SONGS COMPARISON CASE: BETWEEN 0% OWNERSHIP IN SONGS & CCCT

		SONGS Nuclear Plant			SONGS Nuclear Plant		
2	Capacity Factor Setting	SONGS 88%	SONGS 85.5%	SONGS 83%	SONGS 88%	SONGS 85.5%	SONGS 83%
3	Capital Cost Setting	Base Capital Cost Scenarios			High Capital Cost Scenarios		
4		(000)	(000)	(000)	(000)	(000)	(000)
6	SONGS Plant Capital	328,728	328,728	328,728	383,233	383,233	383,233
7	SONGS Plant O&M	890,611	890,611	890,611	984,965	$984,965	$984,965
8	Added Decommissioning	70,737	70,737	70,737	70,737	70,737	70,737
10	Supplemental Costs Low (1)	-	26,070	52,644	-	26,070	52,644
11	Supplemental Costs Mid	-	34,451	69,741	-	34,451	69,741
12	Supplemental Costs High	-	47,939	97,251	-	47,939	97,251
14	Nuclear Cost Adder (3)	61,304	61,304	61,304	61,304	61,304	61,304
15	Increase Due to Parity ROE on Existing Plant	4,234	4,234	4,234	4,234	4,234	4,234
16	Plant Cost Low	1,355,615	1,381,684	1,408,259	1,504,474	1,530,543	1,557,118
17	Plant Cost Mid	1,355,615	1,390,066	1,425,356	1,504,474	1,538,925	1,574,214
18	Plant Cost High	1,355,615	1,403,553	1,452,866	1,504,474	1,552,412	1,601,725

		Combine Cycle Plant		
22	Capacity Factor Setting	CCCT 88%	CCCT 85.5%	CCCT 83%
23	Capital Cost Setting	Capital Cost Scenarios		
24		(000)	(000)	(000)
26	CCCT Plant Capital	295,991	295,991	295,991
27	CCCT Plant O&M	106,168	104,773	103,401
28	SONGS Ownership Credits	- 105,441	105,441	105,441
30	Gas Cost Low	478,680	464,459	449,926
31	Gas Cost Mid	723,467	701,994	679,994
32	Gas Cost High	1,117,354	1,084,212	1,050,196
34	Replacement/Supplemental Costs Low (1) (2)	238,809	260,235	281,855
35	Replacement/Supplemental Costs Low	323,921	352,599	381,687
36	Replacement/Supplemental Costs Low	460,873	501,221	542,325
38	Environmental Cost Adder	61,304	61,304	61,304
40	Plant Cost Low	1,075,510	1,081,321	1,087,036
41	Plant Cost Mid	1,405,409	1,411,219	1,416,935
42	Plant Cost High	1,936,248	1,942,059	1,947,775

1) For each case and each scenario within that case, supplemental power costs were added to the level of SONGS output at an 88 percent capacity factor.

2) Replacement power for SONGS starts in October of 2009, due to the time it takes to site, license and build a CCCT plant, the plant operation date is assumed to be January 1, 2012

