capital project is not approved and the preliminary costs are written off to O&M then these costs should be included in the operating costs reported to EUCG in the year of the write-off.
 - If capital costs were incurred in current year and then written off in current year the year-end cash out the door would be expense.
 - If capital costs were incurred in prior year(s), then written off in current year:
 - Do not change prior year capital expenditures reported in previous year(s) data submittals
 - Do not include the O&M expenditures due to the write off in the current year data submittal because no cash went out the door. This is only a company's accounting issue.

Capital Costs-Annual Data Account Definitions

Capital_ENH Enhancements

Capital_ENH_a Reliability Improvements

- Replace feedwater pump turbine controls
- Install digital feedwater control system

Capital_ENH_b Performance Improvements

- Outage Duration Reductions - Upgrade fuel manipulator cranes
- Cost Reductions -Modifications to support outsourcing of plant water treatment

• Capital_ENH_c Life Extension

- Prepare documentation for NRC review/approval of plant life extension
- Plant modifications required by approval of plant life extension

• Capital_ENH_d Uprates

- Replace low pressure turbine blades
- Upgrade main generator cooling

For Uprates, also enter the increase in MW capacity and select the Uprate Type

• Capital_ENH_e Steam Generator

- Includes support plant modifications

• Capital_ENH_f Reactor Vessel Head

- Includes support plant modifications

• Capital_ENH_g Other

- If Enhancement costs cannot be broken down into above categories, enter costs here

Capital_INFR Infrastructure (Non-Power Block)

Facility Renovations and Additions

- Renovate office area
- Erect new warehouse

Facility Sustaining Work

- Replace roofs
- Replace HVAC equipment
- Replace flooring

Furniture

- Replace or add furniture

Miscellaneous Equipment Purchases

- Procure kitchen equipment

- Procure shredder

Roads, Parking Lots, etc.

- Repave road
- Add parking lot
- Add lighting to parking lot

Capital_IT Information Technology

Computers

- Add/replace servers
- Add/replace workstations

Computer Peripherals & Networking

- Procure printers and copiers
- Replace network cabling
- Replace computer monitors

Software

- Procure dose tracking software
- Replace work scheduling software

Telecommunications Equipment

- Replace handheld radios used by Plant Operators
- Replace/upgrade plant phone system

Operator Aid Computer (OAC)

- Add Firewall Hardware for OAC
- Replace OAC hardware

Plant Simulator

- Upgrade plant simulator computer models
- Modify plant simulator to reflect plant modifications

Capital_REG Regulatory

Data can be entered at a summary level for Capital_Reg or at a detail level for the accounts below.

Capital_REG_a Nuclear Safety

- Reconfigure ECCS sump screens
- Replace pressurizer spray valves

Capital_REG_b Emergency Preparedness

- Provide backup power to public alert sirens

- Replace public alert siren radio hardware

Capital_REG_c Personnel Safety

- Add platforms
- Procure atmospheric monitors

Capital_REG_d ALARA

- Procure filter transfer carts
- Procure portal monitors
- Procure smear counters

Capital_REG_e Security

- Add barriers and gates
- Replace explosive detectors
- Procure firearms
- Replace security radios

Capital_REG_f Environmental

- Add monitoring wells
- Connect to municipal sewage system
- Replace discharge canal oil boom

Capital_REG_h Other

- Metering/monitoring to fulfill grid requirements
- Required remedial/offsetting projects (if not covered by one of the other subcategories)

Capital_REG_i Fukushima Response

- These costs include capital spending related to the U.S. NRC Task Force Recommendations on the Fukushima Daiichi accident. Examples of capital spending includes costs related to seismic and flooding reevaluations, station blackout enhancements, reliable hardened vents, spent fuel pool instrumentation, and emergency preparedness improvements. For plants in other countries, these costs include stress tests and other regulatory requirements related to Fukushima activities.

