Application	:	A.05-12-002
Exhibit Number	:	DRA-13
Commissioner	:	Bohn
Admin. Law Judges	:	Kenney, Econome
Witness	:	Wilson

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 Distribution Plant

San Francisco, California
April 14, 2006

ELECTRIC DISTRIBUTION PLANT

I. INTRODUCTION

This exhibit presents DRA's analyses and recommendations regarding PG&E's electric distribution functional capital expenditures.[1] Electric distribution capital includes such plant items as electric meters, distribution substations, underground cables, and replacing/reinforcing poles. As will be discussed later, this exhibit does not specifically address PG&E's capital additions, which are automatically calculated by the Results of Operations (RO) computer model based on the capital expenditures that are loaded into it.

In addition to analyzing the functional electric distribution capital expenditures, this exhibit also analyzes several "global" expenditures, such as capitalized pensions, which are allocated to all of PG&E's capital areas (electric distribution, electric transmission, gas distribution, gas transmission, etc.).

Section II of this exhibit presents an overview of DRA's recommended adjustments. Section III discusses UCCs (Unbundled Cost Categories) and MWCs (Major Work Categories), and provides some background on how capital expenditures are organized. Section III also provides detailed discussions of the investigations and analyses that form the basis of DRA's recommendations.

II. SUMMARY OF RECOMMENDATIONS

The following bullets summarize DRA's capital recommendations for 2006 and 2007:

[1] PG&E uses the term "functional" to indicate that capital expenditures for Common, General, and Intangible plant are excluded. DRA has analyzed these additional capital expenditures, but they are discussed in other volumes of DRA's GRC analysis.

A. Adjustments to Electric Distribution Functional Expenditures

- Expenditures for replacing/reinforcing poles (MWC 7) should be reduced by $4.808 million in 2006 and $10.668 million in 2007.
- Expenditures for Rule 20A (MWC 30) should be reduced by $5.000 million in 2007.
- Expenditures for replacing underground cables (MWC 56) should be reduced by $25.804 million in 2006 and $27.497 million in 2007.
- Expenditures for capital preventive maintenance (MWC 57) should be reduced by $3.258 million in 2006 and $2.307 million in 2007.

B. Adjustments to "Global" Expenditures

- Additional capitalized pensions should be reduced by $62.317 million in 2007.
- Account 922 adjustments (excluding Performance Incentive Programs [PIP]) will reduce capital expenditures by $1.643 million in 2007.
- Adjustments to PIP will reduce capital expenditures by $7.454 million in 2007.
- Account 923 adjustments will reduce capital expenditures by $0.655 million in 2007.
- Account 926 adjustments (excluding adjustments for pensions) will reduce capital expenditures by $8.410 million in 2007.

Table 13-1 shows adjustments to electric distribution functional capital expenditures, and compares DRA's recommendations with PG&E's proposed estimates:

Table 13-1
Electric Distribution Capital Expenditures (Functional Only)
(Thousands of Nominal Dollars)

MWC	Description	2006		2007			
		PG&E	DRA	PG&E	DRA	PG&E>DRA	Percent
6	E Distribution New Capacity - Line	$50,617	$50,617	$52,490	$52,490	$0	0.00
7	E Distribution Replace/Reinforce Poles	$58,654	$53,846	$94,137	$83,469	$10,668	12.78
8	E Distribution Mitigate Recurring Outages	$9,300	$9,300	$11,300	$11,300	$0	0.00
9	E Distribution Automation	$6,813	$6,813	$7,845	$7,845	$0	0.00
10	E Distribution Work Requested By Others	$25,869	$25,869	$26,720	$26,720	$0	0.00
16	E Distribution Customer Connects	$221,570	$221,570	$221,978	$221,978	$0	0.00
17	E Distribution Emergency Response	$62,280	$62,280	$63,361	$63,361	$0	0.00
25	E Meters	$26,154	$26,154	$26,881	$26,881	$0	0.00
30	E Distribution - Rule 20A	$50,000	$50,000	$55,000	$50,000	$5,000	10.00
46	E Distribution New Capacity - Substations	$43,743	$43,743	$40,100	$40,100	$0	0.00
48	E Distribution Replace Substation Equipment	$33,795	$33,795	$39,195	$39,195	$0	0.00
49	E T&D Mainline Protection and Rebuild	$14,900	$14,900	$14,700	$14,700	$0	0.00
54	E Distribution Replace Substation Transformers	$32,000	$32,000	$32,500	$32,500	$0	0.00
56	E Distribution Replace Underground Cable	$65,425	$39,621	$64,150	$36,653	$27,497	75.02
57	E Distribution Preventive Maintenance - Capital	$74,320	$71,062	$73,369	$71,062	$2,307	3.25
58	E Distribution Replace Substation Safety	$5,025	$5,025	$6,030	$6,030	$0	0.00
59	E Distribution Replace Substation Emergency	$15,000	$15,000	$15,000	$15,000	$0	0.00
95	ED Major Emergency	$17,356	$17,356	$17,657	$17,657	$0	0.00
	Total	**$812,821**	**$778,951**	**$862,413**	**$816,941**	**$45,472**	**5.57**

Table 13-2 shows global adjustments that affect all capital expenditures, and compares DRA's recommendations with PG&E's proposed estimates:

Table 13-2
Adjustments Impacting All Capital Expenditures
(Thousands of Nominal Dollars)

Line	Description	2006		2007			
		PG&E	DRA	PG&E	DRA	PG&E>DRA	Percent
1	Additional Capitalized Pensions	$81,442	$81,442	$112,341	$50,024	$62,317	124.57
2	Account 922 Adjustment (Excluding PIP)	$0	$0	$0	($1,643)	$1,643	(100.00)
3	Adjustment for PIP	$0	$0	$0	($7,454)	$7,454	(100.00)
4	Account 923 Adjustment	$0	$0	$0	($655)	$655	(100.00)
5	Account 926 Adjustment (Excluding Pensions)	$0	$0	$0	($8,410)	$8,410	(100.00)
6	Total	**$81,442**	**$81,442**	**$112,341**	**$31,862**	**$80,479**	**252.59**

III. DISCUSSION

A. Background

Capital expenditures are cumulative in nature. Expenditures made during one year are added to expenditures that were made in previous years. Therefore, DRA must analyze all of the proposed capital expenditures occurring from the end of the

last recorded year (2004) up through the end of the test year (2007). Proposed capital expenditures or additions for the attrition years (2008 and 2009) are also addressed by DRA, but are discussed in another exhibit.