3) Nuclear Adder is set to the value of the GHG Adder at $3.20 per MWh

Study of Budgeting Error for Both Capital and O&M

Capital Budgeting vs Actual Spending from 1 to 5 Years

	Budget Year			5 Year Out	4 Year Out	3 Year Out	2 Year Out	1 Year Out
2		1993	178	94%	56%	-2%	-26%	-10%
3		1994	121	9%	-33%	-32%	-2%	-17%
4		1995	122	-23%	-45%	-38%	-41%	-23%
5		1996	40	-77%	-70%	-66%	-65%	-65%
6		1997	54	-66%	-57%	-65%	-65%	-24%
7		1998	71	-25%	-44%	-44%	-24%	-1%
8		1999	43	-51%	-51%	-28%	-47%	-17%
9		2000	21	-77%	-73%	-78%	-66%	-42%
10		2001	27	-51%	-57%	-61%	-60%	-19%
11		2002	31	-57%	-44%	-43%	-45%	-24%
12		2003	51	23%	26%	-5%	-7%	9%
13		2004	155	288%	251%	67%	73%	3%
14		2005	114					
15		2006	111	ABS of (Capital Budgeting vs Actual Spending from 1 to 5 Years)				
16		1993	178	5 Year Out	4 Year Out	3 Year Out	2 Year Out	1 Year Out
17		1994	121	94%	56%	2%	26%	10%
18		1995	122	9%	33%	32%	2%	17%
19		1996	40	23%	45%	38%	41%	23%
20		1997	54	77%	70%	66%	65%	65%
21		1998	71	66%	57%	65%	65%	24%
22		1999	43	25%	44%	44%	24%	1%
23		2000	21	51%	51%	28%	47%	17%
24		2001	27	77%	73%	78%	66%	42%
25		2002	31	51%	57%	61%	60%	19%
26		2003	51	57%	44%	43%	45%	24%
27		2004	155	23%	26%	5%	7%	9%
28				288%	251%	67%	73%	3%
29								
30								
31								
32								

			Average 4 and			1 Year Out
33	ABS Error Years 93-04	5 Year Out	5 Years Out	3 Year Out	2 Year Out	Capital
34	Average	70.1%	68.8%	44%	44%	21.3%
35	Standard Deviation	73.5%	65.4%			
36	Standard Error	22.2%	13.6%			
37						
38						

			Average 4 and			
39	Actual Error Years 93-04	5 Year Out	5 Years Out	3 Year Out	2 Year Out	1 Year Out
40	Average	-1%	-6%	-33%	-31%	-19%
41	Standard Deviation	104%	96%			
42	Standard Error	31.3%	20.0%			
43						
44						
45	One Tail Critical Value of 't'	1.32				
46	Capital Budget Error at Mid Point	18.0%				
47						
48						
49	O&M Error Calculation					
50	O&M Budget	311,832,000				
51	Actual Spending at the End of Period 12/31/05	272,735,000				
52	Difference from Budget	39,097,000				
53						
54	O&M Budget Error	12.54%				
55						
56	ABS Capital Budget Error One Year Out	21.3%				
57						
58	O&M Budget Error at Mid Point	10.6%				

SONGS Capital and O&M Cost Detail

1		Index of O&M for 2004	Index of Capital for 2004	O&M Costs from SDG&E ~ Attachment A (000)	Capital Additions from SDG&E ~ Attachment A (000)	O&M Costs - Inflation (000)	Capital Costs - Inflation (000)	SGRP Removal & Disposal Expenses (000)	O&M Costs Dollars Spent	Capital Costs Dollars Spent Base Case	O&M Costs Dollars Spent High Case	Capital Costs Dollars Spent High Case
2	SGR Costs	189										
3	SDGE A&G	195	442						$890,611,129	$328,728,290	$984,965,437	$383,232,920
4	Year	200	473						-	-	-	-
5	2007	203	481					1,021	1,021,000	-	1,129,168	-
6	2008	207	488					1,063	1,063,000	-	1,175,618	-
7	2009	211	498	108,629	19,473	121,421	21,957	1,109	31,464,163	-	34,797,581	-
8	2010	216	510	112,009	20,959	127,969	24,178	1,157	129,126,395	17,545	142,806,475	20,213
9	2011	221	522	116,861	19,948	136,939	23,563	1,209	138,148,377	38,294	152,784,276	44,241
10	2012	227	535	117,271	20,028	141,109	24,260		141,109,355	49,109	156,058,950	56,839
11	2013	233	550	115,451	19,885	142,565	24,726		142,564,674	52,653	157,668,450	61,078
12	2014	239	565	115,712	19,735	146,556	25,209		146,555,778	56,275	162,082,385	65,409
13	2015	245	580	116,327	20,353	151,082	26,717		151,082,253	60,020	167,088,410	69,885
14	2016	255	597	116,350	20,545	156,783	27,736		156,782,733	64,257	173,392,818	74,942
15	2017	262	614	128,692	20,282	178,288	28,161		178,287,805	68,972	197,176,208	80,563
16	2018	269	630	100,884	20,256	143,748	28,886		143,748,362	74,181	158,977,542	86,767
17	2019	277	649	130,835	16,463	191,747	24,157		191,747,218	80,398	212,061,557	94,160
18	2020	285	669	114,154	12,358	172,024	18,696		172,024,049	85,823	190,248,850	100,619
19	2021	293	689	117,042	7,263	181,350	11,321		181,350,102	90,724	200,562,935	106,460
20	2022	301	709	102,638	3,611	163,502	5,790		163,501,528	90,285	180,823,425	106,260