Capital_SPARES Capital Spares

Procure spare reactor coolant pump motor

Capital_SUS Sustaining

Aging / Obsolete Equipment Replacements

- Replace inverter
- Replace feedwater heater

Failed Equipment Replacements

- Replace failed transformer
- Replace failed source-range neutron detector

Equipment Refurbishments

- Rewind main generator
- Refurbish reactor coolant pump motor

Tools and Equipment

- Procure valve test bench
- Procure video inspection camera
- Procure machine tools (grinder, lathe, etc.)

Power Block Infrastructure

- Add motor control centers
- Add instrument air compressor and dryer
- Replace Auxiliary Building roof

Survey 4: Capital Major Projects

Getting Started

You will need the Year to date Costs for all Projects that had a \$10M or Greater spend in this reporting period or the project total is expected to be >\$25M.

You will need a list of all capital projects with reporting period costs by plant, then by the categories listed below:

- Enhancements (in the following subcategories)
 - Reliability Improvements
 - Performance Improvements
 - Life Extension
 - Uprates – also enter increase in MW capacity and Uprate Type
 - Steam Generator
 - Reactor Vessel Head
 - Other
- Infrastructure (Non-Power Block)
- Information Technology
- Regulatory (in the following subcategories)
 - Nuclear Safety
 - Emergency Preparedness
 - Personnel Safety
 - ALARA
 - Security
 - Environmental
 - Other
 - Fukushima Response
- Capital Spares
- Sustaining

General Instructions

- Do not enter Dry Cask Storage Costs in the Capital Major Projects.
- Common capital costs should be allocated to each plant.
 - i.e. Cyber security may be a fleet project and total is expected to be >\$30M you would report the individual plants costs on the large project sheet.

- Once project **cost reaches \$10M or Greater in a given year or the project total is expected to be >\$25M** you would enter the Project on this list. If a project is projected to spend more than \$25M then begin entering the data in the database even if it doesn't reach the \$10M in the given year.

Entering a Capital Major Project:

There are 2 screens used for entering Capital Projects.

Screen 1 (Add New Projects) is used to enter a new project or edit the characteristics of an existing project.

The projects will stay on the list each year until the project is completed.

This data is requested on a plant level. List up to 20 large capital projects with an annual cost > \$10M per project **or the project total is expected to be >\$25M** underway in the reporting year. Exception: If you listed a project in a past submittal, continue to report the costs for that project even if it went below the \$10M threshold in one of the reporting years. Prior year projects are pre-populated in the Capital Major Project entry screen from year-to-year.

- 1) Enter a Project ID. Your internal company project number (up to 25 characters).**
- 2) Enter the Project name.**
- 3) Select the Capital Category from the dropdown box. Categories should be the same used in Survey 1 - Annual Capital which are 1) Capital Spares, 2) Enhancements, 3) Information Technology, 4) Infrastructure, 5) Regulatory, 6) Sustaining.**
- 4) Select the Major System type from the dropdown list. This is a required field.**
 - Structures and improvements - In place of structures and improvements used and useful in connection with nuclear power generation.
 - Reactor plant equipment - Installed reactors, reactor fuel handling and storage equipment, pressurizing equipment, coolant charging equipment, purification and discharging equipment, radioactive waste treatment and disposal equipment, boilers, steam and feed water piping, reactor and boiler apparatus and accessories and other reactor plant equipment used in the production of steam to be used primarily for generating electricity, including auxiliary superheat boilers and associated equipment in systems which change temperatures or pressure of steam from the reactor system.
 - Turbogenerator units - Installed main turbine-driven units and accessory equipment used in generating electricity by steam.
 - Accessory electric equipment - Installed auxiliary generating apparatus, conversion equipment, and equipment used primarily in connection with the control and switching of electric energy produced by nuclear power, and the protection of electric circuits and equipment, except electric motors used to drive equipment included in

other accounts. Such motors shall be included in the account in which the equipment with which they are associated is included.