Ideally, DRA tries to obtain an additional recorded year of plant data (in this case 2005) in order to eliminate one year of estimating uncertainty. DRA was not able to get the recorded 2005 capital expenditures, but was able to obtain recorded net plant additions. Full-year recorded 2005 functional net plant additions for electric distribution totaled $608.3 million[2] versus PG&E's estimate of $595.8 million, a difference of $12.5 million. Using these capital additions as a proxy for capital expenditures, DRA is assuming that recorded expenditures are close to what PG&E estimated. Therefore, DRA accepts PG&E's proposed 2005 capital expenditures for electric distribution.

As stated previously, this exhibit does not specifically address PG&E's capital additions. PG&E's capital exhibits and supporting workpapers are largely organized around capital expenditures. In its exhibits, PG&E's capital witnesses provide testimony regarding the magnitude of the capital dollars that are estimated to be spent each year, not how much is actually being booked to plant. PG&E relies on its RO computer model to manipulate these capital expenditures and calculate the corresponding capital additions. DRA has studied PG&E's RO model, and believes that it properly calculates plant additions. Therefore, DRA's analyses and recommended capital adjustments are also stated in terms of capital expenditures. One potential area of confusion in analyzing data in this format is that the impact of recommended capital adjustments may not show up in the year in which they were made. For example, suppose a project is scheduled to begin in 2006 and be completed in 2007. If DRA were to recommend adjusting some of the 2006 expenditures, that fact would not be reflected in the revenue requirement until 2007, when the project was completed and booked to plant-in-service.

[2] PG&E response to Data Request ORA-176, Question 1d.

B. Unbundled Cost Categories and Major Work Categories

PG&E divides its capital assets into 29 Unbundled Cost Categories (UCCs), including one that is kept in reserve for future use. An additional 4 UCCs are used to allocate Common, General, and Intangible plant. Electric distribution capital expenditures are found in three UCCs:

- ED – Wires and Services (UCC 13)
- ED – Transmission Level Direct Connects (UCC 15)
- ED – Electric Public Purpose Program Administration (UCC 16)

In this GRC, all of the functional electric distribution capital expenditures that are being proposed for 2005, 2006, and 2007 are included in UCC 13; no changes are proposed for UCCs 15 and 16.

A detailed examination of the capital dollars contained in UCC 13 shows that it includes Common, General, and Intangible dollars, as well as functional electric distribution expenditures. For the purpose of this exhibit, only the functional dollars contained in UCC 13 are being considered. The remaining expenditures allocated to UCC 13 are discussed in other DRA exhibits.

PG&E also divides its capital projects into Major Work Categories (MWC). MWCs are descriptive categories into which are placed the numerous capital projects proposed by PG&E. Of the many MWCs created by PG&E, 18 are used to categorize all of the functional electric distribution capital expenditures. The first column of Table 13-1 (above) lists the MWCs that are applicable. As is the case with UCCs, for the purpose of this exhibit, Common, General, and Intangible dollars are excluded from these MWCs.

C. Potential Impact of D.06-02-003

On February 16, 2006, the Commission issued Decision 06-02-003, which approved the Settlement of an Order Instituting Investigation (OII) reached among PG&E, the Commission's Consumer Protection and Safety Division (CPSD), and the City and County of San Francisco (CCSF) regarding the Mission Substation fire and the operations and practices of PG&E. The Commission originally opened the OII on

March 21, 2005 following investigations by CPSD and PG&E into the causes of the December 20, 2003 fire (as well as an earlier fire in 1996) at the Mission Substation. Nine days after the OII was issued, a third fire broke out at the same substation.

One of the issues resolved in the Settlement involved "San Francisco Reliability Improvements." Quoting from page 5 of D.06-02-003, the Settlement provides:

> $3.0 million for reliability improvements to PG&E's electric system in San Francisco, including $500,000 to hire an independent consultant to evaluate system reliability and to identify potential projects or other measures to improve reliability, with the remaining $2.5 million to implement one or more of those projects, etc., which the parties unanimously select. (Emphasis in original.)

The Settlement provides that the funding for these improvements will come from PG&E's shareholders. PG&E has agreed to establish accounting procedures to track these expenditures and to ensure that they are excluded, in perpetuity, from any ratemaking proceeding.

