

Docket:	:	<u>12-12-012/-013</u>
Exhibit Number	:	<u>DRA-01</u>
Commissioner	:	<u>M. Ferron</u>
Admin. Law Judge	:	<u>M. Darling</u>
Witness	:	<u>K. McNabb</u>
	:	



**DIVISION OF RATEPAYER ADVOCATES
CALIFORNIA PUBLIC UTILITIES COMMISSION**

**Report on the
2012 Nuclear Decommissioning Cost
Triennial Proceeding for
Pacific Gas and Electric Company**

**Humboldt Bay Power Plant Unit #3
Cost Estimates, SAFSTOR O&M Estimates, and
Reasonableness of Completed Projects**

San Francisco, California
July 12, 2013

TABLE OF CONTENTS

1.	INTRODUCTION	1
2.	SUMMARY OF RECOMMENDATIONS.....	1
3.	PROCEEDING BACKGROUND.....	2
4.	OVERVIEW OF PG&E'S PROPOSAL.....	3
5.	DISCUSSION AND ANALYSIS OF PG&E'S HUMBOLDT BAY POWER PLANT UNIT DECOMMISSIONING COST ESTIMATE.....	3
	A. REMOVAL OF THE CAISSON AT PG&E'S HUMBOLDT BAY POWER PLANT APPEARS TO BE NECESSARY.....	3
	B. PG&E SHOULD CHANGE TO AN INDUSTRIAL WORKER SITE REMEDIATION SCENARIO FOR ITS HUMBOLDT BAY POWER PLANT SITE	4
	C. PG&E'S INCREASED SPENT FUEL STORAGE COSTS FOR ITS HUMBOLDT BAY POWER PLANT APPEAR TO BE UNAVOIDABLE	7
	D. PG&E'S GROUNDWATER TREATMENT COSTS SEEM NECESSARY TO THE EXTENT THEY ARE REQUIRED FOR REMOVAL OF THE CAISSON AND SITE CLEAN-UP BASED ON THE INDUSTRIAL WORKERS SCENARIO	7
6.	DISCUSSION AND ANALYSIS OF PG&E'S HUMBOLDT BAY POWER PLANT UNIT SAFSTOR O&M COSTS	8
	A. PG&E'S 2010-2012 SAFSTOR O&M COSTS APPEAR TO BE REASONABLE.....	8
	B. PG&E'S 2014-2016 SAFSTOR O&M FORECASTS APPEAR TO BE REASONABLE.....	9
	C. PG&E'S PROPOSED CREDITING PROCEDURE FOR SAFSTOR O&M OVER-COLLECTIONS	9
7.	DISCUSSION AND ANALYSIS OF PG&E'S HUMBOLDT BAY POWER PLANT UNIT COMPLETED DECOMMISSIONING PROJECTS.....	10
	A. ALL OF PG&E'S COMPLETED DECOMMISSIONING PROJECT COSTS PRESENTED IN ITS APPLICATION APPEAR TO BE REASONABLE	10
8.	QUALIFICATIONS AND PREPARED TESTIMONY OF KATHERINE C. MCNABB.....	13

1 **1. INTRODUCTION**

2 This Exhibit presents the Division of Ratepayer Advocates' (DRA)
3 analyses and recommendations regarding Pacific Gas and Electric
4 Company's (PG&E) Humboldt Bay Power Plant Unit #3 (HBPP) nuclear
5 decommissioning cost estimate, the reasonableness of HBPP SAFSTOR
6 O&M costs, and the reasonableness of HBPP completed decommissioning
7 projects, as presented in PG&E's 2012 Nuclear Decommissioning Cost
8 Triennial Proceeding (NDCTP), Application (A.) 12-12-012.

