Application	:	A.05-12-002
Exhibit Number	:	DRA-7
Commissioner	:	Bohn
Admin. Law Judges	:	Kenney, Econome
Witness	:	Burns

DIVISION OF RATEPAYER ADVOCATES
CALIFORNIA PUBLIC UTILITIES COMMISSION

Report on the Results of Operations Electric and Gas Distribution Electric Generation for Pacific Gas and Electric Company

General Rate Case
Test Year 2007

Electric Generation Costs

San Francisco, California
April 14, 2006

ELECTRIC GENERATION COSTS

I. INTRODUCTION

This exhibit presents DRA's analysis and recommendations regarding PG&E's electric generation operation and maintenance (O&M) expenses and capital expenditures.

II. SUMMARY OF RECOMMENDATIONS

The following summarizes DRA's recommendations. The differences between DRA and PG&E's forecasts of electric generation O&M are set forth in Table 7-1, while Table 7-2 summarizes the differences regarding capital expenditures.

A. Recommendations for O&M Expenses

1. Hydro

DRA recommends Hydro O&M costs of $108.6 million (2007$) for TY 2007, in contrast to PG&E's forecast of $143.9 million. DRA opposes PG&E's request for additional staffing to address "aging workforce" concerns. DRA does not oppose PG&E's current policy regarding contingencies for Hydro operations, and DRA notes allegations related to the Lower Bear River Reservoir.

2. Nuclear

DRA recommends Nuclear O&M costs of $295.6 million for TY 2007, in contrast to PG&E's forecast of $310.8 million. DRA opposes PG&E's request for additional staffing to address "aging workforce" concerns and PG&E's proposed License Extension Feasibility Study; does not oppose PG&E's ISFSI project, and does not oppose PG&E's proposal to capitalize the cost of new ISFSI casks, as opposed to the current policy of expensing them.

3. Fossil

DRA does not oppose PG&E's request of $13.9 million for Fossil O&M costs for TY 2007.

4. Electric Supply Administration Costs

DRA recommends Electric Supply Administration costs of $38.0 million for TY 2007, in contrast with PG&E's request of $42.3 million.

5. Generation Support Costs

DRA does not oppose PG&E's request of $4.2 million for Generation Support costs for TY 2007.

Table 7-1 compares DRA's recommended O&M estimates with PG&E's proposed estimates:

Table 7-1
Electric Generation O&M Expenses
(in Millions of 2007 Dollars)

Description	DRA Recommended	PG&E Proposed	Difference PG&E>DRA	Percentage PG&E>DRA
Hydro Operations Costs	$108.6	$143.9	$35.3	32.5%
Nuclear Operations Costs	$295.6	$310.8	$15.2	5.1%
Fossil Operations Costs	$13.9	$13.9	$0.0	0.0%
Electric Supply Administration Costs	$38.0	$42.3	$4.3	11.3%
Generation Support Costs	$4.2	$4.2	$0.0	---
Amortization of Generation Regulatory Assets	11 year amortization	11 year amortization	No change	0

B. Recommendations for Capital Expenditures

1. Hydro

DRA opposes PG&E's request to replace the failed penstock at Coal Canyon, which has been out of operation since 2002. DRA recommends that PG&E evaluate decommissioning Coal Canyon and selling the Middle Miocene Canal. DRA supports PG&E's efforts towards decommissioning or selling Kilarc-Cow.

2. Nuclear

DRA opposes PG&E's proposal to replace its airplane, and recommends that if PG&E's plane is replaced, that its capital cost be allocated to PG&E Corporation, with appropriate charges to the utility. DRA recommends that PG&E's proposed $141 million replacement of reactor vessel heads at Diablo Canyon's Units 1 and 2 in 2009 and 2010 be removed from this GRC and put in a separate application or the

next GRC. DRA recommends that any award or settlement PG&E recovers from Siemens-Westinghouse regarding its low pressure turbine rotor replacement litigation should be refunded to ratepayers, net of reasonable incremental litigation costs.

3. Fossil

DRA recommends that since PG&E is planning on retiring Humboldt Bay Unit 3 in 2010, the company seek ways to avoid making $9.1 million in capital expenditures at the plant in 2007-2009.

Table 7-2 compares DRA's recommended capital expenditure estimates with PG&E's proposed estimates:

Table 7-2
Electric Generation Capital Expenditures
(in Millions of Dollars)

Description	DRA Recommended	PG&E Proposed	Difference PG&E>DRA	Percentage PG&E>DRA
Hydro: Coal Canyon, failed penstock replacement (2006)	$0	$1.4	$1.4	---
Nuclear: replacement airplane (2007)	$0	$24.9	$24.9	---
Nuclear: reactor vessel head replacements (2009-2010)	$0	$141	$141	---
Fossil: Humboldt Bay upgrades (2007-2009)	$0	$9.1	$9.1	---

III. DISCUSSION: HYDRO O&M AND CAPITAL

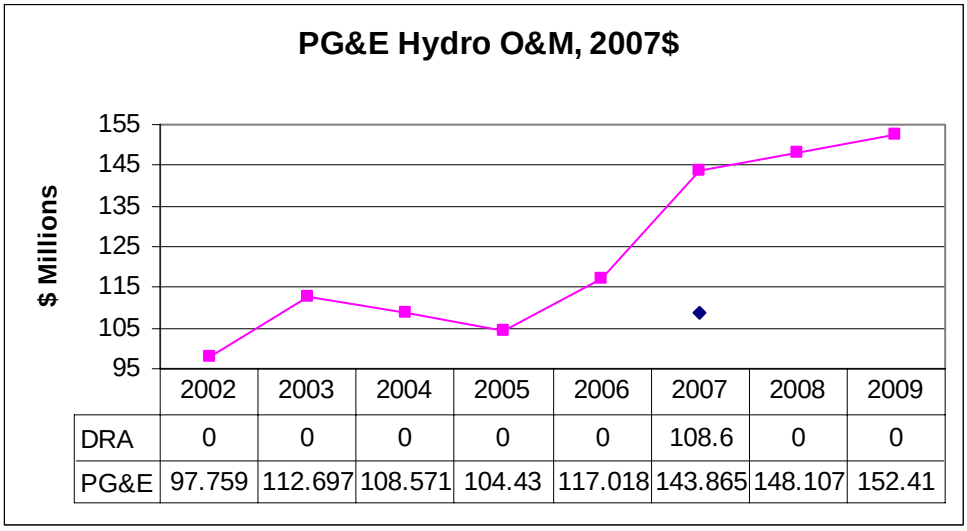
A. Hydro Operations Costs

PG&E requests that the Commission adopt its 2007 Hydro Operations and Maintenance (O&M) forecast of $143.9 million.[1] Graph 1 shows PG&E's historic and forecast hydro operations costs in 2007 dollars.[2] PG&E's TY 2007 request is a significant increase from current costs and PG&E's 2006 budget.

[1] Exh. PG&E-3 at 3-1.

[2] PG&E response to Data Request ORA-188, Q.1.