Replacement / Supplemential Power Cost Detail

					Combine Cycle Plant			SONGS Nuclear Power		
		Fixed O&M Per MHh 70% CF	Variable O&M Per MHh	CCCT 88% Case ($)	CCCT 85.5% Case ($)	CCCT 83% Case ($)	SONGS 88% Case ($)	SONGS 85.5% Case ($)	SONGS 83% Case ($)
1	Levelized Capital Costs			12.46	12.46	12.46	12.46	12.46	12.46
2									
3	NPV to 2006 Dollars			87,054,105	95,458,928	103,723,916	-	9,644,863	19,256,056
4	2005								
5	2006			-	-	-	-	-	-
6	2007			-	-	-	-	-	-
7	2008			-	-	-	-	-	-
8	2009	3.16	2.68	10,044,354	10,044,354	10,044,354	-	-	97,518
9	2010	3.16	2.74	58,700,393	58,700,393	58,700,393	-	195,668	489,170
10	2011	3.28	2.83	64,621,398	64,621,398	64,621,398	-	1,781,294	3,513,108
11	2012	3.00	2.97	-	3,438,067	6,434,096	-	3,438,067	6,434,096
12	2013	3.21	3.01	-	99,524	497,620	-	99,524	497,620
13	2014	3.42	3.07	-	3,634,490	6,663,231	-	3,634,490	6,663,231
14	2015	3.68	3.13	-	102,671	718,699	-	102,671	718,699
15	2016	3.77	3.18	-	3,672,381	6,775,802	-	3,672,381	6,775,802
16	2017	3.92	3.25	-	104,618	732,326	-	104,618	732,326
17	2018	4.04	3.33	-	3,803,437	6,972,967	-	3,803,437	6,972,967
18	2019	4.21	3.42	-	107,056	749,390	-	107,056	749,390
19	2020	4.34	3.54	-	1,896,749	4,498,004	-	1,896,749	4,498,004
20	2021	4.48	3.65	-	1,974,748	5,101,434	-	1,974,748	5,101,434
21	2022	4.62	3.76	-	1,665,693	1,665,693	-	1,665,693	1,665,693

Gas Cost Summary

The Cost of fuel for the Supplemental/Replacement Unit at the different Capacity Factors and fuel forecasts