9 **2. SUMMARY OF RECOMMENDATIONS**

10 DRA recommends:

- 11 • DRA does not object to the additional costs associated with
12 the reactor caisson removal project.
- 13 • DRA recommends that the site remediation standard for
14 HBPP be the Industrial Worker Standard and that PG&E's
15 HBPP decommissioning cost estimate be reduced by \$18
16 million accordingly.
- 17 • DRA does not oppose the estimated costs associated with the
18 spent nuclear fuel storage at HBPP.
- 19 • DRA does not contest the additional groundwater treatment
20 cost to the extent it is necessary to meet the Industrial Worker
21 Scenario.
- 22 • DRA does not dispute PG&E's 2010-2012 Actual SAFSTOR
23 O&M expenses.
- 24 • DRA agrees to PG&E's 2014-2016 SAFSTOR O&M forecast.
- 25 • DRA agrees to PG&E's proposed crediting procedure for
26 SAFSTOR over-collections.
- 27 • DRA reviewed PG&E's completed decommissioning projects
28 and identified no issues.

1 **3. PROCEEDING BACKGROUND**

2 On December 21, 2012, PG&E filed its 2012 NDCTP Application¹
3 seeking a total estimated 2014 CPUC-jurisdictional revenue requirement
4 for nuclear decommissioning in the total amount of \$212.897 million which
5 is composed of the following elements:

- 6 • \$82.517 million annual revenue requirement for contributions
7 to the tax qualified Diablo Canyon Power Plant ND Trusts;
- 8 • \$120.383 million annual revenue requirement for contributions
9 to the tax qualified Humboldt Unit 3 ND trust;
- 10 • \$9.997 million in estimated annual revenue requirements for
11 2014;
- 12 • \$9.849 million in annual revenue requirements for 2015; and
- 13 • \$9.568 million in annual revenue requirements for 2016 and
14 thereafter for Humboldt Unit 3 SAFSTOR O&M.

15 On June 17, 2013, ALJ Darling issued a scoping ruling² which
16 consolidated this proceeding with A.12-12-013, the joint application of
17 Southern California Edison Company and San Diego Gas and Electric
18 Company for the 2012 NDCTP. The ruling also bifurcated the schedule for
19 the proceeding and requested this separate testimony regarding the
20 reasonableness of the identified past and future decommissioning costs at
21 Humboldt Bay Power Plant which include:

- 22 • HBPP decommissioning cost estimate;
- 23 • HBPP SAFSTOR O&M costs; and

¹ Application of Pacific Gas and Electric Company in its 2012 Nuclear Decommissioning Cost Triennial Proceeding, A.12-12-012 filed December 21, 2012.

² Scoping Memo and Ruling of Assigned Commissioner Mark Ferron and Administrative Law Judge Melanie M. Darling dated June 17, 2013.

- Reasonableness of the completed decommissioning projects at HBPP.

4. OVERVIEW OF PG&E'S PROPOSAL

In its testimony PG&E requested that the Commission approve its total updated decommissioning cost estimate for HBPP of \$982.3 million, which represents an increase of \$483 million from the cost estimate approved in PG&E's 2009 NDCTP. PG&E requests that the Commission (1) find PG&E's 2010-2012 SAFSTOR O&M costs reasonable; (2) adopt PG&E's 2014-2016 SAFSTOR O&M forecasts; (3) authorize a new crediting procedure in the case of SAFSTOR O&M over collections; (4) affirm the reasonableness of PG&E's completed decommissioning projects; and (5) recognize PG&E has made a reasonable effort to retain and utilize qualified and experienced personnel.

5. DISCUSSION AND ANALYSES OF PG&E'S HUMBOLDT BAY POWER PLANT UNIT DECOMMISSIONING COST ESTIMATE

The 2012 decommissioning cost estimate presented in PG&E's Prepared Testimony is \$483 million more than their decommissioning cost estimate approved in the 2009 NDCTP. This cost increase is driven by several changes to the scope of work at Humboldt Bay Power Plant which include removal of the reactor caisson, changes to site remediation assumptions, increased time for which on-site spent nuclear fuel storage is necessary, and increased groundwater treatment costs. DRA has reviewed each of the four cost increase drivers and presents its analyses and recommendations below.