- v. Heavy Water - Heavy Water (D-two-Oxy) Management and Tritium Removal Facility related equipment used to generate nuclear power.
- vi. Misc. power plant equipment - Installed miscellaneous equipment in and about the nuclear generating plant devoted to general station use, and which is not properly includible in any of the foregoing nuclear-power production accounts.
- vii. Multiple (Work order includes property units to multiple categories) - Items such as plant life extension, plant uprates, Fukushima related, fire protection, DC Power Control Computers, UPS, 600v, 4.16Kv, 13.8Kv, PH pumps/cooling fans
- viii. Miscellaneous - Projects not captured elsewhere. Also include any project costs reported to NEIL.

5) Select the Component type corresponding to the Major System from the dropdown list.

- i. Structures and improvements (FERC acct 321)
 - 1. Building roofs
 - 2. Cooling towers
 - 3. Water Treatment Plant
 - 4. Liquid Effluent Active/Inactive Drainage
 - 5. Sewage Treatment Plant
- ii. Reactor plant equipment (FERC acct 322)
 - 1. Feed water heaters
 - 2. RV Head
 - 3. Heat exchanger
 - 4. Fuel handling equipment
 - 5. Reactor coolant pump
 - 6. Steam generator
 - 7. Charging pumps
 - 8. Pressurizer
 - 9. Vessel Internal Components
 - 10. Protective Safety Systems
 - 11. ACU's/Reactor Coolant Pump
 - 12. Moderator
- iii. Turbogenerator units (FERC acct 323)
 - 1. Circulating water pumps
 - 2. Main condenser
 - 3. Condensate pumps
 - 4. Moisture separators for turbine steam
 - 5. Vacuum pumps
 - 6. Turbine rotor (high, intermediate, low pressure)

- 7. Main generator rotor
- 8. Main generator stator
- iv. Accessory electric equipment (FERC acct 324)
 - 1. Diesel generator
 - 2. Switch gear (replace all) / major switchyard
 - 3. Main control board
- v. Heavy Water
 - 1. Tritium Removal Facility
 - 2. Heavy Water Management
- vi. Misc. power plant equipment (FERC acct 325)
 - 1. Chillers (refrigerating & ventilating equip)
 - 2. Large crane replacements (turbine/gantry crane, BWR refueling floor crane, PWR containment polar crane)
 - 3. Service Water
 - 4. Compressed Air
- vii. Multiple (Work order includes property units to multiple categories)
 - 1. Plant Life Extension
 - 2. Plant Uprate
 - 3. Fukushima
 - 4. Fire Protection
 - 5. DC Power Control Computers
 - 6. UPS
 - 7. 600v, 4.16 Kv, 13.8 Kv
 - 8. PH Pumps/Cooling Fans
 - 9. Security
- viii. Misc.
 - 1. Enterprise Risk Projects (not captured elsewhere)
 - 2. NEIL Reporting
 - 3. Other

6) Select from the drop down box for the Project type of Project (Corporate, Plant, or Unit)

Screen 2 (Update Costs) is used to update the costs and project complete information for existing projects. Note, you must first enter the project information in the “Add New Projects” screen described above.

- 1) Enter the Annual Costs for the reporting period.**
- 2) Revise any prior year costs if applicable. Note, prior year costs will be carried forward from the prior survey year. You can modify these prior year costs if they have changed from the prior survey year.**

- 3) Total-to-date cost (new total cost) is calculated.
- 4) If the project is complete, indicate it by checking the checkbox on the screen.
- 5) Comments can be entered in the text box.

For both Annual Costs and Total Costs to-date includes the following:

- All costs associated with improvements and modifications made during the reporting year.
 - These costs should include design and installation costs in addition to equipment costs.
- Other miscellaneous capital additions such as facilities, computer equipment, moveable equipment and vehicles should also be included.
 - These costs should be fully burdened with indirect costs.
 - Exclude AFUDC.
 - All dollar values should be submitted in thousands of your own country dollars.
- All dollar values should be submitted in thousands of your own country dollars. On screens where costs are submitted, select the country currency that you are using in the dropdown box at the top of the screen. If your country is not listed, submit in thousands of US dollars.