Graph 1



	2002	2003	2004	2005	2006	2007	2008	2009
DRA	0	0	0	0	0	108.6	0	0
PG&E	97.759	112.697	108.571	104.43	117.018	143.865	148.107	152.41

PG&E's testimony refers to the Hydro Operations 2005 budget, which was approved in November 2004.[3] DRA asked PG&E if the Hydro Operations 2006 budget has been approved, and if so, how it differs from the $115.3 million 2006 O&M forecast in PG&E's Table 3-2 on page 3-63 of Exhibit PG&E-3. PG&E responded that the Hydro Operations 2006 budget has been approved at $105.8 million, $9.5 million less than the forecast included in PG&E's Table 3-2.[4]

DRA developed its 2007 Hydro O&M estimate of $108.6 million (2007$) by averaging recorded costs from 2003-2005. Supporting DRA's recommendation, DRA notes that PG&E's approved Hydro Operations 2006 budget of $105.8 million is $9.5 million less than the forecast included in PG&E's testimony. The final 2006 budget is also comparable to DRA's TY 2007 forecast.

1. Additional Staffing

While PG&E's Policy testimony discusses "PG&E's aging workforce and the need to bring in new talent prior to the retirement of existing employees,"[5] PG&E's

[3] Exh. PG&E-3 at 3-13.

[4] PG&E response to Data Request ORA-145, Q.2.

[5] Exh. PG&E-3 at 1-18.

Hydro testimony indicates that the utility has a strategy to deal with employee attrition as follows:

> Hydro Operations is planning to maintain recent operating practices and staffing levels through 2009. This includes a *staffing strategy to manage attrition without temporarily increasing the number of employees*. Hydro Operations, like many other programs at PG&E, forecasts a significant increase in employee retirements during 2005-2009, but believes it can manage attrition without undue operating risk by utilizing the organization's total capabilities.
>
> Source: Exh. PG&E-3 at 3-42 (emphasis added).

PG&E Hydro's additional staffing strategy is in contrast with the increased staffing request PG&E is seeking for Diablo Canyon, discussed below. Despite PG&E's Hydro testimony, DRA notes that PG&E proposes an Operator in Training Program to hire 35 new Hydro Operators in Training from 2005-2008.[6]

DRA opposes PG&E's proposed Operator in Training Program, since it is inconsistent with PG&E's Hydro testimony to "manage attrition without temporarily increasing the number of employees." In this time of high rates[7], PG&E needs to seriously consider ways to effectively manage its O&M costs within historical expense levels.

2. Contingency

PG&E's testimony states that the "expense and capital forecast in this GRC request and annual budget does not include a contingency for unidentified work."[8] DRA asked why Hydro Operations does not include a contingency for unidentified work. PG&E explained their current practice regarding the lack of a contingency for unidentified work:

---

[6] Exh. PG&E-3 workpapers at 3-174; PG&E response to Data Request ORA-158, Q.12.

[7] San Francisco Chronicle, "Switched Off", Jan. 17, 2006 at C1, citing 14.32 cents/kwh residential rates, http://www.sfgate.com/cgi-bin/object/article?o=1&f=/c/a/2006/01/17/BUGFUGO6N51.DTL&type=printable

Hydro Operations has not included a contingency for unidentified work for the last six to eight years. This imposes a lot of discipline on the management team to make best use of the approved funding. There are monthly meetings at which emergency work and other new work requests are identified and traded off against lower priority work. To date, PG&E has found that work efficiencies and deferred projects (e.g. delay in obtaining permit) have generally funded the additional work. It should be noted that there have not been any major failures or natural disasters during this time period.

Source: PG&E response to Data Request ORA-145, Q.1.

DRA does not oppose PG&E's current policy.

3. Lower Bear River Reservoir

According to a media report, toxic metals are allegedly leaking from a PG&E-operated dam at the Lower Bear River Reservoir.[9] DRA asked PG&E to explain the status of this allegation, and whether PG&E anticipates additional operating costs:

On November 21, 2005, PG&E received a 'Notice of Violations and Intent to file Suit Under the Federal Water Pollution Control Act' ('Notice Letter') from CSPA [California Sportfishing Protection Alliance]. The Notice Letter alleged that the Lower Bear River Reservoir Dam is releasing copper and aluminum into the Lower Bear River. PG&E has been working with CSPA to resolve the issues raised in the Notice Letter. In addition, since this project was relicensed in 2001, PG&E has been cooperatively working with other non-profit organizations and federal and state agencies, including the Regional Water Quality Control Board, to address water quality concerns and the potential causes of pollutants in the water shed. CSPA has not filed a lawsuit against PG&E and has not initiated an action at a regulatory agency. Because PG&E and other interested parties and agencies are still collecting data and investigating the cause of this problem in the Lower Bear River, PG&E does not yet have an estimate of what additional operating costs, if any, will arise as a result of this situation.

(continued from previous page)

[8] Exh. PG&E-3 at 3-12.

[9] Stockton Record, Nov. 17, 2005, "Group says dam leaking toxic metals into river" http://www.recordnet.com/apps/pbcs.dll/article?AID=/20051117/NEWS01/511170308&SearchID=73233551121031

Source: PG&E response to Data Request ORA-158, Q.16.

DRA does not have a recommendation regarding Lower Bear River Reservoir, but wishes to bring this to the Commission's attention and, therefore, includes this item in its report for informational purposes.

B. Hydro Capital Expenditures

1. Coal Canyon

In 2006, PG&E proposes to replace the failed penstock at Coal Canyon for $1.4 million, which delivers water from the Middle Miocene Canal to the 0.9 MW Coal Canyon Powerhouse.[10] The penstock failed in 2002, "taking the powerhouse out of service and interrupting water deliveries downstream to the powerhouse…The Middle Miocene Canal has continued to operate since the penstock failure, in order to continue water deliveries."[11]

Considering the small generating capacity of Coal Canyon and the fact that it has been off-line since 2002, DRA asked PG&E about the possibility of decommissioning Coal Canyon. The estimated cost to decommission Coal Canyon ranges from $8 to $15 million.[12] PG&E acknowledges that there are potential buyers for the Middle Miocene Canal[13], and explained the operations at Coal Canyon:

> The Middle Miocene Canal and Coal Canyon Powerhouse are operated to deliver consumptive water and to generate electricity. PG&E currently operates the conveyance primarily to satisfy the water delivery obligation under the contract with CWS [CalWater Service]. The bulk of the operation and maintenance costs associated with Coal Canyon are not the powerhouse, but rather the water conveyance system. PG&E is currently in discussions with CWS with the objective of having water customers pay for their share of the costs for water delivery, including

[10] Exh. PG&E-3 workpapers at 3-67.
[11] Id.
[12] PG&E response to Data Request ORA-154, Q.2.
[13] PG&E response to Data Request ORA-154, Q.5.

this penstock repair cost, and electric customers pay their share of the costs for electric production.

Source: PG&E response to Data Request ORA-154, Q.3.

DRA also asked if Coal Canyon were decommissioned, would PG&E still be able to continue water deliveries. PG&E answered in the affirmative:

> Yes. However, the point of delivery is from the powerhouse tailrace. If the penstock and powerhouse were decommissioned, water would be bypassed around the powerhouse by releasing the water through a spill channel at the top of the penstock. However, the bulk of the costs of operating the system is the rest of the water conveyance system (canals and flumes), which would not go away with decommissioning the plant. PG&E is currently in discussions with CWS to pay their share of the penstock repair costs in order to resume the point of delivery at the Coal Canyon tailrace.