A. Removal Of The Caisson At PG&E's Humboldt Bay Power Plant Appears Necessary and Reasonable

PG&E's updated decommissioning cost estimate includes an additional \$192 million for removal of the entire reactor caisson that was

1 not was part of the cost estimate approved in the 2009 NDCTP.³ In 2011,
2 PG&E was finally able to remove samples of concrete from the drywell wall
3 within the caisson. The results of laboratory testing of these samples
4 revealed much higher levels of C-14 activation than was previously
5 assumed.⁴ As a result of the higher than anticipated C-14 activation
6 levels, PG&E does not believe that removal of 28 inches of concrete from
7 the drywell concrete wall is sufficient.⁵ PG&E commissioned an
8 independent structural evaluation which found that removal of only up to
9 21 inches of concrete from the drywell is safely possible.⁶ Based on this
10 information, it appears that removal of the amount of concrete necessary
11 to meet the NRC's release standards may result in an unstable caisson
12 structure, putting workers in and around the caisson at unnecessary risks.
13 Based on the foregoing, DRA does not object to the additional costs
14 associated with the reactor caisson removal.

15 **B. PG&E Should Use An Industrial Worker Site**
16 **Remediation Scenario For Its Humboldt Bay**
17 **Power Plant Site**

18 DRA recommends that the Industrial Worker Scenario be used for
19 the final site restoration state of the Humboldt Bay Power Plant. The cost
20 estimate approved in the 2009 NDCTP was based on the Industrial Worker
21 Scenario, but in the current proceeding PG&E has chosen to assume the
22 more stringent Residential Farmer Scenario standard for the final site
23 restoration state.⁷ As a result, PG&E has included an additional \$47

³ PG&E 2012 NDCTP Prepared Testimony, p. 4-2.

⁴ PG&E 2012 NDCTP Prepared Testimony, p. 4-13.

⁵ PG&E response to DRA Data Request DR-3-KMC, Q.7.

⁶ Structural Analysis to Support Removal of Activated Concrete from Reactor Caisson Drywell, Attachment to PG&E response to DRA Data Request DRA-1-KMC, Q.14, p. 4.

⁷ PG&E 2012 NDCTP Prepared Testimony, p. 4-2.

1 million dollars in their 2012 cost estimate, which it claims is necessary to
2 demolish the intake and discharge canal concrete structures, remove
3 silt/sediment, and excavate six inches into the walls and bottom of the
4 canal.⁸

5 The site remediation of Humboldt Bay according to the Residential
6 Farmer Scenario is unnecessary, results in higher that required costs and
7 is an unreasonable use of ratepayer funds. PG&E assumed the Industrial
8 Worker Scenario in the 2009 NDCTP and has made no changes to its post
9 decommissioning site use assumptions since the 2009 cost estimate was
10 approved.⁹ PG&E intends to retain the land for industrial purposes, such
11 as storage and warehouse space for the adjacent Humboldt Bay
12 Generating Station or office, laydown and equipment space for PG&E's
13 electric transmission and maintenance staff.¹⁰ PG&E's 2009 assumptions
14 appear valid and applicable, as follows: (1) at least 30 years after
15 decommissioning PG&E employees will spend a maximum of 45 hours per
16 week or 2,250 hours per year on the site; and (2) the ground will not be
17 used to grow food or to extract drinking water.¹¹ PG&E has previously
18 found these assumptions to be consistent with the use of an Industrial
19 Worker Scenario. PG&E has not cited any changes to the HBPP end-use
20 assumptions which would appear to warrant changing to the Residential
21 Farmer Scenario.¹²

22 PG&E's reasons for choosing the Residential Farmer Scenario site
23 remediation standard appear to be speculative. PG&E claims that the

⁸ PG&E 2012 NDCTP Prepared Testimony, p. 4-15.

⁹ PG&E response to DRA Data Request DRA-4-KMC, Q.6.

¹⁰ PG&E response to DRA Data Request DRA-1-KMC, Q.8.

¹¹ PG&E 2012 NDCTP Prepared Testimony, p. 4-11.

¹² PG&E 2012 NDCTP Prepared Testimony, p. 4-11.