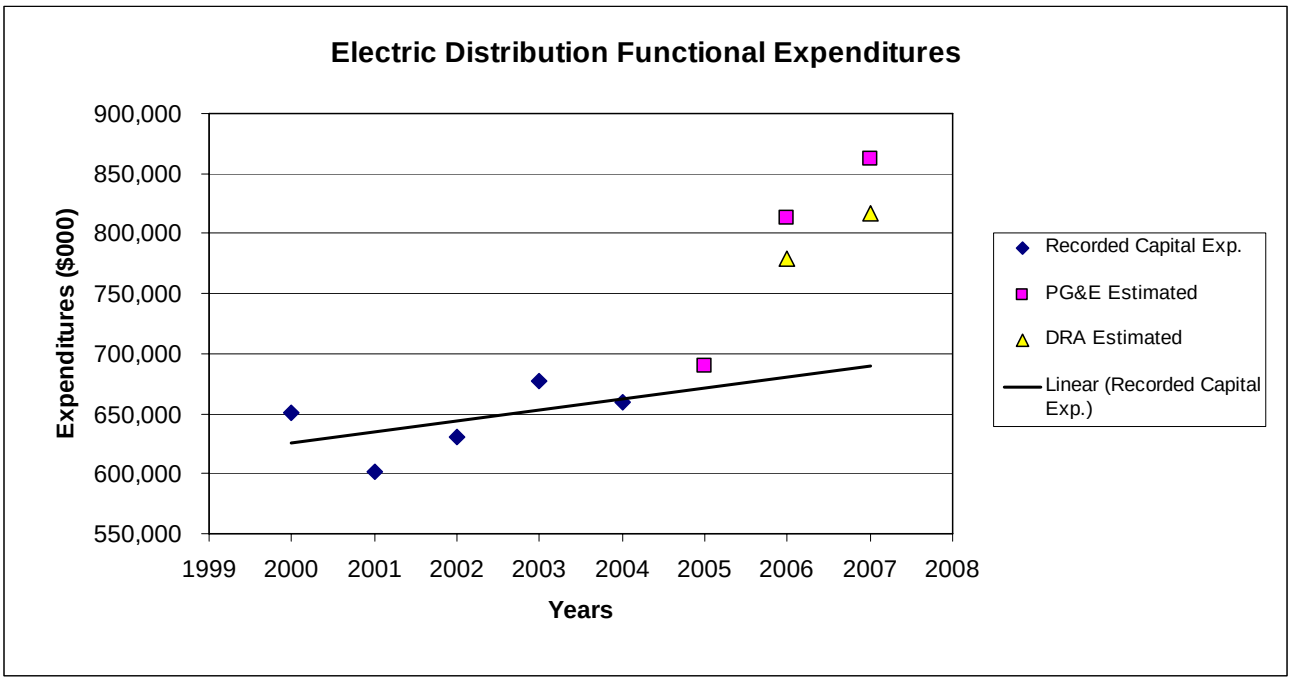
As the decision points out, the study should provide an invaluable resource for determining the scope of additional capital investments and for prioritizing those investments.[3] Capital expenditures made under the terms of the Settlement will reduce the need for ratepayer funding. At the time this report is being written, the system reliability evaluation has not yet begun. DRA does not know which projects the consultant will recommend be undertaken. However, it is certainly possible that the consultant will conclude that expenditures be made in different areas than PG&E has forecasted. It is also possible that some of the expenditures that PG&E is currently proposing may be paid by the shareholders out of the $2.5 million Settlement agreement.

[3] D.06-02-003, page 5.

D. Overview of Electric Distribution Functional Adjustments

Earlier in this exhibit, Table 13-1 presented a detailed look at the capital expenditures recommended by PG&E and DRA for functional electric distribution. However, because that table only shows data for 2006 and 2007, it is difficult to judge how reasonable these recommendations are, especially in comparison to expenditures in prior years. The following graph visually presents this information:

Graph 13-1
Recorded and Estimated Electric Distribution Functional Capital Expenditures
(Thousands of Nominal Dollars)



As this graph clearly shows, both PG&E and DRA are estimating that capital expenditures will experience a large increase over historical expenditures, although the magnitude of DRA's proposed increases are somewhat less. Much of the proposed increases are caused by system improvements due to increased demand, including peak demand. PG&E believes that the lingering effect the energy crisis had on peak demand is ending.[4] As the economy improves and California's population increases, PG&E expects electric demand to exceed the levels experienced before the

[4] Exhibit PG&E-4, page 7-16, line 4.

energy crisis, meaning that substation improvements must be undertaken to handle the increased load. DRA has analyzed these issues and concluded that PG&E's capital expenditure estimates are reasonable in many cases. However, as the following section explains, DRA did not agree with all of PG&E's capital recommendations. Even if PG&E were to object to some of DRA's recommended adjustments to its capital expenditures, Graph 13-1 clearly shows that DRA's recommendations result in expenditures that are still higher than PG&E has experienced historically.

E. Detailed Discussion Regarding DRA's Recommended Adjustments to Electric Distribution Functional Capital Expenditures

As can be seen in Table 13-1, DRA has recommended adjustments to four of the MWCs that contain electric distribution functional capital expenditures. DRA had several meetings with PG&E's witnesses, and issued numerous data requests in order to get additional information and clarify issues. All of the proposed expenditures were carefully analyzed. The following sections describe DRA's proposals for each of the four MWCs where adjustments are recommended.

1. Pole Replacement (MWC 07)

PG&E forecasts its pole replacement expenditures based on the estimated numbers of poles that will need replacing, multiplied by the unit costs to perform that task. PG&E divides its service territory into 19 divisions, including a General Office division. Each division has its own estimate for the number of poles that will need replacing; each also as its own unit cost estimates. Unit costs vary greatly, from a high of over $11,000 in San Francisco, to a low of under $4,000 in Kern. The following table provides a more detailed view of PG&E's and DRA's 2006 and 2007 estimates for this MWC:

Table 13-3
Adjustments Impacting Pole Replacement Capital Expenditures
(Nominal Dollars)