Source: PG&E response to Data Request ORA-154, Q.4.

DRA also obtained cost-effectiveness studies on Coal Canyon from PG&E.[14]

DRA recommends that PG&E seriously evaluate decommissioning Coal Canyon and selling the Middle Miocene Canal. While the estimated cost to decommission Coal Canyon is substantial, the benefits of replacing Coal Canyon's failed penstock are questionable, considering the small amount of electricity produced by Coal Canyon and the cost of operations. PG&E receives very little income from the delivery of consumptive water from the Middle Miocene Canal; water sales do not justify the cost of returning Coal Canyon to service. DRA recommends that PG&E submit a report to the Commission in the next GRC regarding the benefits of continued operations at Coal Canyon versus decommissioning.

2. Kilarc-Cow Decommissioning

PG&E proposes to begin the process of decommissioning the 5 MW Kilarc-Cow plant.[15] PG&E estimates that the capital cost needed to decommission Kilarc-

[14] PG&E response to Data Request ORA-154, Q.1. PG&E asserts that its response is confidential pursuant to Public Utilities Code section 583.

[15] Exh. PG&E-3 at 3-38.

Cow is approximately $10.4 million.[16] PG&E "evaluated the cost of decommissioning the Project versus operating under the anticipated terms and conditions of a new license. This evaluation determined that the Project would be a high cost source of energy and would not be competitive with other generation sources."[17] While PG&E has foregone its opportunity to relicense Kilarc-Cow, a potential replacement licensee has stepped forward, Synergics Energy Services, LLC.[18] PG&E provided cost-effectiveness studies to DRA on decommissioning Kilarc-Cow.[19]

DRA supports PG&E's efforts towards decommissioning or selling Kilarc-Cow. PG&E's continued operation of Kilarc-Cow does not appear to be cost-effective.

IV. DISCUSSION: NUCLEAR O&M AND CAPITAL

A. Nuclear Operations Costs

DRA forecasts nuclear O&M of $295.6 million, compared to PG&E's 2007 expense forecast of $310.8 million, including Diablo Canyon Power Plant (DCPP).[20] Graph 2 shows PG&E's historic and forecast nuclear operations costs in 2007 dollars.[21]

[16] Exh. PG&E-3 at 8-13, Table 8-3, line 52.

[17] Exh. PG&E-3 workpapers at 3-123.

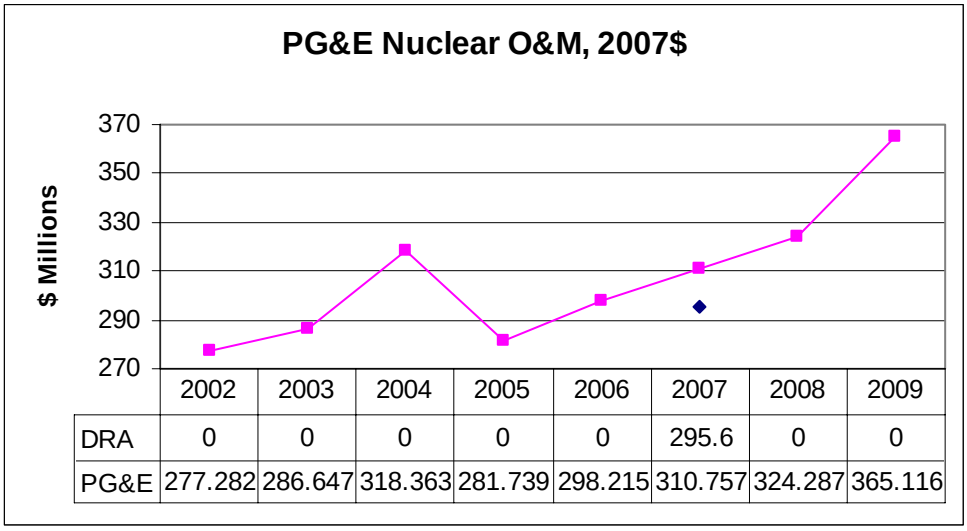
[18] PG&E response to Data Request ORA-158, Q.4; 70 Federal Register 42052 (2005).

[19] PG&E response to Data Request ORA-158, Q.5. PG&E asserts that its response is confidential pursuant to Public Utilities Code section 583.

[20] Exh. PG&E-3 at 4-1.

[21] PG&E response to Data Request ORA-188, Q.2.

Graph 2



	2002	2003	2004	2005	2006	2007	2008	2009
DRA	0	0	0	0	0	295.6	0	0
PG&E	277.282	286.647	318.363	281.739	298.215	310.757	324.287	365.116

DRA developed its 2007 O&M estimate of $295.6 million by averaging recorded costs from 2003-2005. The difference between PG&E's request and DRA's recommendation is $15.2 million.

1. Temporary Future Staffing Needs

PG&E proposes a program to add staff at Diablo Canyon to offset future anticipated attrition.[22] According to PG&E, the program will "cause a temporary increase in labor expense of $3 million in 2007, decreasing to $2 million in 2008 and further decreasing to $1 million in 2009."[23] The temporary increase in labor expense proposed by PG&E is net of early staff retirements.[24] PG&E's proposed additional staff for 2007 is as follows:

[22] Exh. PG&E-3 at 4-13 to 4-15.
[23] Id. at 4-15; Table 4-11, line 3, at 4-65.
[24] PG&E response to Data Request ORA-135 Q.8.

Employee Classification	Total Additional Hires	Total Cost $
Engineer	10	$840,329
Operator	12	$1,068,977
Utility Worker	15	$979,634
Totals	37	$2,889,040

Source: PG&E response to Data Request ORA-032, Q.1

PG&E has not performed a cost-effectiveness study for this proposal.[25] The end of year 2004 and 2005 staffing levels at Diablo Canyon, including contractors, totaled 1,471.5 and 1,439.0, respectively.[26] The 37 additional staff for 2007 represents approximately 2.6 percent of Diablo Canyon's total staff for 2005.

In contrast with PG&E's request regarding additional temporary staffing for Diablo Canyon, PG&E's Hydro Operations has a strategy to avoid temporarily increasing the number of employees:

> Hydro Operations is planning to maintain recent operating practices and staffing levels through 2009. This includes a staffing strategy to manage attrition without temporarily increasing the number of employees. Hydro Operations, like many other programs at PG&E, forecasts a significant increase in employee retirements during 2005-2009, but believes it can manage attrition without undue operating risk by utilizing the organization's total capabilities.

Source: Exh. PG&E-3 at 3-42.

DRA opposes PG&E's request for additional temporary staffing at Diablo Canyon. PG&E's Hydro Operations is facing the same problem of staff attrition, but apparently does not need additional temporary staff – Diablo Canyon should adopt the Hydro Operations' strategy to avoid adding additional temporary staff. The request represents only 2.6 percent of Diablo Canyon's current staff, and is close to the historic fluctuation in Diablo Canyon staffing from 2004 to 2005. PG&E has neither

[25] PG&E response to Data Request ORA-137, Q.16.