Survey 5: Miscellaneous Capitalization Policy Questions

Getting Started

Refer to the appropriate section in your Company Financial Policy Binder or contact and work with your Financial Policy Manager in Finance to ensure that you are correctly reflecting the thresholds for capitalization in these categories.

Each organization's capitalization policy information, once entered, should only require a brief review in future years to identify any policy changes or to respond to survey changes (if any).

If your responses to the questions on the "Size Thresholds", "Cost Components", and/or "Misc Questions" worksheets are the same for all of your reporting nuclear stations, you only need to provide a single set of responses to those questions. These questions apply only to nuclear plant capitalization policies.

General Instructions

This data is requested on a plant level, and is prepopulated from the prior year data that you entered. Please review and adjust accordingly for the reporting year.

- There is a facility to copy one plant's response to all the other plants in your fleet, eliminating the need to retype your responses for each plant. Please respond appropriately to each question, elaborating where appropriate.

PACIFIC GAS AND ELECTRIC COMPANY
ATTACHMENT C
NUCLEAR OPERATING COSTS REFUELING OUTAGES (EUCG)

Nuclear Operating Costs Refueling Outages

(NC-DEF-06)

Getting Started

All financial data should be finalized for your company at the time this survey is completed. High-level financial data should be available from your Accounting, Finance, or business operations functions.

The cost data should reflect the outage costs for labor, materials, equipment, and outside services.

General Instructions

- All financial values should be submitted in thousands of your own country's currency. On screens where costs are submitted, select the country currency that you are using in the dropdown box at the top of the screen. If your currency is not listed, submit in thousands of US dollars.
- Negative balances should not be shown in any accounts in the EUCG surveys. While you can have negative costs, they should net out to zero or a positive number in the EUCG account.
- Refueling outage costs are reported as incremental O&M, i.e., reported outage costs include only those costs beyond the base budget that are specifically attributable to the refueling outage.
- The outage costs reported are to provide information only. The outage costs reported are NOT additive to the Nuclear Operating Costs. In the example below, the Nuclear Operating Cost Total is \$200 Million, which includes a \$20 Million outage. So it would be reported as shown below:

Nuclear Operating Cost Account TOTNUC = \$200 Million
Regular Costs \$180 Million + Incremental Outage \$20 Million

Nuclear Operating Cost Refueling Account TOTNUC = \$20 Million

- For US units, refueling outage dates for the reporting year will be automatically entered into the system once they are received from INPO. You will then be able to enter the

outage costs for those dates. If you want to report outage costs incurred in the reporting year for a prior year or future year outage, follow the steps below for a non-US unit.

- For non-US units, it is a 2-step process to enter the Outage Cost Detail.
 - First – setup the outage by clicking on the Add a New Outage under the Outage Maintenance link section of the Table of Contents. You will be prompted to select the Unit that had the outage from a dropdown and also enter the Outage Start and End Dates. This will set up a blank template for you to then enter the cost detail.
 - Second – click on the link [Nuclear Operating Costs Outage Detail](#) to enter the outage cost detail. You will be prompted to select which unit and outage dates you wish to enter detail for.
- Unless otherwise noted, all definitions and general comments contained in the Nuclear Operating Cost spreadsheet also apply to Refueling Outage data input.
- As with the Nuclear Operating Cost spreadsheet, all costs recorded in the Refueling Outage Cost spreadsheet are O&M. Capital cost information is recorded separately in the following spreadsheets:
 - Capital Costs – Annual Data
 - Capital Costs – Major Projects Data
 - Capital Costs – Miscellaneous Policy Questions
- It is common for refueling outage costs to begin two to four weeks prior to the outage start date. Typical pre-outage costs can include:
 - Supplemental workforce in processing
 - Costs incurred by planners and designers and in direct support of the current outage.