		Fuel Costs by Month CCCT Supplemental Power			Fuel Costs by Month CCCT Supplemental Power			Fuel Costs by Month CCCT Supplemental Power		
		CCCT 88% Low Case ($)	CCCT 88% Expected Case ($)	CCCT 88% High Case ($)	CCCT 85.5% Low Case ($)	CCCT 85.5% Expected Case ($)	CCCT 85.5% High Case ($)	CCCT 83% Low Case ($)	CCCT 83% Expected Case ($)	CCCT 83% High Case ($)
1	NPV to 2006 Dollars	151,755,062	236,866,480	373,819,147	164,776,231	257,139,756	405,761,779	178,131,514	277,962,659	438,600,819
2										
3	2006	-	-	-	-	-	-	-	-	-
4	2007	-	-	-	-	-	-	-	-	-
5	2008	-	-	-	-	-	-	-	-	-
6	2009	18,943,595	29,377,726	46,167,272	18,943,595	29,377,726	46,167,272	18,943,595	29,377,726	46,167,272
7	2010	105,163,625	164,353,789	259,596,603	105,163,625	164,353,789	259,596,603	105,163,625	164,353,789	259,596,603
8	2011	107,901,123	168,413,466	265,783,793	107,901,123	168,413,466	265,783,793	107,901,123	168,413,466	265,783,793
9	2012	-	-	-	5,702,821	8,889,449	14,017,047	10,888,018	16,982,883	26,790,122
10	2013	-	-	-	144,962	225,357	354,722	802,547	1,251,876	1,974,892
11	2014	-	-	-	5,364,618	8,340,341	13,128,573	9,995,222	15,548,224	24,483,551
12	2015	-	-	-	137,282	212,580	333,743	1,112,734	1,732,260	2,729,137
13	2016	-	-	-	5,172,838	8,033,051	12,635,416	9,698,482	15,069,719	23,712,568
14	2017	-	-	-	141,934	220,178	346,079	1,150,548	1,793,886	2,829,080
15	2018	-	-	-	5,775,161	8,989,512	14,161,720	10,759,354	16,756,827	26,407,354
16	2019	-	-	-	161,565	251,530	396,294	1,308,854	2,046,974	3,234,683
17	2020	-	-	-	3,244,207	5,068,190	8,003,159	7,820,180	12,222,845	19,307,167
18	2021	-	-	-	3,238,596	5,050,525	7,966,098	8,430,647	13,150,614	20,745,505
19	2022	-	-	-	2,782,795	4,343,658	6,855,241	2,782,795	4,343,658	6,855,241

POTENTIAL NUCLEAR COST ADDERS

Additional Security Costs

Security costs at nuclear power plants are guided by an NRC-issued design basis threat, which is the largest threat that a plant licensee is required to design against. On April 29, 2003, the NRC revised the design basis threat for nuclear power plants. Public Citizen and Mothers for Peace sued the NRC for not holding public hearings before issuing this revision. On September 17, 2004, the U.S. Court of Appeals for the District of Columbia issued an order requiring the NRC to establish a proceeding to consider revisions to this design basis threat. (CPUC 2005b, p.18; Public Citizen 2004).

SCE has spent $69 million in recent security upgrades required by the NRC's 2003 Design Basis Threat (D.B.T.) update. (SCE 2005) SCE and PG&E have estimated that continued compliance with this design basis threat will increase their annual costs by about $5.65 million and $5 million, respectively. (CPUC 2004a, p.44; PG&E 2004b, 5A-15) These figures may increase if a revised design basis threat is issued.

Unanticipated Capital Expenditures

One source of uncertainty in future capital costs is the inherent difficulty in predicting unexpected events. CEC witness Dr. Joram Hopenfeld pointed out that SCE unreasonably assumed that the costs associated with component aging in the entire plant, excluding the steam generators, would essentially remain at its present level over the unit's licensing period.[1] The assumption is unjustified and unreasonable because it does not reflect the reality of an aging nuclear plant. It does not reflect the historical experience at SONGS.

The CEC states that "SCE's 2006 General Rate Case Application provides an example of seemingly insignificant incremental capital costs that when taken together, are indeed significant. If this Application had been filed just one year earlier, SCE would not have included the $64 million reactor vessel head replacement project in its capital cost estimate for the cost-effectiveness of the SGRP, because it wouldn't have known about the need for the reactor vessel head replacement project. Such is the nature of unexpected costs in aging nuclear plants, and such is the reason why SCE must at least attempt to account for them in its SGRP cost-benefit analysis".

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[1] CEC-1, 2:24-26. Note that SCE's 20 percent O&M / 50 percent Capitals sensitivities analysis does not include costs associated with repairing or replacing aging components (other than steam generators) themselves. "To account for 'unforeseen regulatory' or 'industry issues,' SCE analyzed high O&M and capital sensitivities that will reasonably bound increased costs." ORA-13. Neither of those terms, however, have anything to do with or include the need to replace aging components other than steam generators. RT Vol. 2, 198: 18-23.