[26] PG&E response to Data Request ORA-135, Q.10.

performed a cost-effectiveness study for its proposal nor asserted that it is safety-related or an NRC mandate. Given the nature of the request, which increases in 2007 and moves downward in 2008 and 2009, PG&E should identify means to effectively manage its operations with existing staff.[27]

2. License Extension Feasibility Study

PG&E proposes to spend $14 million in 2007-2009 on an NRC license extension feasibility study.[28] In response to a DRA data request, PG&E provided a $16.9 million estimate, covering the same time period.[29] The purpose of the study is to "develop the information necessary to consider the feasibility of pursuing a license renewal application at the NRC, in order to extend Diablo Canyon operations for an additional 20 years beyond the current license expiration of 2024 and 2025."[30]

The Commission recently examined the status of NRC license renewal applications in Southern California Edison's San Onofre Nuclear Generating Station (SONGS) steam generator replacement proceeding, A.04-02-026, CPUC D.05-12-040. The adopted Final Environmental Impact Report from that proceeding discussed NRC license renewal applications:

> [A] total of 22 nuclear power plants have been issued a new 20-year license, or are currently going through the licensing process at the NRC. Neither of the two operating power plants in California (SONGS or DCPP) are currently in the licensing process at the NRC or have been issued a new license. According to the NRC, the license renewal process usually takes 22 to 30 months to complete. *The application process must start five years prior to the end of the license period.* Therefore, if SCE decides to apply for a renewal of the current licenses, it would need to initiate the application process no later than 2017 for SONGS 2 & 3.

---

[27] If PG&E is looking for funds to pay for additional temporary staffing, it should consider the expected savings of "$6.5 million annually by 2010" associated with its proposed NEXIS Project. PG&E response to Data Request ORA-137, Q.13, attachment ORA_0137-013-1 at 3.

[28] Exh. PG&E-3 at 4-18.

[29] PG&E response to Data Request ORA-137, Q.15, part 4.

[30] Id.

Source: Final Environmental Impact Report, San Onofre Nuclear Generating Station Steam Generator Replacement Project, Vol. 1, Sept. 2005, at G-3 (emphasis added).

Given a five year lead time for a NRC license renewal application, PG&E would not have to initiate the NRC application process until 2019 for Diablo Canyon.

DRA opposes PG&E's Diablo Canyon license extension feasibility study. Considering that PG&E would complete its license extension feasibility study in 2009, 10 years before it would need to initiate the license extension application process at the NRC, PG&E's intent to begin its license extension feasibility study in 2007 is quite premature. Furthermore, PG&E has provided no evidence that the NRC would be receptive to considering a license extension prior to the completion of the steam generator replacement project scheduled for 2008-2009.

3. Interim Spent Fuel Storage Facility

PG&E proposes to build an interim spent fuel storage facility (ISFSI) at Diablo Canyon, scheduled for completion in 2007.[31] Capital costs associated with the ISFSI are listed on PG&E Table 4-1a, line 8, while associated O&M costs are listed in PG&E Table 4-11, line 5, of Exhibit PG&E-3. According to PG&E, "[a] detailed cost estimate and economic analysis will be performed in the second quarter of 2006."[32] PG&E plans on constructing an ISFSI at Diablo Canyon due to the Federal Government's failure to provide long-term storage for spent nuclear fuel, despite many years of planning for Yucca Mountain and ongoing fees paid by PG&E to the federal Nuclear Waste Fund for long-term storage.

In 2004, PG&E sued the United States for the Department of Energy's (DOE) breach of contract for failure to "implement and operate a program for the removal and ultimate disposal of spent nuclear fuel and high-level radioactive waste

[31] Exh. PG&E-3 at 4-15.

[32] PG&E response to Data Request ORA-182, Q.s 1 and 2.

(collectively 'SNF') from commercial nuclear power plants."[33] PG&E's Amended Complaint claims damages "resulting from the additional costs to design, construct, and operate facilities to store additional SNF until DOE complies with its contractual obligation to remove SNF", and future damages.[34] PG&E also asked for restitution of all fees paid under its contract with DOE.[35] According to PG&E, trial is set for June 6, 2006.[36] DRA is aware of two resolutions of utility spent nuclear fuel litigation against DOE, an $80 million settlement in 2004 with Exelon[37] and a U.S. Court of Federal Claims judgment in 2006 of approximately $35 million in favor of the Tennessee Valley Authority (TVA).[38] SMUD has also sued DOE, but that proceeding is unresolved at this time.[39]

PG&E proposes that "the cost of purchasing new [ISFSI] casks be capitalized, while the cost of loading and transporting the casks be treated as an operating expense. This treatment is more consistent with industry practice than treating the

[33] PG&E v. United States, Amended Complaint, in the United States Court of Federal Claims, No. 04-75C, Jan. 28, 2004, at 1 in PG&E's response to Data Request ORA-135, Q.9.

[34] Id. at 4.

[35] Id. at 5.

[36] PG&E response to Data Request ORA-135, Q.9.

[37] "Exelon, Federal Government Reach Agreement Over Spent Nuclear Fuel Storage Costs," Aug. 11, 2004, http://phx.corporate-ir.net/phoenix.zhtml?c=124298&p=irol-newsArticle&ID=602612&highlight=

[38] TVA v. United States, U.S. Court of Federal Claims, No. 01-249C, January 31, 2006. According to the Department of Energy's FY2005 Performance and Accountability Report, at 212, "[t]o date, four suits have been settled involving utilities that collectively produced about one-fifth of the nuclear-generated electricity in the United States. Under the terms of the settlement, the Treasury's Judgment Fund paid $80 million to the settling utilities for delay damages they have incurred through 2004 and will make annual payments to them for future costs as they are incurred. In addition, one case has been tried and a judgment entered (and subsequently affirmed on appeal) under which the utility was awarded no damages based on the court's finding that the utility had incurred no compensable costs as a result of the Government's delay as of the time of trial. Sixty cases remain pending in the Court of Federal Claims."

[39] SMUD v. United States, U.S. Court of Federal Claims, No. 98-488C, "Memorandum Opinion And Order To Show Cause Why The Standard Contract Should Not Be Held Void And Restitution

(continued on next page)

entire costs as an operating expense. This change will be made prospectively beginning in 2007 to avoid any possible double recovery of ISFSI costs."[40] In response to a DRA data request, PG&E provided an informal survey of utility ISFSI accounting practices. While the data response concludes that "the standard industry practice is to capitalize the cost of new casks, while the cost of loading the casks is treated as an operating expense,"[41] DRA notes that some utilities also charge part of their ISFSI costs to fuel costs.[42]

DRA does not oppose PG&E's ISFSI project, and also does not oppose PG&E's proposal to capitalize the cost of new ISFSI casks, as opposed to expensing them. If PG&E wins or settles its lawsuit against the United States, ratepayers should be reimbursed with the damages recovered by PG&E, net of reasonable incremental litigation costs. PG&E should be directed to file an application or advice letter which addresses the appropriate reimbursement of any damages recovered by PG&E.

B. Nuclear Capital Expenditures

As Diablo Canyon ages, PG&E is making major capital expenditures to replace and upgrade existing hardware. Below, DRA comments on some proposed Diablo Canyon capital expenditures.

1. Replacing PG&E's Airplane

PG&E proposes to replace its existing airplane, a Fairchild Dornier 328, with a "smaller, more versatile aircraft. PG&E is reviewing several options for the replacement of the current aircraft, including lease, fractional ownership and charter service in addition to a purchase option. The costs of these alternatives are not

---

(continued from previous page)
Awarded From The Nuclear Waste Fund," April 21, 2005.