Note: Costs incurred by year-round planners and designers outside the outage window should not be included in outage costs.
- Include refueling outage costs in your submittal in the data year of the refueling outage, even if they were accrued in a prior year. Do not include accrued refueling outage costs in your Operating Cost detail.
- Only those refueling outage costs booked in the designated EUCG data year are input in the Outage Detail spreadsheet.
 - Your EUCG data year is self-defined as 1/1/yyyy to 12/31/yyyy or as recorded in Plant Data accounts A1100 (Report Year Start) and A1105 (Report Year End).

The overriding principal for recording refueling outage costs in the Outage Detail spreadsheet is to **record only those outage costs booked during the current data year**. This may not be the total outage cost if your outage spanned across multiple years.

- No data should be entered in any columns of SS09 (Employee Incentive Payments) and

SS10 (Insurance).

- Labor and NonDedicated Costs can be entered in SS11 (Payroll Taxes, Pension & Benefits)
- Comments can be entered on each account line, and should be entered to clarify any costs.
- Member companies must submit the following required data for ALL plants by the requested due dates in a complete and accurate manner as per the prescribed format and instructions. This includes submitting data for any plants being decommissioned until the date of permanent cessation of operations is reached.
 - Early Exchange
 - Plant / Unit Information
 - Nuclear Operating Cost Total / Outage
 - Capital Costs - Annual
 - Staffing

Self-Audit Tips

- If your outage ended in the current reporting year and your all incremental outage costs have been compiled and were incurred in the reporting year, verify that the TOTNUC value from the Outage Detail spreadsheet and the value entered into Unit Spreadsheet Account A1720 are equal. Ideally, the outage cost recorded in the Outage Detail spreadsheet under TOTNUC is also equal to the corresponding outage value you provided in the Early Exchange Survey.

Resource Definitions

Labor

Includes the following:

- DIRECT LABOR - Report only base overtime costs (excluding payroll taxes and benefits) for in-house craft resources beyond base non-outage overtime levels. In-house craft resources include both utility and any base contractors working at the plant. Report all costs for augmented craft support. All unproductive time, even if tracked separately, should be included in these costs.
- SUPPORT LABOR - Report base overtime costs (excluding payroll taxes and benefits) beyond base non-outage overtime levels for all QC, Field Engineering, Operations, Health Physics, Effluents, Outage Management and Security support at the station, as well as augmented internal staff support from the Home Office.

Employee / Contractor Time Reporting in EUCG Outage Cost Submittal				
			Items Included in EUCG Outage Cost Data Submittal (Yes / No)	
	Worker Type	Description	Straight Time	Overtime
1	Company Employee - Assigned to Plant	A company employee that is assigned at the nuclear plant that is having the refuel outage and this is the employee's regular assigned work location.	No	Yes
2	Company Employee - Assigned to different Plant	A company employee that is assigned at a different plant or location (Nuclear, Fossil, etc.) than the plant having the refuel outage but supports the outage with straight time and overtime labor.	Yes	Yes
3	Contractor - Refuel outage support only	Contractors that are brought in just to support the outage and released after the outage is completed.	Yes	Yes
4	Contractor - Baseline support	Contractors that provide on-line and outage support to the assigned nuclear plant that is having the refuel outage and support the refuel outage. These contractors are not released after the outage is completed.	No	Yes

Materials and Equipment

Includes the following:

- All material costs incurred against outage work documents, including stores issues and direct turnover.
- Repair costs to material reinstalled during the outage.

The Materials and Equipment category of costs does NOT include overheads related to inventory.

Outside Services

This includes the total costs associated with contractors and consultants, as billed, for outage work.

Other

Includes the following:

- All employee expenses, radwaste laundry costs, outage monetary and other incentives (all awards that can be directly identified with the outage for utility workers, contractors, and vendors, such as t-shirts and special outage meals)
- Equipment rentals specific to the outage
- Incremental base overtime costs for work document planning and walk-downs

Note: The Other category of outage costs **does NOT** include the cost of replacement power or station electricity use.

General Discussion for Recording Outage Costs

Refueling outage cost reporting can fall into one of several categories as defined below.