Division	2006						2007					
	Units		Unit Cost		Dollars		Units		Unit Cost		Dollars	
	PG&E	DRA	PG&E	DRA	PG&E	DRA	PG&E	DRA	PG&E	DRA	PG&E	DRA
Peninsula	251	251	$8,580	$8,151	$2,153,580	$2,045,901	659	615	$8,580	$8,151	$5,654,220	$5,013,408
S.F.	122	122	$11,200	$10,640	$1,366,400	$1,298,080	340	317	$11,200	$10,640	$3,808,000	$3,376,427
Diablo	165	165	$8,160	$7,600	$1,346,400	$1,254,000	611	570	$8,000	$7,600	$4,888,000	$4,334,027
East Bay	216	216	$9,366	$8,556	$2,023,056	$1,848,031	627	585	$9,006	$8,556	$5,646,762	$5,006,796
Mission	135	135	$9,048	$8,265	$1,221,480	$1,115,775	607	567	$8,700	$8,265	$5,280,900	$4,682,398
Cent. Coast	509	509	$7,497	$6,983	$3,815,973	$3,554,093	261	244	$7,350	$6,983	$1,918,350	$1,700,937
De Anza	28	28	$9,224	$8,591	$258,272	$240,544	96	90	$9,043	$8,591	$868,128	$769,740
San Jose	104	104	$9,681	$9,016	$1,006,824	$937,711	620	579	$9,491	$9,016	$5,884,420	$5,217,519
Fresno	1,468	1,468	$4,730	$4,280	$6,943,640	$6,282,673	966	902	$4,505	$4,280	$4,351,830	$3,858,623
Kern	390	390	$4,142	$3,748	$1,615,380	$1,461,623	274	256	$3,945	$3,748	$1,080,930	$958,425
Los Padres	166	166	$6,158	$5,572	$1,022,228	$924,911	228	213	$5,865	$5,572	$1,337,220	$1,185,668
Stockton	1,699	1,699	$5,702	$5,159	$9,687,698	$8,764,292	2,601	2,428	$5,430	$5,159	$14,123,430	$12,522,775
Yosemite	827	827	$5,040	$4,560	$4,168,080	$3,771,120	2,921	2,726	$4,800	$4,560	$14,020,800	$12,431,776
North Valley	1,026	1,026	$5,424	$4,908	$5,565,024	$5,035,300	775	723	$5,166	$4,908	$4,003,650	$3,549,903
Sacramento	447	447	$5,649	$5,111	$2,525,103	$2,284,617	209	195	$5,380	$5,111	$1,124,420	$996,986
Sierra	461	461	$6,100	$5,701	$2,812,100	$2,628,138	2,031	1,896	$6,001	$5,701	$12,188,031	$10,806,721
North Bay	758	758	$7,578	$7,059	$5,744,124	$5,350,343	636	594	$7,430	$7,059	$4,725,480	$4,189,926
North Coast	781	781	$6,130	$5,710	$4,787,530	$4,459,120	538	502	$6,010	$5,710	$3,233,380	$2,866,930
Gen. Office	97	97	$6,078	$6,078	$589,566	$589,566	--	--	--	--	--	--
Total	**9,650**	**9,650**	**$6,078**	**$5,580**	**$58,652,458**	**$53,845,835**	**15,000**	**14,000**	**$6,276**	**$5,962**	**$94,137,951**	**$83,468,983**

As a closer look at Table 13-3 reveals, DRA has made adjustments to both the number of units (in 2007) as well as the unit costs (in 2006 and 2007).

In October 1999, PG&E initially determined that it needed to replace 15,000 poles to stay in compliance with General Order (GO) 95 safety factor standards. However, after performing safety factor calculations on these poles, PG&E found fewer poles below the minimum safety requirement than originally identified.[5] PG&E estimates that approximately 8,000 to 14,000 poles will need to be replaced annually to stay in regulatory compliance.[6] In order to proactively address the large numbers of aging poles that were added in the mid- to late-1940s, PG&E concluded that it should replace 15,000 poles annually beginning in 2007. PG&E now states that the number of poles that are at the greatest risk of failing (the highest priority poles) is

[5] Exhibit PG&E-4, page 5B-8, lines 22-24.

[6] Exhibit PG&E-4, page 5B-8, lines 15 and 16.

decreasing;[7] however, it still believes that it is appropriate to replace 15,000 poles per year beginning in 2007.

In response to a DRA data request, PG&E provided tables similar to Table 13-3 for recorded pole replacements going back to 2000.[8] Only once since 2000 has PG&E replaced 15,000 or more poles (15,003 in 2002). A simple 7-year average of recorded/estimated pole replacements from 2000 through 2006 reveals that PG&E replaces approximately 11,600 poles annually.[9] DRA agrees with PG&E's estimate of replacing 9,650 poles in 2006. However, DRA has concluded that replacing 14,000 poles in 2007 is sufficient to address the highest priority poles as well as to begin proactively addressing the large numbers of aging poles. DRA reached this conclusion based on two PG&E statements. First, PG&E states that between 8,000 and 14,000 poles need to be replaced. Second, PG&E states that the number of highest priority poles is decreasing. Therefore, something less than 14,000 poles (maybe even less than 8,000 poles) fall into the highest priority category. By recommending 14,000 poles be replaced in 2007, DRA is ensuring that all of the highest priority poles are replaced, as well as beginning to address the aging poles that are not in the highest priority category. DRA also notes that as recently as 2004 and 2005 (and forecasted to continue through 2006), PG&E's own capital spending estimates for this MWC were reduced because resources were shifted to higher priority work.[10] DRA's recommendation of replacing 14,000 poles in 2007 represents an increase of nearly 2400 poles over what PG&E has averaged from 2000 through 2006, an increase of over 20%.

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[7] Exhibit PG&E-4, page 5B-9, line 1.

[8] PG&E response to Data Request ORA-089, Question 5.

[9] PG&E response to Data Request ORA-089, Question 5.
(10,455+13,294+15,003+14,716+10,446+7,917+9,553) ÷ 7 = 11,626

[10] Exhibit PG&E-4, page 5B-9, lines 4-6.

For both 2006 and 2007, DRA has adjusted the unit costs for the pole replacements. In a data response, PG&E states that the number of poles forecast to be replaced in 2005 is less than previous years.[11] This results in a loss of efficiency of approximately 5%.[12] Therefore, DRA believes that as the number of pole replacements increase (as in 2006 and 2007), this loss of efficiency should be eliminated. Therefore, for both 2006 and 2007, DRA has taken PG&E's unit cost estimates for 2005 and reduced them by 5%.

2. Rule 20A - Undergrounding (MWC 30)

Pursuant to CPUC Tariff Rule 20A, utilities will pay to replace overhead electric distribution facilities with underground facilities. Under this tariff rule, each city and county is allocated an annual amount for performing this undergrounding. Cities and counties can accumulate these annual allocations until sufficient funds are available to complete the projects. PG&E states that by 2005, the total accumulation of unspent allocations was approximately $355.6 million.[13] Because of this large accumulation of unspent allocations, PG&E anticipates increased demand by cities and counties for funding underground projects. As shown in Table 13-4, PG&E estimates Rule 20A capital expenditures of $50 million in 2006 and $55 million in 2007. DRA estimates $50 million for both years.