[40] Exh. PG&E-3 at 2-4.

[41] PG&E response to Data Request ORA-181, Q.3.

[42] Id., referring to Energy Northwest at 3, an unidentified utility at 18 and Entergy at 22.

currently available."[43] PG&E's workpapers show a capital cost estimate for a replacement airplane of $24.9 million in 2007.[44] The Fairchild Dornier 328 first flew in 1991, and PG&E acquired its plane new in 1994.[45] In July 2002, the manufacturer, Fairchild Dornier, was declared insolvent, and the 328 program was acquired by another company that filed for insolvency in 2005.[46] The Fairchild Dornier 328 turboprop contains "32 seats as standard, a galley/refreshment centre and lavatory. Other interior configurations may be produced according to customers' specifications."[47]

Fairchild Dornier 328

[43] Exh. PG&E-3 at 4-11.
[44] Exh. PG&E-3 workpapers at 4-11.
[45] PG&E responses to Data Request ORA-173, Qs. 1 and 2.
[46] http://www.aerospace-technology.com/projects/fairchild/

[47] Id.

According to PG&E, the primary purpose of the aircraft, and the vast majority of the aircraft operation, "is to provide transportation for utility personnel needed to travel to and from the outreaches of PG&E's service area. The aircraft also ensures that PG&E can fulfill the requirement in its NRC-required emergency plan that Diablo Canyon officers be available to staff the emergency center within two hours of the declaration of an emergency."[48]

PG&E's airplane is fully depreciated on the company's books.[49] The total annual O&M cost of maintaining PG&E's airplane in 2005 was $2 million.[50] The airplane's crew consists of three PG&E pilots and one part-time contract pilot.[51] The airplane is hangared at Oakland International Airport at an annual cost of approximately $248,000.[52] In 2005, the airplane was used for 390 hours of travel by PG&E personnel within PG&E's service area, representing approximately 4.5 percent of the total hours in 2005.[53] In 2005, the airplane was used for 12 hours of travel by PG&E personnel outside of PG&E's service area.[54] Dividing the $2 million annual O&M cost for PG&E's airplane by 402 hours of total usage in 2005 results in a per hour cost of $4,975. PG&E's airplane was not used by PG&E Corporate personnel to fly outside of PG&E's service area in 2003-2005.[55]

---

[48] Exh. PG&E-3 at 4-11.

[49] PG&E response to Data Request ORA-173, Q.3.

[50] PG&E response to Data Request ORA-173, Q.4. The 2003 O&M cost for maintaining PG&E's airplane was $1.9 million, while the 2004 O&M cost was $1.8 million.

[51] PG&E response to Data Request ORA-173, Q.6.

[52] PG&E response to Data Request ORA-173, Q.7.

[53] PG&E response to Data Request ORA-135, Q.3. The corresponding hours for 2003 were 527 hours and for 2004, 540 hours.

[54] PG&E response to Data Request ORA-135, Q.4. The corresponding hours for 2003 were 17 hours and for 2004, 21 hours.

[55] PG&E response to Data Request ORA-135, Q.5.

DRA asked PG&E whether PG&E (utility) personnel or PG&E Corporation personnel have priority for use of the airplane. PG&E responded that

> priority of use of the airplane has been based on who requested use of the aircraft. When there has been a conflict between Utility and PG&E Corporation personnel, PG&E Corporation personnel have been given the priority as the travel has been by senior officers.
>
> Source: PG&E response to Data Request ORA-135, Q.6.

PG&E's testimony states that part of the justification for having an airplane is so that Diablo Canyon officers can be transported to staff the Diablo Canyon Emergency Operations Center within two hours of the declaration of an emergency. However, a PG&E data response citing PG&E's NRC-approved Emergency Plan allowed for up to two and one-half hours.[56] DRA asked for copies of any cost-effectiveness studies done by or for PG&E regarding replacing the airplane, and was told that "[a] cost-effectiveness study is currently under development for the replacement of PG&E's airplane but is not yet complete. A copy will be furnished upon completion. Expected completion – End of February 2006."[57] As of March 27, 2006, DRA had not received a copy of the cost-effectiveness study.

DRA opposes PG&E's proposal to replace its airplane, and recommends that if the aircraft is replaced, that its $24.9 million capital cost (2007$) be allocated to PG&E Corporation, with appropriate O&M charges to the utility. Since PG&E Corporation personnel have priority for use of PG&E's current airplane over utility personnel, it is clear that the airplane benefits PG&E Corporation more than the utility. The low total hours of annual usage and high $4,975 per hour cost to maintain the airplane question the reasonableness of its replacement by the utility. If the capital cost for a replacement airplane is shifted to PG&E Corporation, then the ability to transport Diablo Canyon officers to the Diablo Canyon Emergency

[56] PG&E response to Data Request ORA-135, Q.7.
[57] PG&E response to Data Request ORA-137, Q.8.

Operations Center within 2.5 hours will be maintained. In the alternative, PG&E Corporation can pursue other means of providing emergency transportation, whether by lease, fractional ownership or charter. The fact that PG&E has not provided a cost-effectiveness study to support the replacement of PG&E's airplane is also troubling, since other cost-effective alternatives should be part of the evaluation.

2. **Reactor Vessel Head Replacement**

PG&E proposes to replace the reactor vessel heads (RVHs) for Unit 2 in 2009 and for Unit 1 in 2010.[58] PG&E argues that the RVHs are susceptible to cracking and corrosion of piping penetrations used for control rods. PG&E admits that "[a] recent internal volumetric inspection of Diablo Canyon Unit 2 reactor pressure vessel head shows no signs of cracking."[59] Unit 1's RVH was inspected in October 2005, resulting in "no indications of cracking in the reactor head penetration nozzles."[60] For both Unit 1 and Unit 2's RVHs, PG&E argues that "the onset of cracking as early as the next refueling outage would be consistent with industry operating experience."[61]

PG&E provided DRA with information regarding the cost of inspections:

> The reactor vessel heads on both units at Diablo Canyon will be in the "highly susceptible" category for the onset of head penetration nozzle cracking by 2007, as defined by the Nuclear Regulatory Commission. Once a unit has reached the "highly susceptible" category, full volumetric inspections of the reactor heads are required to be performed every refueling outage. These inspections typically take between 5 and 6 days to complete at a cost of approximately $2 million. Personnel radiation dose to perform an inspection is typically approximately 1.8 REM. Once cracking begins, the costs for repairs significantly exceed the inspection costs. At another nuclear plant with a similar operating

[58] Exh. PG&E-3 at 4-12.

[59] Id.; see also PG&E response to Data Request ORA-182, Q.6. The Unit 2 RVH inspection was performed in October 2004.

[60] PG&E response to Data Request ORA-182, Q.5.

[61] PG&E response to Data Request ORA-182, Q.5 and 6.