1 political climate in Humboldt County, state and local regulatory changes,¹³
2 and potential litigation¹⁴ necessitate this change. Although PG&E cites
3 discussions with subject matter experts, state agencies, and local
4 community members and groups¹⁵, it has failed to provide any details of
5 these discussions. PG&E has failed to support this change which requires
6 at least \$18 million in additional contributions from ratepayers.

7 PG&E did not prepare a cost estimate using the Industrial Worker
8 Scenario, so the exact savings associated with changing back to this
9 scenario are approximate. According to PG&E, the adoption of the
10 Industrial Worker Scenario would result in an \$8 million reduction in field
11 work and a \$10 million reduction in disposal costs. Additionally, use of the
12 Industrial Worker Scenario could further reduce planning and engineering
13 costs by 25%, intake canal excavations by 75%, discharge canal
14 excavations by 50% and project management and storm water pollution
15 prevention plans by 25%.¹⁶

16 DRA recommends that the Commission direct PG&E to use the
17 Industrial Worker Scenario as the site remediation standard for HBPP and
18 reduce PG&E's decommissioning cost estimate by at least \$18 million. As
19 an alternative, PG&E could provide an updated cost estimate performed
20 based on this standard and then update its revenue requirement based on
21 this new estimate through an advice letter filing. DRA recommends that
22 the Commission require that PG&E use the Industrial Worker Scenario for
23 site remediation, which was the standard assumed in the decommissioning
24 cost estimate approved in the 2009 NDCTP. PG&E has not shown any

¹³ PG&E 2012 NDCTP Prepared Testimony, p. 4-2.

¹⁴ PG&E NDCTP 2012 Corrected Workpapers Supporting Prepared Testimony, p. 4-33.

¹⁵ PG&E response to DRA Data Request DRA-2-KMC, Q.5.

¹⁶ PG&E response to DRA Data Request DRA-2-KMC, Q.4.

1 material and significant changes that would justify using the more stringent
2 site remediation standards for the Humboldt Bay site cleanup.

3 **C. PG&E's Increased Spent Fuel Storage Costs**
4 **for Its Humboldt Bay Power Plant Appear to**
5 **Be Necessary and Unavoidable**

6 Of the increased cost estimate, \$20 million is the result of spent fuel
7 storage costs. This increased cost would be incurred due to PG&E's need
8 to store HBPP's spent nuclear fuel for four more years than was estimated
9 in the 2009 NDCTP. This extra four years of storage time is a result of the
10 delay in the transfer of spent nuclear fuel to the Department of Energy
11 (DOE).¹⁷

12 DRA does not oppose this increase in the cost estimate because it
13 appears to be necessary and unavoidable. This cost should ultimately be
14 refunded to ratepayers as PG&E pursues further spent fuel nuclear
15 storage costs refunds from DOE.

16 **D. PG&E's Groundwater Treatment Costs Seem**
17 **Necessary to the Extent They Are Required for**
18 **Removal of the Caisson And Site Clean-Up**
19 **Based on the Industrial Workers Scenario**

20 PG&E's updated cost estimate proposes \$6.2 million in groundwater
21 treatment costs which are necessary for both the caisson removal and
22 canal remediation.¹⁸

23 DRA has no objection to this estimate to the extent that it is
24 necessary for the caisson removal and canal remediation regarding the
25 Derived Concentration Guideline Levels (DCGL) associated with the
26 Industrial Worker Scenario. DRA opposes any costs associated with the
27 additional canal remediation work for the DCGLs associated with PG&E's

¹⁷ PG&E 2012 NDCTP Prepared Testimony, p. 4-18.

¹⁸ PG&E 2012 NDCTP Prepared Testimony, p. 4-18.

1 proposed Residential Farmer Scenario, instead of the less stringent
2 Industrial Worker Scenario.

3

4 **6. DISCUSSION AND ANALYSIS OF PG&E'S HUMBOLDT BAY POWER**
5 **PLANT UNIT SAFSTOR O&M COSTS**

6 **A. PG&E's 2010-2012 SAFSTOR O&M Costs**
7 **Appear to Be Reasonable**

8 PG&E has submitted the difference between its actual and forecast
9 SAFSTOR O&M costs for 2010, 2011, and 2012 to the Commission for a
10 review of their reasonableness.¹⁹ Table 6-1 below shows how PG&E's
11 actual SAFSTOR expenditures differ from its SAFSTOR revenue for 2010,
12 2011, and 2012.