SONGS Plant prior to the SGRP

				SONGS using a 10.7 ROE				SONGS using a 11.6 ROE			
1			**Sum of Difference**	Balance as of 12/31/06	Capital Additions 2007	Capital Additions 2008	Capital Additions 2009 first 3 quarters of year	Balance as of 12/31/06	Capital Additions 2007	Capital Additions 2008	Capital Additions 2009 first 3 quarters of year
2				57,998,210	25,528,949	24,800,689	16,467,970	57,998,210	25,528,949	24,800,689	16,467,970
3	Year	NPV	$4,234,328								
4	2006		-								
5	2007		430,675	10,643,523				11,074,198			
6	2008		593,327	10,204,858	4,791,308			10,608,616	4,980,877		
7	2009		737,933	9,766,194	4,585,349	4,772,725		10,143,034	4,762,280	4,956,887	
8	2010		808,394	9,327,529	4,379,391	4,558,351	3,283,210	9,677,452	4,543,684	4,729,358	3,406,380
9	2011		746,210	8,888,864	4,173,432	4,343,976	3,128,804	9,211,871	4,325,087	4,501,828	3,242,499
10	2012		684,026	8,450,200	3,967,474	4,129,601	2,974,397	8,746,289	4,106,491	4,274,299	3,078,618
11	2013		621,841	8,011,535	3,761,515	3,915,226	2,819,991	8,280,707	3,887,895	4,046,770	2,914,737
12	2014		559,657	7,572,870	3,555,556	3,700,851	2,665,585	7,815,125	3,669,298	3,819,241	2,750,857
13	2015		497,473	7,134,206	3,349,598	3,486,476	2,511,179	7,349,543	3,450,702	3,591,712	2,586,976
14	2016		435,289	6,695,541	3,143,639	3,272,102	2,356,773	6,883,961	3,232,105	3,364,182	2,423,095
15	2017		373,105	6,256,876	2,937,681	3,057,727	2,202,367	6,418,379	3,013,509	3,136,653	2,259,214
16	2018		310,921	5,818,212	2,731,722	2,843,352	2,047,960	5,952,797	2,794,912	2,909,124	2,095,333
17	2019		248,737	5,379,547	2,525,764	2,628,977	1,893,554	5,487,216	2,576,316	2,681,595	1,931,453
18	2020		186,552	4,940,882	2,319,805	2,414,602	1,739,148	5,021,634	2,357,719	2,454,065	1,767,572
19	2021		124,368	4,502,218	2,113,847	2,200,227	1,584,742	4,556,052	2,139,123	2,226,536	1,603,691
20	2022		62,184	4,063,553	1,907,888	1,985,853	1,430,336	4,090,470	1,920,526	1,999,007	1,439,810

CCCT Capital and O&M Cost Detail

	Year	Index of Inflations for 2004	O&M Costs Fixed (1)	CCCT annual variable O&M (nominal$/MWh) (1)	O&M Costs Variable 88%	O&M Costs Variable 85.5%	O&M Costs Variable 83%	O&M Costs Dollars Spent Case 88%	O&M Costs Dollars Spent 85.5%	O&M Costs Dollars Spent 83%	Capital Costs Dollars Spent
1	**NPV**							106,167,894	104,773,402	103,401,426	293,695,552
2	**2006**							0	0	0	0
3	**2007**							0	0	0	0
4	**2008**							0	0	0	0
5	**2009**	211	2,386,250		-	-	-	-	-	-	-
6	**2010**	216	9,545,000		-	-	-	-	-	-	-
7	**2011**	221	9,912,000		-	-	-	-	-	-	-
8	**2012**	227	9,075,000	2.97	10,127,437	9,573,593	9,090,957	19,638,575	19,084,731	18,602,095	94,419,132
9	**2013**	233	9,687,600	3.01	10,311,945	10,295,908	10,231,759	20,731,564	20,715,527	20,651,378	91,947,703
10	**2014**	239	10,319,400	3.07	10,468,428	9,879,579	9,388,872	21,852,545	21,263,696	20,772,988	88,517,676
11	**2015**	245	11,109,500	3.13	10,756,406	10,739,729	10,639,670	23,323,972	23,307,296	23,207,236	85,237,422
12	**2016**	255	11,398,500	3.18	10,868,933	10,267,457	9,759,167	24,247,282	23,645,805	23,137,515	82,095,333
13	**2017**	262	11,850,800	3.25	11,168,792	11,151,476	11,047,580	25,468,935	25,451,619	25,347,723	79,081,463
14	**2018**	269	12,194,800	3.33	11,355,005	10,716,286	10,184,020	26,489,883	25,851,164	25,318,898	76,185,863
15	**2019**	277	12,719,400	3.42	11,753,006	11,734,784	11,625,454	27,989,511	27,971,289	27,861,959	73,399,968
16	**2020**	285	13,110,900	3.54	11,458,102	11,128,033	10,675,367	28,667,034	28,336,966	27,884,300	70,715,210
17	**2021**	293	13,528,500	3.65	11,755,803	11,405,754	10,851,510	30,013,637	29,663,588	29,109,345	68,047,032
18	**2022**	301	13,954,800	3.76	5,969,903	5,669,404	5,669,404	25,332,248	25,031,750	25,031,750	32,689,565
19	**2023**										($104,469,718)