> history as Diablo Canyon, the first repair campaign required approximately 16 days to make 3 repairs at a cost of $7 million and 75 REM of personnel radiation exposure. The subsequent outage required 19 days to make 8 repairs at a cost of $8 million and 157 REM of personnel radiation exposure. The utility replaced the reactor head in the following outage.
>
> Source: PG&E response to Data Request ORA-182, Q.4

The Diablo Canyon Independent Safety Committee (DCISC) had the following comment on the Unit 2 RVH inspection:

> PG&E will have to perform volumetric inspection on both units at all future refueling outages. Some US plants are replacing their reactor heads rather than inspecting during all refueling outages. An ASME code case is being prepared, which if accepted, *would no longer require volumetric inspection at each outage if it can be determined that the head condition is safe enough to permit operation until the next outage before inspection*.
>
> Source: 15th Annual DCISC Report, Oct. 12, 2005, at 4-103 (emphasis added).

PG&E's testimony understates the expected cost of RVH replacement. According to PG&E's workpapers, the estimated capital cost for the Unit 2 RVH replacement totals $66 million.[62] The workpaper for the Unit 1 RVH replacement shows a total of $39 million,[63] but does not include an additional $20 million expenditure in 2010, bringing the total expenditure for Unit 1 and 2 RVH replacements to $125 million, as of the filing date of PG&E's testimony.[64] In a January 2006 data response to DRA, PG&E admitted to another cost increase: "In addition, since the filing of this Application, the estimated cost of this project has increased from $125 million to approximately *$141 million*. Increases in the total cost estimate for the project reflect information received from companies PG&E expects to bid to perform the project. This increase will be reflected in the cost-effectiveness

[62] Exh. PG&E-3 workpapers at 4-8.
[63] Exh. PG&E-3 workpapers at 4-8a.
[64] PG&E response to Data Request ORA-137, Q.5.

study when it is completed."[65] As of March 27, 2006, DRA had not received a copy of the cost-effectiveness study.

DRA recommends that the RVH replacement capital projects be removed from the GRC and put in a separate application or in its next GRC for three reasons: (1) the growing estimated capital cost of $141 million is large enough to justify closer scrutiny under either Public Utilities Code section 463 or 463.5[66]; (2) PG&E does not expect the RVH replacements to be operational until 2009-2010, which is the end of the current GRC cycle and (3) there is some question of whether PG&E should go forward with the project at the current time. Given PG&E's recent inspections of Unit 1 and Unit 2's RVHs with no apparent indications of cracking, and the possibility that future inspections may be reduced, RVH replacement may be premature. The fact that PG&E has not provided a cost-effectiveness study to support RVH replacement is also troubling. PG&E plans on replacing steam generators at Unit 2 and Unit 1 in 2008 and 2009 respectively[67], which will result in long outages in which Diablo Canyon's RVHs can be thoroughly inspected before a replacement decision is made.

3. Low Pressure Turbine Rotor Replacement Litigation

PG&E is in the process of replacing the low pressure (LP) turbine rotors during 2005-2006.[68] In response to a DRA data request, PG&E stated that "PG&E is

---

[65] PG&E response to Data Request ORA-137, Q.5 (emphasis added).

[66] Public Utilities Code section 463 essentially guides the CPUC on reasonableness reviews of capital additions in excess of $50 million. Public Utilities Code section 463.5 does not require the CPUC to conduct a reasonableness review of capital additions in excess of $50 million where the CPUC either establishes a maximum reasonable cost or adopts an estimate of reasonable costs. PG&E filed its recently completed $706 million Diablo Canyon steam generator replacement application (A.04-01-009; CPUC D.05-11-026) under Public Utilities Code sections 454 and 463.5 and the Generation Settlement Agreement in PG&E's TY 2003 GRC, A.02-11-017.

[67] Exh. PG&E-3 at 4-8.

[68] Exh. PG&E-3 at Table 4-1a, page 4-55 and workpaper pages 4-14 and 4-17.

presently undertaking litigation against the supplier of the existing LP rotors (Westinghouse – now Siemens-Westinghouse) for breach of warranty."[69]

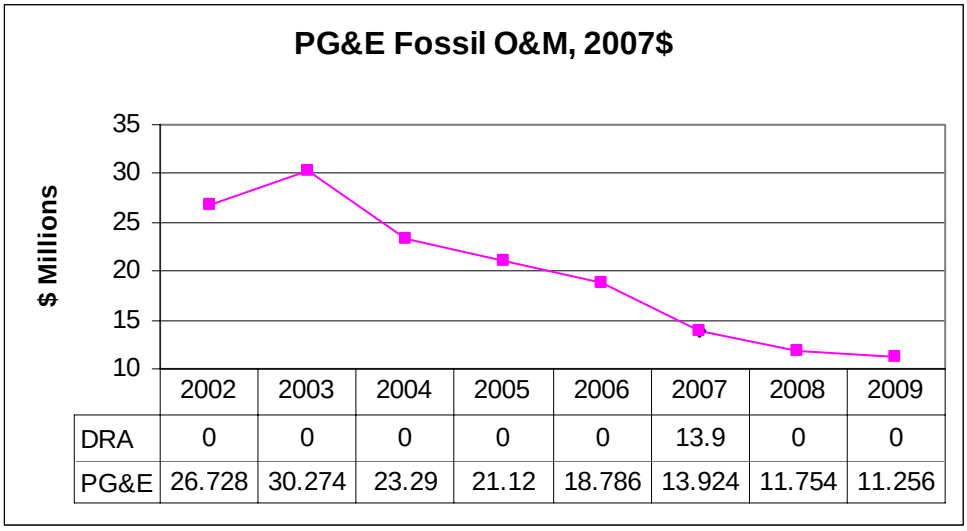
DRA recommends that any award or settlement PG&E recovers from Siemens-Westinghouse should be refunded to ratepayers, net of reasonable incremental litigation costs. PG&E should be directed to file an application or advice letter which addresses the appropriate reimbursement of any damages recovered by PG&E.

V. DISCUSSION: FOSSIL O&M AND CAPITAL

A. Fossil Operations Costs

PG&E requests that the Commission adopt its 2007 expense forecast of $13.9 million for fossil O&M.[70] DRA does not oppose PG&E's TY 2007 fossil operations cost estimate of $13.9 million. Graph 3 shows PG&E's fossil operations costs in 2007 dollars.[71]

Graph 3



	2002	2003	2004	2005	2006	2007	2008	2009
DRA	0	0	0	0	0	13.9	0	0
PG&E	26.728	30.274	23.29	21.12	18.786	13.924	11.754	11.256

PG&E's fossil operations cost estimate assumes the shutdown of Hunters Point in 2006, resulting in a dramatic decrease in operations costs. On March 15, 2006 the

[69] PG&E response to Data Request ORA-137, Q.10, attachment ORA_0137-010-1 at 3.
[70] Exh. PG&E-3 at 5-2.
[71] PG&E response to Data Request ORA-188, Q.3.

CPUC adopted Resolution E-3984, conditionally authorizing PG&E to shut down Hunters Point.

B. Fossil Capital Expenditures

According to PG&E, Humboldt Bay Units 1 and 2 are reaching the end of their service lives:

> As part of the Long Term Resource Plan, PG&E has asked developers to propose projects to replace the existing generation at Humboldt Bay in 2010. Accordingly, PG&E is assuming that HBPP Units 1 and 2 as well as the mobile emergency power plant Units 2 and 3 will be retired at the end of 2010.
>
> Source: Exh. PG&E-3 at 9-7.