Table 13-4
Adjustments Impacting Undergrounding Capital Expenditures
(Thousands of Nominal Dollars)

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Recorded Data 1/	$29,475	$25,147	$33,084	$33,945	$41,484	$29,294	$37,757	$56,086	$49,348			
PG&E Estimated										$41,600	$50,000	$55,000
DRA Estimated											$50,000	$50,000
1/	1996 through 1999 recorded data comes from page 14-15 of DRA's RO report in the last PG&E GRC.											

[11] PG&E response to Data Request ORA-089, Question 6.
[12] PG&E response to Data Request ORA-089, Question 6.
[13] Exhibit PG&E-4, page 3-32, lines17 and 18.

DRA obtained recorded data back to 1996 by looking at the DRA RO report in the last PG&E GRC for test year 2003. Only once in the recorded period 1996 through 2004 has capital expenditures for MWC 30 exceeded $50 million. In the estimated years 2005 and 2006, PG&E still does not estimate expenditures to exceed $50 million. Only beginning in 2007 does PG&E estimate that capital expenditures will reach $55 million. As stated previously, PG&E bases this estimate on the large accumulation of unspent allocations. However, DRA notes that in the last PG&E GRC, PG&E made the same $55 million expenditure estimates based on the $296 million accumulated allocation that existed as of 2001.[14] As Table 13-4 shows, MWC 30 expenditures did reach the $55 million level in 2003, but failed to do so in 2004, and PG&E is estimating less than $55 million for 2005 and 2006. Obviously, a large accumulated allocation does not guarantee that undergrounding expenditures are going to increase to the $55 million level. DRA concludes that $50 million is reasonable for 2007. With the exception of 2003, $50 million is equal to or greater than every recorded/estimated undergrounding expenditure from 1996 through 2006.

3. Replace Underground Cable (MWC 56)

PG&E's electric underground distribution system consists of approximately 57,500 miles of primary distribution cable, made up of the following insulation types:

- 1,540 miles of paper insulated lead covered (PILC);
- 12,000 miles of high molecular weight polyethylene (HMWPE);
- 40,000 miles of cross link polyethylene (XLP); and
- 4,000 miles of ethylene polypropylene rubber (EPR).

As the name would suggest, the types of capital projects included in MWC 56 consist mainly of the non-emergency replacement of primary underground distribution cables. The work includes trenching, installing new conduits, splicing cable, and replacing other distribution equipment. For this MWC, DRA obtained

[14] Volume 2 of ORA's RO report in the last PG&E GRC (A.02-11-017), page 14-16, line 4.

recorded expenditures for 2005.[15] Table 13-5 lists the various capital classifications that are include in MWC 56, as well as recorded 2005 expenditures and PG&E's and DRA's estimated capital expenditures for 2006 and 2007. As the table shows, DRA is recommending adjustments to three of the categories in MWC 56.

Table 13-5
Adjustments Impacting Underground Cable Capital Expenditures
(Thousands of Nominal Dollars)

MWC	Description	2005		2006 Estimated		2007 Estimated	
		Recorded	PG&E Estimated	PG&E	DRA	PG&E	DRA
56	Tie Cable Circuits	$17,844	$8,165	$28,390	$10,900	$22,930	$10,900
56	Verticle Runs of PILC	$4,437	$4,160	$4,785	$4,785	$3,410	$3,410
56	Compliance	$6,014	$7,341	$11,511	$11,511	$11,089	$11,089
56	Reliability - Plastic	$3,384	$4,139	$11,643	$5,000	$13,875	$5,074
56	Reliability - Lead	$1,632	$1,695	$3,671	$2,000	$8,697	$2,030
56	ERR Cable Replacement	$1,652	$2,000	$5,425	$5,425	$4,150	$4,150
	Total	**$34,963**	**$27,500**	**$65,425**	**$39,621**	**$64,151**	**$36,653**

From an overall system perspective, underground distribution cable failures do not currently make a significant contribution to PG&E's SAIDI and SAIFI reliability indices.[16] Nevertheless, PG&E believes that underground cable failures are increasing, and will eventually lead to a decrease in system reliability. In 2005, PG&E hired two outside consultants, ABB Inc. and KEMA Inc., to study underground cable failures and how future system reliability is likely to be impacted by such failures. Both ABB and KEMA conclude that failures are likely to increase over time and will negatively impact system reliability. KEMA recommends that 400 miles of cable be proactively replaced each year for the next 35 years; ABB recommends 321 miles of XLPE and 16 miles of PILC cable be replaced per year, presumably in perpetuity. At a replacement cost of $100 per foot,[17] KEMA's recommendation would require expending $211.2 million per year ($7.392 billion

[15] PG&E response to Data Request ORA-205, Question 3.
[16] Exhibit PG&E-4, page 6-5, lines 9-11.
[17] Exhibit PG&E-4, page 6-7, footnote 6.