1) Source: Sargent & Lundy spreadsheet PVC Model7_ITC2.xls, Table 4.

Gas Cost Summary

The Cost of fuel for CCCT unit at the different Capacity Factors and fuel forecasts

		Fuel Costs by Month Combine Cycle Plant			Fuel Costs by Month Combine Cycle Plant			Fuel Costs by Month Combine Cycle Plant		
		CCCT 88% Low Case ($)	CCCT 88% Expected Case ($)	CCCT 88% High Case ($)	CCCT 85.5% Low Case ($)	CCCT 85.5% Expected Case ($)	CCCT 85.5% High Case ($)	CCCT 83% Low Case ($)	CCCT 83% Expected Case ($)	CCCT 83% High Case ($)
1	NPV to 2006 Dollars	478,679,920	723,467,284	1,117,354,298	464,459,232	701,994,489	1,084,212,147	449,926,433	679,994,070	1,050,195,591
2										
3	2006	-	-	-	-	-	-	-	-	-
4	2007	-	-	-	-	-	-	-	-	-
5	2008	-	-	-	-	-	-	-	-	-
6	2009	-	-	-	-	-	-	-	-	-
7	2010	-	-	-	-	-	-	-	-	-
8	2011	-	-	-	-	-	-	-	-	-
9	2012	112,328,666	169,768,317	262,194,381	106,111,161	160,364,185	247,662,650	100,477,455	151,822,240	234,441,066
10	2013	110,607,755	167,139,684	258,105,135	110,448,088	166,899,622	257,735,707	109,731,682	165,814,282	256,056,717
11	2014	106,116,011	159,830,082	246,261,320	100,222,004	150,960,352	232,603,359	95,150,243	143,311,312	220,807,223
12	2015	105,603,531	158,782,922	244,353,806	105,451,544	158,555,636	244,005,358	104,387,860	156,947,725	241,521,732
13	2016	104,231,510	156,722,435	241,185,511	98,536,636	148,167,348	228,028,060	93,569,834	140,689,523	216,509,750
14	2017	108,866,023	164,104,495	252,988,645	108,709,383	163,869,612	252,627,861	107,612,538	162,207,672	250,056,628
15	2018	113,510,103	171,524,661	264,875,807	107,205,553	162,005,760	250,184,699	101,780,203	153,797,287	237,497,907
16	2019	122,570,046	186,004,399	288,076,529	122,393,777	185,738,163	287,665,529	121,158,256	183,854,488	284,738,909
17	2020	119,240,624	181,149,975	280,768,228	115,739,075	175,824,443	272,507,727	110,810,176	168,316,862	260,850,793
18	2021	124,676,530	189,805,679	294,604,904	121,173,240	184,490,460	286,374,112	115,562,089	175,971,271	273,175,605
19	2022	64,810,135	98,951,955	153,889,513	61,806,762	94,387,719	146,813,693	61,806,762	94,387,719	146,813,693