PG&E's Fossil Operations Cost testimony had a slightly different stance on the situation:

> Humboldt Bay Units 1 and 2 began operation in 1956 and 1958 respectively, and are nearing the end of their operating life. As part of the long term resource plan, PG&E has requested offers for projects to replace the existing generation at Humboldt Bay. Due to electric system reliability requirements, the existing units at Humboldt Bay will need to remain in operation until such time as replacement generation is available. The limited remaining life of these units affects decisions regarding expense and capital activities. Since it is not yet known if or when replacement generation will become available, for the purpose of this GRC, costs associated with continued operation of the existing facilities are included. If replacement generation were to become available at some time during the period of this GRC, effects on costs included in this GRC can be addressed as part of the rate proceeding associated with the new facilities.
>
> Source: Exh. PG&E-3 at 5-4 to 5-5.

Despite PG&E's expectations that Humboldt Bay will retire in 2010, PG&E is proposing $9.1 million in capital expenditures at Humboldt Bay in 2007-2009. PG&E proposes to spend approximately $3.6 million on intake structure modifications to bring Humboldt Bay in compliance with federal regulations, with 2009 being "the

earliest that capital modifications may begin."[72] PG&E also plans on spending approximately $2.1 million in 2007 on boiler combustion controls for Unit 1 to reduce NOx emissions and $2.2 million for Unit 2 in 2009.[73] Unit 2's degraded superheater would also be replaced in 2009, at an estimated cost of $1.2 million.[74]

PG&E "has not performed formal cost effectiveness studies on [the intake structure modification] project to date. Range of cost estimates have been performed…Given the age of these units and their life expectancy, regulatory compliance by installation of required modifications may not be warranted. Nevertheless, PG&E is subject to the regulatory schedule, and may be required to install modifications or modify operations to remain in compliance."[75] PG&E has estimated the cost to perform a compliance study, but the cost estimate "does not have final approval as this work has been delayed pending Water Board determination of requirements for the interim period prior to retirement of these units."[76]

According to a California Energy Commission (CEC) Staff Report, of California's 21 coastal power plants, Humboldt Bay takes in less cooling water than any other on a daily basis.[77] The CEC Staff report also states "[t]here is uncertainty about how the Regional Water Quality Control Boards will implement the new section 316(b) standards in California. Power plant owners have until January 2008 to comply with the new regulations…Furthermore, it is unknown how lenient the Regional Boards will be in permitting power plant operators to determine that the cost

[72] Exh. PG&E-3 workpapers at 5-7.
[73] Exh. PG&E-3 workpapers at 5-8 and 5-9.
[74] Exh. PG&E-3 workpapers at 5-10.
[75] PG&E response to Data Request ORA-169, Q.1.
[76] PG&E response to Data Request ORA-169, Q.2.
[77] "Issues and Environmental Impacts Associated With Once-Through Cooling at California's Coastal Power Plants," CEC Staff Report CEC-700-2005-013, June 2005, at 15.

of reducing impingement and entrainment are much greater that the anticipated environmental benefits."[78]

Regarding the NOx reduction projects for Units 1 and 2, DRA asked PG&E whether it has performed any cost-effectiveness studies for these projects. In response, PG&E stated that it has performed only limited studies:

> PG&E has performed a limited cost range and NOx reduction range analysis of standard technologies. This study is generic to similar technologies and fossil fuel fired boilers and has not been refined to site specific application. This study is also limited by the specific reference materials used and vendor contacts made. Should PG&E be required to implement NOx reduction technologies a more rigorous study would be performed to determine the most cost effective technology available to meet limitations imposed by the Air District.
>
> Source: PG&E response to Data Request ORA-169, Q.s 5 and 9 (excerpt).

Regarding the Unit 2 superheater replacement, PG&E states that failure to replace the superheater "will result in continued unplanned repairs, impacting unit reliability and availability."[79] According to PG&E, Unit 2's 2005 availability was 88.5 percent, while its capacity factor was 50.8 percent.[80] PG&E has performed no cost-effectiveness studies regarding this project; "[s]uch studies will be performed prior to seeking authorization for capital expenditures."[81]

DRA recommends that since PG&E is planning on retiring Humboldt Bay in 2010, the company should seek ways to avoid making significant capital expenditures at the plant in 2007-2009. It is appropriate for PG&E to plan for necessary capital expenditures in case Humboldt Bay is not retired in 2010. DRA has removed the $9.1 million in 2007-2009 Humboldt Bay capital expenditures from its forecast, under the assumption that Humboldt Bay will be retired in 2010.

---

[78] Id. at 36.

[79] Exh. PG&E-3 workpapers at 5-10.

[80] PG&E response to Data Request ORA-169, Q.13.

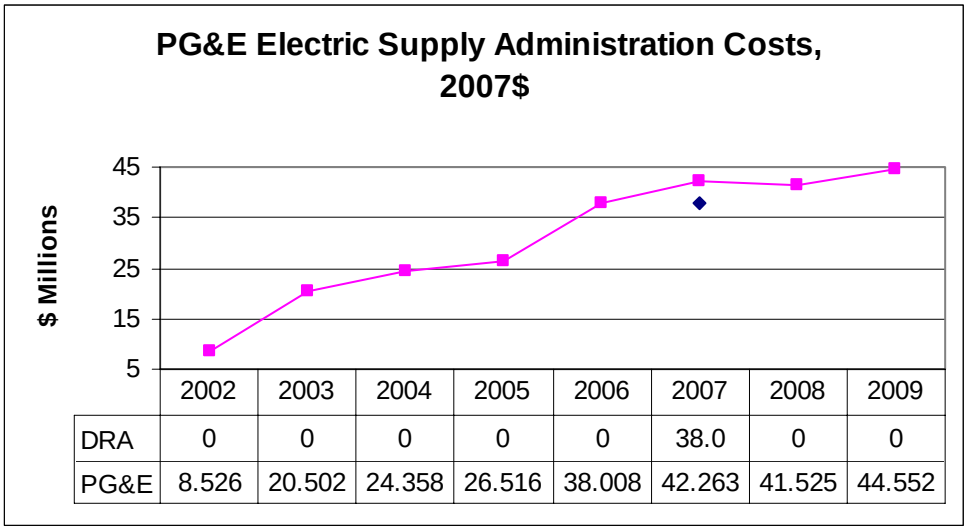
[81] PG&E response to Data Request ORA-169, Q.11.

VI. DISCUSSION: OTHER

A. Electric Supply Administration Costs

PG&E requests that the Commission adopt its 2007 expense forecast of $42.3 million for electric supply administration costs.[82] Graph 4 shows PG&E's electric supply administration costs in 2007 dollars.[83]

Graph 4



Along with the significant increase in expenses, electric supply administration staffing has also grown significantly:

PG&E Electric Supply Administration Staffing

	Existing				
Departments:	**Staff**	**2006**	**2007**	**2008**	**2009**
Electric Procurement	39	44	47	47	47
Demand Side Planning & Analysis	3	6	6	6	6
Counterparty Settlements	27	29	31	33	35
Immediate Office	6	9	9	9	9
Power Settlements	14	16	17	18	18
Power Contracts	18	20	22	23	24
Former FERC-jurisdictional	0	0	4.65	4.65	4.65
MAQA	17	19	20	20	20
Long-Term Resource Procurement	12	28	30	30	30
Total	**136**	**171**	**186.65**	**190.65**	**193.65**

[82] Exh. PG&E-3 at 6-1.