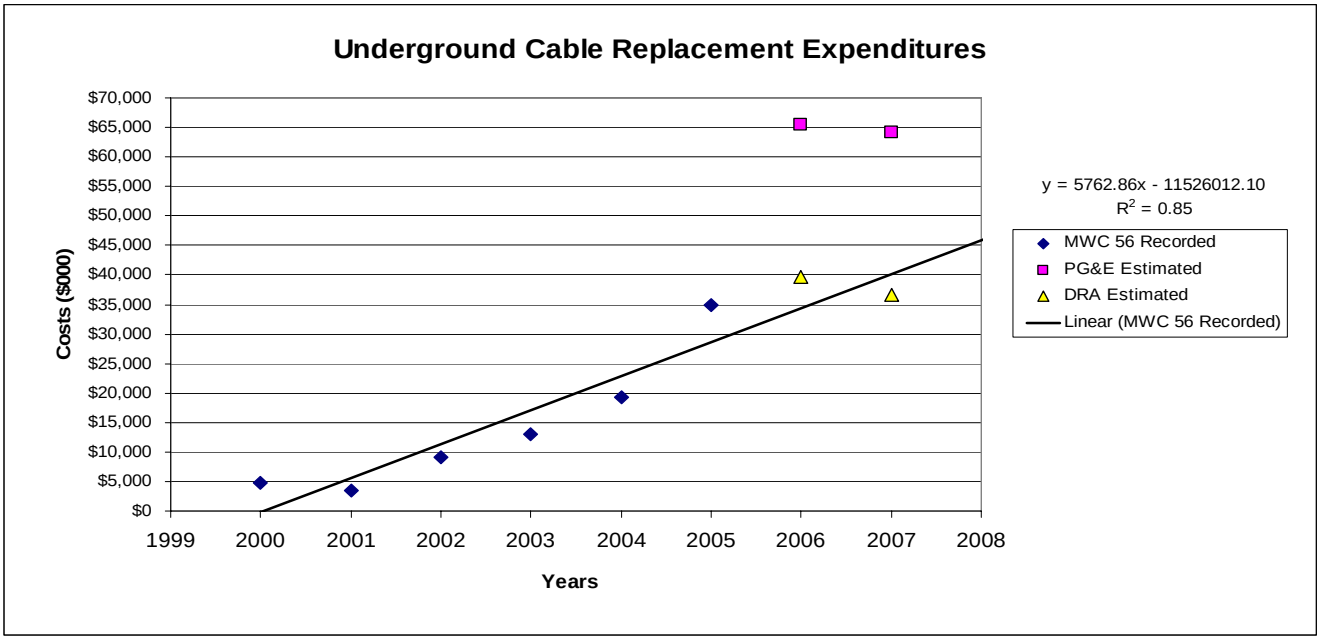
over 35 years), while ABB's recommendation would require expending $177.9 million per year.

Currently, over 80% of the underground cables contained in PG&E's electrical distribution database system do not indicate the year the cable was installed or the cable type, particularly for pre-1990 installations.[18] As PG&E states in its exhibit, year of installation and cable type are critical pieces of information needed to effectively manage underground assets and create prioritization models.[19] PG&E understands this fact and has initiated a Cable Validation Project to update the database. PG&E expects to complete the Cable Validation Project in 2010, which will enable it to better prioritize its underground cable replacements.[20] PG&E, KEMA, and ABB all agree that more complete installation data will allow PG&E to better focus its future expenditures to those areas that need it most, thereby optimizing the level of future capital expenditures. Because of this, as Table 13-5 shows, PG&E's own estimates for underground cable replacement do not approach the levels of expenditures recommended by the two consultants; DRA is recommending even less.

As shown in Table 13-5 above, DRA has recommended reductions to PG&E's proposed levels of underground cable expenditures. It is difficult to judge the reasonableness of DRA's recommendations without seeing them in context with previous recorded expenditures. The following graph presents this information in a more visual fashion. It should be noted that, as in Table 13-5, this graph includes recorded 2005 expenditures.

[18] Exhibit PG&E-4, page 6-10, lines 2-4.
[19] Exhibit PG&E-4, page 6-10, lines 4-6.
[20] Exhibit PG&E-4, page 6-11, lines 3-7.

Graph 13-2
Recorded and Estimated Underground Cable Replacement Expenditures
(Thousands of Nominal Dollars)



As can be seen, recorded expenditures have increased seven-fold since 2000 – from roughly $5 million in 2000 to nearly $35 million in 2005. DRA's estimates for 2006 and 2007 are higher still. However, not only do PG&E's forecasts continue the pattern of ever-higher expenditures, they also represent a major increase over historical spending growth. As will become apparent from the detailed discussions that follow, DRA did not use trending to develop its 2006 and 2007 estimates. However, as a "reasonableness check," it is clear that DRA's recommendations are consistent with the recorded pattern of rapidly growing expenditures, but do not radically depart from those historical trends. Even with its lower estimates, DRA is still recommending nearly 8 times the level spent in 2000.

Tie Cable Circuits

Tie cables are 12kV circuits that feed other distribution substations. They do not directly feed customers. Tie cables are operated in parallel, meaning that under normal conditions, multiple tie cables supply the same substation such that the failure

of one will not cause an outage.[21] DRA obtained recorded data for this category back to the year 2000. PG&E did not begin capital expenditures for tie cable circuits until 2002. It was not until 2004 that capital expenditures exceed $1.5 million. However, as can be seen in Table 13-5, PG&E spent $17.844 million in 2005, and proposes spending $28.390 million in 2006 and $22.930 million in 2007.

PG&E's tie cable circuits consist primarily of PILC cables.[22] PILC cables, even though they are among the oldest in PG&E's system (with some exceeding 70 years), are still far more reliable than plastic covered cables.[23] PG&E states that the current effect of tie cable failures on SAIDI and SAIFI has been negligible because of the redundancy of the parallel lines.[24]

In examining PG&E's proposed capital expenditures for this area, DRA noted that tie cable expenditures are estimated to peak in 2006 (at over $28 million), but then steadily (and rapidly) decline through 2009 (at $10.9 million). DRA has concluded that it is not necessary to have the large expenditure "peaks" in 2006 and 2007; uniform expenditures over a longer period of time are a more reasonable approach for this capital area, especially since it is so reliable. DRA recommends that PG&E's estimated 2009 capital expenditure of $10.9 million be used for 2006 and 2007.