13

14

15

Table 6-1
2010-2012 SAFSTOR Costs
Millions of Dollars

	2010	2011	2012	Total
Recorded Expenses	9.281	9.432	10.569	29.282
Adjusted Revenue	8.167	10.201	10.724	29.092
Difference	1.115	(0.769)	(0.154)	0.192

16 According to PG&E, the 2010 under-collection of \$1.115 million was
17 the result of a discrepancy in the forecast model prepared for that year.

18 Further, the 2011 over-collection occurred because PG&E revised its
19 allocation of positions supporting decommissioning and SAFSTOR O&M
20 activities to better reflect the activities PG&E staff were performing.²⁰

21 Even with the additional over-collection in 2012, the resulting difference
22 between revenues and actual SAFSTOR O&M expenditures for 2010–

¹⁹ PG&E 2012 NDCTP Prepared Testimony, p. 6-5.

²⁰ PG&E 2012 NDCTP Prepared Testimony, p. 6-5.

1 2012 spending is only about \$192,000 or less than a 1% under-
2 collection.²¹ This small under-collection seems reasonable to DRA.

3 **B. PG&E’s 2014-2016 SAFSTOR O&M Forecasts**
4 **Appear to Be Reasonable**

5 PG&E has requested that the Commission approve its 2014–2016
6 SAFSTOR O&M forecasts²², which are as follows:

- 7 • \$5.664 million for 2014;
- 8 • \$5.184 million for 2015; and
- 9 • \$4.435 million for 2016.

10 PG&E’s SAFSTOR O&M expenses are expected to decline as more
11 decommissioning work is completed, because there will be fewer buildings
12 and equipment that needs to be maintained in accordance with its NRC
13 Part 50 license. This decrease is reflected in PG&E’s SAFSTOR O&M
14 forecasts for the years 2014, 2015 and 2016. These forecasts also
15 represent a decrease from PG&E’s actual 2012 SAFSTOR O&M costs.²³
16 For the above reasons, DRA agrees that PG&E’s 2014-2016 SAFSTOR
17 O&M forecasts are reasonable.

18 **C. PG&E’s Proposed Crediting Procedure for**
19 **SAFSTOR O&M Over-Collections**

20 PG&E requests that the Commission amend the SAFSTOR O&M
21 “true-up” adopted in D.10-07-047 which specifies:

22 PG&E shall track its actual SAFSTOR expenses and make a
23 “true-up” contribution to, or withdrawal from, the
24 decommissioning trusts based on whether the amount

²¹ PG&E’s 2012 SAFSTOR True-Up Calculation.

²² PG&E 2012 NDCTP Prepared Testimony, p. 6-1.

²³ PG&E’s 2012 SAFSTOR True-Up Calculation.

1 collected in rates is greater than or less than the expenses
2 actually incurred.²⁴

3 However, PG&E is doing away with its Humboldt Bay Non-Qualified Trust
4 and its IRS Schedule of Ruling Amounts will not accommodate additional
5 contributions in the case of a SAFSTOR O&M over-collection. As a
6 solution to this situation, PG&E has suggested the Commission adopt a
7 crediting procedure through which it would credit SAFSTOR O&M over-
8 collections against decommissioning costs that it would otherwise recover
9 from the qualified trust.²⁵

10 DRA supports the adoption of this crediting procedure. It appears
11 that it will achieve the same effect as contributing over-collections to the
12 Non-Qualified Trust. Additionally, DRA requests that the Commission
13 continue to require PG&E to track and submit its actual SAFSTOR O&M
14 costs for reasonableness review in future Nuclear Decommissioning Cost
15 Triennial Proceedings in accordance with D10-07-047.²⁶

16 **7. DISCUSSION AND ANALYSIS OF PG&E'S HUMBOLDT BAY POWER**
17 **PLANT UNIT COMPLETED DECOMMISSIONING PROJECTS**

18 **A. All Of PG&E's Completed Decommissioning**
19 **Project Costs Presented in Its Application**
20 **Appear To Be Reasonable**

21 In Chapter 7 of its testimony, PG&E presents four completed
22 decommissioning projects for the Commission's approval. These projects
23 include:

24 (1) The Turbine Buildings Systems Removal and Disposal, which
25 was 6.4% under its budget approved in the 2009 NDCTP;

²⁴ D.10-07-047, p. 57.