[83] PG&E response to Data Request ORA-188, Q.4.

Source: PG&E response to Data Request ORA-031, Q.1.

PG&E's testimony and data responses essentially explain that the electric supply administration staffing increases have resulted from PG&E's renewed procurement, long-term resource procurement and contracts/settlements duties.[84] PG&E's Long-Term Resource Procurement group was formed in May 2004.[85]

DRA recommends that the Commission adopt PG&E's estimated 2006 cost of $38.0 million (2007$) for TY 2007, a difference of $4.3 million. PG&E's electric supply administration departments should have reached full staffing levels by 2006, since the greatest growth occurred in 2005 and 2006. The sizable increased staffing in this area over prior levels should provide PG&E with personnel sufficient to meet its electric supply administration requirements.

B. Generation Support Costs

PG&E requests that the Commission adopt its 2007 expense forecast of $4.2 million for O&M.[86] DRA does not oppose PG&E's request. Graph 5 shows PG&E's generation support costs in 2007 dollars.[87]

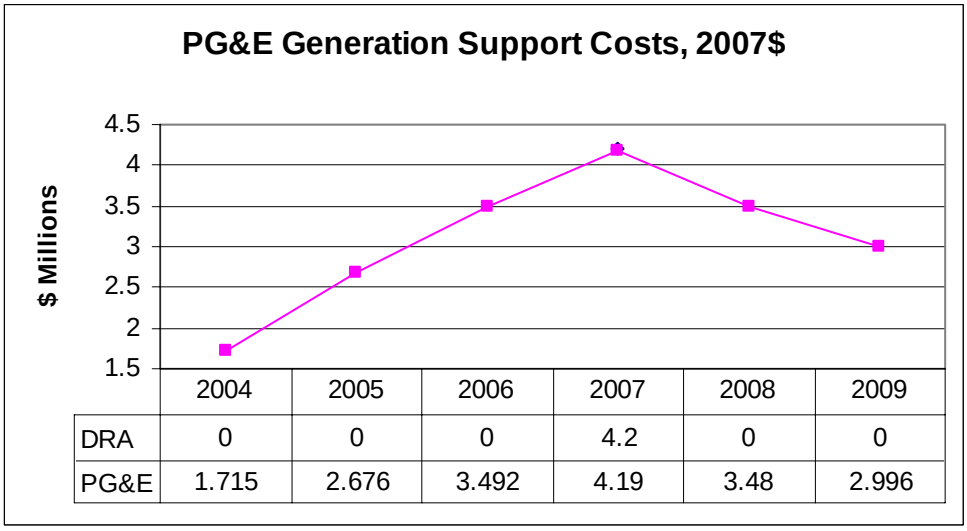
[84] Exh. PG&E-3 at 6-5 to 6-25; PG&E response to Data Request ORA-031, Q.2, regarding the Long-Term Resource Procurement group.

[85] PG&E response to Data Request ORA-031, Q.2.

[86] Exh. PG&E-3 at 7-1.

[87] PG&E response to Data Request ORA-188, Q.5.

Graph 5



	2004	2005	2006	2007	2008	2009
DRA	0	0	0	4.2	0	0
PG&E	1.715	2.676	3.492	4.19	3.48	2.996

The sudden increase in generation support costs reflects PG&E's pulling costs from separate departments into one cost center for 2005.[88]

The largest component of generation support costs is related to the Land Conservation Commitment (LCC), at $1.8 million.[89] These costs reflect PG&E's interaction with the Pacific Forest and Watershed Lands Stewardship Council (Stewardship Council).[90] DRA is a member of the board of the Stewardship Council. The Stewardship Council is an independent not-for-profit corporation funded by PG&E from rates recovered from ratepayers.[91]

PG&E's testimony discusses reimbursement of its costs by the Stewardship Council:

[88] Exh. PG&E-3 at 7-3.

[89] Exh. PG&E-3 at 7-2, Table 7-1. PG&E provided further information on generation support costs and LCC costs in responses to Data Requests ORA-036 and ORA-175.

[90] Exh. PG&E-3 at 7-7 to 7-10.

[91] http://www.stewardshipcouncil.org/

> Pursuant to the settlement agreement and stipulation, certain costs incurred relative to PG&E's support of LCC implementation shall be directly borne by or reimbursed to PG&E by the Stewardship Council and are not covered in this chapter. Costs that shall be borne by or reimbursed by the Stewardship Council include: costs of outside experts, consultants, or advisors involved in implementing the LCC; costs charged by a governmental entity with authority over the Section 851 applications or the resulting transactions; and costs associated with obtaining approval for subdivision of the lands, including the cost of any condition imposed by a governmental authority.
>
> Source: Exh. PG&E-3 at 7-9.

In contrast, the stipulation establishing the Stewardship Council gives it discretion regarding reimbursements:

> The [Stewardship Council's] Governing Board will adopt appropriate financial and accounting procedures for its expenditures, including criteria for reimbursements of expenditures by PG&E or any other member of the Governing Board for the costs of outside experts, consultants or advisors involved in implementing the Land Conservation Commitment, or for costs charged by a governmental entity with authority over the Section 851 applications or the resulting transactions. In the case of a parcel split recommended by the Stewardship Council, PG&E will be reimbursed for all costs associated with obtaining approval for the parcel split, including the cost of any condition imposed by a governmental authority, provided that the Governing Board will have the right to reject the proposal to split the parcel in lieu of paying the cost of any conditions and to propose an alternative. PG&E will not be reimbursed for internal costs associated with preparing the Section 851 applications or participating on the Governing Board.
>
> Source: LCC Stipulation at 11, para. 13a, I.02-04-026, CPUC D.03-12-035.

The Stewardship Council's Corporate Bylaws mirror the language in the LCC Stipulation.[92] Fundamentally, the issue of how the Stewardship Council reimburses PG&E is between those parties; DRA's interest here is to make sure that there is

[92] http://www.stewardshipcouncil.org/documents/Corporate_Bylaws.pdf at Article VIII, sections 1 and 2.

agreement on the separation of cost responsibilities between the Stewardship Council and PG&E and if that agreement impacts rates.

Based on its review of PG&E's testimony, workpapers and responses to DRA data requests, DRA does not oppose PG&E's request of $4.2 million for TY 2007 generation support costs.

C. Amortization of Generation Regulatory Assets

PG&E proposes to extend the amortization of generation-related regulatory assets by one year, ending in 2012 instead of 2011.[93] According to PG&E, the end of year 2006 generation regulatory asset balances are estimated to be approximately $116.4 million.[94] While the nominal cost of PG&E's extension proposal is higher than using a shorter amortization period, on a present value revenue requirements basis, using PG&E's current cost of capital as the discount rate, PG&E's proposal saves ratepayers approximately $1.5 million.

DRA does not oppose PG&E's proposal to extend the amortization of generation-related regulatory assets by one year.

[93] Exh. PG&E-3 at 2-5.

[94] PG&E responses to Data Request ORA-181, Q.4 and Q.5.