Reliability – Plastic Insulated Cable

Capital expenditures in this category include replacing plastic insulated cables because of age, type, and/or number of failures. PG&E is proposing to dramatically increase the level of expenditures in this area. In reviewing data going back to 2000, DRA observed that prior to 2006, the largest recorded expenditure made by PG&E

[21] Exhibit PG&E-4, page 6-20, lines 28-31.
[22] Exhibit PG&E-4, page 6-22, line 5.
[23] Exhibit PG&E-4, page 6-6, Figure 6-2.
[24] Exhibit PG&E-4, page 6-22, lines 13 and 14.

was $4.630 million in 2003. PG&E now proposes to spend $11.643 million in 2006, and steadily increases that level to $18.842 million in 2009.[25]

As has been discussed previously, over 80% of the underground cables entered into PG&E's electrical distribution database system do not indicate the year the cable was installed or the cable type; more complete installation data will allow PG&E to better focus its expenditures. Until this percentage is lowered, there is no assurance that PG&E is optimizing its expenditures. In addition, the Settlement agreement reached in the Mission Substation Fire OII (discussed previously) provides for a consultant's report to be issued evaluating PG&E's system reliability. This report will likely provide additional guidance as to where PG&E's capital expenditures should best be spent. For these reasons, DRA has concluded that it is premature for PG&E to dramatically increase the spending level in this area. DRA recommends that $5 million be spent in 2006. This is approximately 8% more than the largest recorded expenditure, which occurred in 2003. For 2007, DRA recommends increasing the expenditure level by 1.48%, the 2007 electric distribution capital escalation rate used by PG&E in its attrition workpapers.[26] This results in a 2007 recommendation of $5.074 million.

Reliability – PILC Cables

Much like the previous section discussing plastic insulated cables, capital expenditures in this category include replacing PILC cables because of age, type, and/or number of failures. Once again, DRA analyzed recorded data going back to 2000. PG&E's expenditures in this area have fluctuated dramatically, from a low of $4 thousand dollars in 2002, to a high of $1.830 million in 2004. For 2006, PG&E wants to double its previous highest expenditure, with a proposed spending level of $3.671 million. For 2007, PG&E wants an even larger increase; it is proposing to spend $8.697 million.

[25] Exhibit PG&E-4, page 6-19, line 4 of Table 6-2.

[26] Workpapers supporting Chapter 3 of Exhibit PG&E-9, page 3-5.

DRA's response to PG&E's spending proposals is a combination of its responses in the previous two sections. As was the case for the reliability of the plastic insulated cables, DRA believes that the scarcity of data in the electric distribution database indicates that there are no assurances that PG&E is optimizing its capital expenditures. Similarly, the consultant's report, agreed to in the Settlement to the Mission Substation Fire OII, will also likely provide guidance on future expenditures. As was the case for the tie cable circuits, PILC cables are much more reliable than plastic insulated cables. DRA has not been persuaded that the level of expenditure increases proposed by PG&E for this area is warranted.

DRA is recommending that 2006 expenditures for PILC reliability be $2 million. This is slightly higher than the largest recorded expenditure, which occurred in 2004. For 2007, DRA recommends increasing the expenditure level by 1.48%, the 2007 electric distribution capital escalation rate used by PG&E in its attrition workpapers. This results in a 2007 recommendation of $2.030 million.

4. Preventive Maintenance – Capital (MWC 57)

The types of capital projects found in MWC 57 include replacing overhead and underground facilities that are too deteriorated (or are not cost-effective) to replace. However, MWC 57 does not include replacing deteriorated poles (which is included in MWC 07, discussed above) or cables (which is included in MWC 56, discussed above). Various special capital projects, as well as Equipment Requiring Repair (ERR), are also included in this MWC.

PG&E's maintenance inspectors regularly patrol PG&E's system looking for obvious problems and safety hazards. Problems that can not be quickly remedied are entered into the Electric Preventive and Corrective Maintenance (EPCM) database. Those EPCM projects that can't be repaired are replaced, usually in kind, and become EPCM capital expenditures. Table 13-6 lists the various capital classifications that are include in MWC 57, as well as PG&E's and DRA's estimated capital expenditures for 2006 and 2007:

Table 13-6
Adjustments Impacting Preventive Maintenance Capital Expenditures
(Thousands of Nominal Dollars)

Description	2006 Estimated		2007 Estimated	
	PG&E	DRA	PG&E	DRA
Overhead EPCM	$44,000	$44,000	$44,000	$44,000
Underground EPCM	$15,000	$15,000	$15,000	$15,000
Bird Safe	$1,324	$1,324	$1,324	$1,324
Bird Retrofits	$1,400	$1,400	$1,400	$1,400
Special Projects	$5,996	$4,638	$5,045	$4,638
Equipment Requiring Repair (ERR)	$6,600	$4,700	$6,600	$4,700
Total	**$74,320**	**$71,062**	**$73,369**	**$71,062**

As the above table shows, DRA is recommending adjustments to two of the categories in MWC 57. For the Special Projects category, DRA notes that PG&E's own forecasts show a steadily declining level of estimated expenditures from 2006 ($5.996 million) through 2009 ($4.293 million).[27] A simple 5-year average of PG&E's estimated expenditures (2005 through 2009) provides a result of $4.638 million. As the first 4 lines in Table 13-6 show, PG&E's forecasts for 2006 are also used for 2007; an examination of PG&E's workpapers shows that these same forecasts are continued for 2008 and 2009. DRA believes that this uniformity should also be applied to Special Projects. By using the simple average of $4.638 million for 2006 and 2007, not only is the uniformity of the expenditures maintained, but a test year "spike" in expenditures is avoided.

For the ERR category, DRA obtained a recorded expenditure amount for 2005. In response to a DRA data request, PG&E reported that recorded ERR expenditures were $4.709 million in 2005.[28] DRA also noted that PG&E expects ERR expenditures to be relatively static for 2005, 2006, and 2007.[29] Combining those two pieces of information, DRA has concluded that the $4.709 million recorded 2005 level should be maintained for 2006 and 2007.

[27] Exhibit PG&E-4, page 2-52, line 5 of Table 2-17.

[28] PG&E response to Data Request ORA-205, Question 2b.

[29] Workpapers Supporting Exhibit PG&E-4, Chapter 2, page 2-41, third row.