²⁵ PG&E 2012 NDCTP Prepared Testimony, pp. 6-5 and 6-6.

²⁶ D.10-07-047, Ordering Paragraph 5.

- 1 (2) The Spent Fuel Racks Removal and Disposal, which was
2 10.5% under its budget approved in the 2009 NDCTP;
3 (3) The Cleanup and Shutdown of the Heat Exchangers in the
4 Refueling Building, which was 0.6% under its budget
5 approved in the 2009 NDCTP; and
6 (4) The Condensate Storage Tank and Concentrator Waste
7 Tanks Removal, which was 40% over its budget approved in
8 the 2009 NDCTP.

9 DRA takes no issue with the reasonableness of the first three
10 projects. Each of them was completed under budget and according to
11 PG&E's testimony, in a timely manner.²⁷

12 PG&E's fourth project, the Condensate Storage Tank and
13 Concentrator Waste Tanks Removal, was 40% over-budget. PG&E did
14 not account for the large amounts of contamination present in the tanks;
15 therefore, all bids that PG&E received from qualified bidders exceeded the
16 initial estimate that was approved on the 2009 NDCTP.²⁸ According to
17 PG&E, their 2009 cost estimate provided by TLG was based on previous
18 plant decommissioning data, not on-the-ground testing. As a result, the
19 contamination was only found when the tanks were surveyed in
20 preparation for removal.²⁹ Additionally, only after removal of the tanks
21 progressed did PG&E uncover pertinent construction information that
22 increased the project's cost, which was ultimately over-budget.³⁰

²⁷ Pacific Gas and Electric Company, Nuclear Decommissioning Cost Triennial Proceeding 2012, Prepared Testimony, Chapter 7.

²⁸ PG&E 2012 NDCTP Prepared Testimony, p. 7-7.

²⁹ PG&E response to DRA Data Request DR-4-KMC, Q.10.

³⁰ PG&E 2012 NDCTP Prepared Testimony, p. 7-8.

1 Numerous factors contributed to the project coming in at 40% over-
2 budget. But, after analyzing the costs and work issues, DRA agrees that
3 this project's costs were reasonable given that many of the additional costs
4 could not be accounted for in the 2009 cost estimate and were
5 unforeseeable until the project was underway. DRA also appreciates that
6 in aggregate, PG&E's completed projects were under budget by \$727,000
7 or 2.7%.³¹

³¹ PG&E 2012 NDCTP Prepared Testimony, p. 7-5.

1 **8. QUALIFICATIONS AND PREPARED TESTIMONY OF KATHERINE C.**
2 **MCNABB**

3 Q.1 Please state your name and business address.

4 A.1 My name is Katherine McNabb. My business address is 505 Van
5 Ness Avenue, San Francisco, California, 94102.

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

7 A.2 I am employed by the California Public Utilities Commission as a
8 Public Utilities Regulatory Analyst I in the Division of Ratepayer
9 Advocates Energy Cost of Service and Natural Gas Branch.

10 Q.3 Briefly describe your relevant educational background and work
11 experience.

12 A.3 I received a Bachelor of Arts Degree in Political Science and minor
13 in Agriculture Business from California Polytechnic State University,
14 San Luis Obispo. I previously worked in DRA's Communications
15 Policy Branch from 2008-2010.

16 Q.4 What is the purpose of your testimony?

17 A.4 I am responsible for Exhibit DRA-01, Humboldt Bay Power Plant Unit
18 #3 Cost Estimates, SAFSTOR O&M Estimates and Reasonableness
19 of Completed Projects.

20 Q.5 Does that complete your prepared testimony?

21 A.5 Yes, it does.