	Outage Scenario # 1	Outage Scenario # 2	Outage Scenario # 3	Outage Scenario # 4	Outage Scenario # 5
	Outage begins and ends in current Data Year	Outage begins in current Data Year, but ends in Future Year	Outage begins and ends in current Data Year	Outage begins and ends in Prior Data Year	Outage will begin and end in Future Data Year, but costs incurred in current Data Year
	All costs incurred in current Data Year	Most costs incurred in current Data Year, but some costs incurred in Future Year	Most costs incurred in current Data Year, but some costs incurred in Prior Year	Most costs incurred in Prior Data Year, but some costs incurred in current Data Year	Most costs will be incurred in Future Data Year, but some costs incurred in current Data Year
Outage Start	9/8/2022	9/8/2022	2/8/2022	10/12/2021	1/15/2023
Outage Finish	10/10/2022	1/6/2023	3/10/2022	12/18/2021	3/15/2023
Did outage complete in current Data Year?	Yes	No	Yes	No	No
Reporting Year	2023	2023	2023	2023	2023
Data Year	2022	2022	2022	2022	2022
Pre-Outage Costs Year			2021		2022
Post-Outage Costs Year				2022	
Early Survey Outage Cost Entry	Total Dollars	No Dollars	Total Dollars including 2021 Dollars	No Dollars	No Dollars
Unit Survey Outage Cost Entry	Total Dollars	No Dollars	Total Dollars including 2021 Dollars	No Dollars	No Dollars
Outage Detail Survey Cost Entry	Total Dollars	2022 Dollars Only	2022 Dollars Only	2022 Dollars Only	2022 Dollars Only

Nuclear Operating Cost Outage Driver Checklist

Please select the Drivers in the checklist to best describe the Outage duration.

A checklist should be completed for each outage entered.

These drivers are not intended to explain outage activities in detail, but simply give a high level indicator for overall outage duration. If you select "Other", you must enter an Outage Driver Description in order to save.

PACIFIC GAS AND ELECTRIC COMPANY
APPENDIX A
STATEMENT OF QUALIFICATIONS

1 **PACIFIC GAS AND ELECTRIC COMPANY**
2 **STATEMENT OF QUALIFICATIONS OF BRIAN KETELSEN**

3 Q 1 Please state your name and business address.

4 A 1 My name is Brian Ketelsen, and my business address is Pacific Gas and
5 Electric Company (PG&E), Diablo Canyon Power Plant (DCPP).

6 Q 2 Briefly describe your responsibilities at PG&E.

7 A 2 I am the Director of Business and Technical Services for DCPP where I am
8 responsible for extended operations cost recovery, nuclear fuel
9 procurement, spent fuel management and decommissioning planning.

10 Q 3 Please summarize your educational and professional background.

11 A 3 I earned a Bachelor of Arts in Economics from San Diego University.
12 I joined PG&E in 2011 after various Financial Analyst roles. Since joining
13 PG&E, I worked up through the Project Finance organization at DCPP
14 where my team facilitated the project approval, controls, governance, and
15 closeout process for all projects at DCPP. I joined DCPP decommissioning
16 in 2018, and have overseen the development of the 2018 and 2021 Nuclear
17 Decommissioning Cost Triennial Proceeding (NDCTP) filings. I also
18 supported testimony and workpapers for the 2014-2017 General Rate
19 Cases and contributed to the Humboldt Bay Power Plant Decommissioning
20 team during the 2015 NDCTP. In 2022, I started my current position in the
21 Business and Technical Services organization.

22 Q 4 What is the purpose of your testimony?

23 A 4 I am sponsoring the following testimony and workpapers in the California
24 Public Utilities Commission's Rulemaking to Implement Senate Bill 846
25 Concerning Potential Extension of Diablo Canyon Power Plant Operations:

- 26 • "Diablo Canyon Power Plant Historical and Forecast Costs."

27 Q 5 Does this conclude your statement of qualifications?

28 A 5 Yes, it does.