F. DRA's Recommended Adjustments to "Global" Capital Expenditures

When PG&E's capital witnesses prepare their estimates for specific plant projects, they use a methodology PG&E terms "total financial costs." Total financial costs include labor, material, overheads, external contracts, escalation, capitalized A&G expenses (including pensions and benefits, workers comp, and administrative staff costs), allowance for funds used during construction (AFUDC), and other related costs. In some RO computer models, these capital loadings are inputs to the model. As such, they can be adjusted and/or manipulated by simply changing a cell in a spreadsheet. However, for PG&E, each individual capital witness includes estimates for all of these loadings when the estimates for each specific capital project are developed. Therefore, the only input to the RO model is the total yearly expenditure for each capital project. For utilities such as PG&E, another method must be found to adjust these global capital loadings.

For PG&E, that solution can be found in the ProjectDetail workbook of the RO model. Below the more than 3,400 entries for capital projects, PG&E has created, in effect, a spreadsheet that allocates any global adjustments to all of the proposed capital projects (including electric distribution, electric transmission, gas distribution, gas transmission, etc.). In the version of the RO model that was provided to DRA, PG&E had already included one global adjustment; DRA has added four more. Each of these adjustments is discussed in the following sections.

1. Additional Capitalized Pensions

In the previous general rate case cycle, it was determined that PG&E's pensions were fully funded. Therefore, no pensions were included in PG&E's revenue requirement. PG&E's capital witnesses did not include any capitalized pension loadings when they developed their project costs. However, in December of 2005, PG&E filed the so-called 2006 Pension Contribution Application, A.05-12-021, requesting to again collect revenues for employee pensions. In its RO computer model, PG&E included a line entry to reflect the fact that none of the 3400-plus capital estimates contained any loadings for capitalized pensions. PG&E added a

global addition for capitalized pensions amounting to $81.442 million for 2006, and $112.341 million for 2007.

DRA and PG&E have met to discuss this matter. Recently, the two parties have reached an agreement on the appropriate levels of capitalized pensions to include in the model. PG&E's original request of $81.442 million in 2006 is acceptable to DRA. However, both parties agree that PG&E's 2007 request should be lowered. DRA and PG&E have settled on a figure of $50.024 million for 2007. DRA is reflecting the resulting $62.317 million reduction in the RO model.[30]

2. Account 922 (Excluding PIP) Adjustments

Account 922 consists of the capitalized portions of A&G Accounts 920 and 921. Also included in Account 922 are capitalized expenditures for PG&E's Performance Incentive Programs (PIP). However, since they are derived independently from the other Account 922 dollars, DRA is excluding capitalized PIP expenditures from this global adjustment for Account 922; the capitalized PIP global adjustment is discussed in the next section.

As mentioned above, capitalized A&G expenses are included as part of the "total financial costs" of PG&E's capital projects. As such, Account 922 dollars are included in the estimated capital costs of PG&E's capital expenditures. In other exhibit volumes of DRA's analysis of this GRC, DRA has recommended reductions to PG&E's proposed 2007 expenditures for Accounts 920 and 921. Since Account 922 is a function of Accounts 920 and 921, logic dictates that a reduction to Accounts 920 and 921 will reduce Account 922, resulting in a reduction to capitalized expenses.

In order to reflect this reduction to capitalized expenditures, DRA has modified the RO computer model. As now modified, the model recalculates Account 922 based on reductions to Accounts 920 and 921. This recalculation is compared to the original Account 922 estimate, and any difference is included as a global adjustment

[30] $112.341 million original estimate, less the $62.317 million adjustment, equals the $50.024 million agreement.

that is allocated to all of the capital projects. This adjustment results in a $1.643 million reduction to 2007 capital expenditures.

3. Adjustments for PIP (Performance Incentive Programs)

Even though capitalized PIP expenditures are included in Account 922 by PG&E, they are calculated in a different manner from the rest of the account and are handled differently in the RO model. Because of these differences, the global PIP adjustment is analyzed separately.

As is the case with the rest of Account 922, capitalized PIP expenses are included in the estimated capital costs of PG&E's capital expenditures. As detailed in other DRA exhibits, DRA has recommended reducing proposed PIP expenditures, including the amount that is capitalized. The modified RO model captures these reductions and compares them to the original amount. Any difference in the capitalized PIP estimate is included as a global adjustment and is allocated to all of the capital projects. This adjustment results in a $7.454 million reduction to 2007 capital expenditures.

4. Account 923 Adjustments

As is the case with several other A&G accounts, a portion of Account 923 is capitalized. This capitalized portion is included in the estimated capital costs of PG&E's capital expenditures.

In its original configuration, the RO computer model did not adjust the capitalized portion when changes were made to Account 923. DRA does not believe that this is logical; changes to Account 923 should also be reflected in the capitalized portion. DRA has modified the RO model so that it recalculates the capitalized portion of Account 923.

As discussed in another DRA exhibit, DRA has reduced the proposed Account 923 expenses for 2007. As now modified, the RO model recalculates the capitalized portion based on these reductions. This recalculation is compared to the original capitalized estimate, and any difference is included as a global adjustment that is

allocated to all of the capital projects. This adjustment results in a $0.655 million reduction to 2007 capital expenditures.

5. Account 926 Adjustments (Excluding Pensions)

A&G Account 926 includes expenses for many employee benefits, including medical costs, pensions, vision and dental plans, group life insurance, and other miscellaneous costs. DRA has already discussed the impact of the global adjustment for pensions in the first section of this series of global analyses. To avoid duplicating the pension impact, pension expenses have been removed from this current Account 926 global adjustment analysis.

As has been the case for the other A&G expenses discussed in this portion of this exhibit, Account 926 expenses contain a capitalized component that is included in PG&E's estimates for capital expenditures. As originally configured, the RO computer model did not adjust the capitalized portion when changes were made to Account 926. DRA does not agree with that logic. Consequently, DRA has modified the model so that it recalculates the capitalized portion of Account 926 (with the exception of pensions) when the expenses are revised.

As discussed in another DRA exhibit, DRA has reduced the proposed Account 926 expenses for 2007. As now modified, the RO model recalculates the capitalized portion (except for pensions) based on those reductions. This recalculation is compared to the original capitalized estimate, and any difference is included as a global adjustment that is allocated to all of the capital projects. This adjustment results in an $8.410 million reduction to 2007 capital expenditures.