

ATTACHMENT 9

WORKPAPERS AND CALCULATIONS FOR ADOPTED SAVINGS GOALS

Statewide Total Electricity and Natural Gas Program Savings

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Total Annual Electricity Savings (GWH/yr) (1)	1,838	1,838	2,032	2,275	2,505	2,538	2,465	2,513	2,547	2,631
Total Cumulative Savings (GWH/yr)	1,838	3,677	5,709	7,984	10,489	13,027	15,492	18,005	20,552	23,183
Total Peak Savings (MW) (2)	379	757	1,199	1,677	2,205	2,740	3,259	3,789	4,328	4,885
Total Annual Natural Gas Savings (MMTh/yr)	21	21	30	37	44	52	54	57	61	67
Total Cumulative Natural Gas Savings (MMTh/yr)	21	42	72	110	154	206	260	316	377	444

Notes:

(1) Total annual energy savings = all savings from energy efficiency programs funded by public goods charge and Procurement funding. This total includes savings from baseline Energy efficiency program funding of \$100 MM/yr accounted for in the CEC sales forecast. For incremental program savings above the levels included in the CEC forecast, see attached workpapers.

(2) Average peak MW estimated by multiplying GWh from utility by the ratio they used in 2004/5 filings ranges from .19 to .21.

This is an estimate of average peak savings not coincident peak = GWh savings in peak period/560 hours in period.

2013 goal as a % Xenergy estimate of maximum achievable = **90.9%**

Staff 2013 goal as a % of Xenergy estimate of economic potential = **67.9%**

Econ potential for 3 IOUs (GWH/yr) = 34,133

Max achievable potential for 3 IOUs (GWH/yr) = 25,490

ATTACHMENT 9

Page 3

PG&E Total Electricity and Natural Gas Program Savings

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	
Total Annual Electricity Savings (GWH/yr) (1)	744	744	829	944	1,053	1,067	1,015	1,086	1,173	1,277	
Total Cumulative Savings (GWH/yr)	744	1,487	2,317	3,260	4,313	5,381	6,396	7,483	8,656	9,933	% of max achievable
Maximum Achievable per KemaXenergy	435	1,392	2,698	4,357	6,139	7,874	9,318	10,309	10,929	11,320	87.7%
Total Peak Savings (MW) (2)	161	323	503	708	936	1168	1388	1624	1878	2156	94.4%
Total Annual Natural Gas Savings (MMTh/yr)	9.8	9.8	12.6	14.9	17.4	20.3	21.1	22.0	23.0	25.1	
Total Cumulative Natural Gas Savings (MMTh/yr)	9.8	19.6	32.1	47.0	64.4	84.8	105.9	127.8	150.9	176.0	

Notes:

(1) Total annual energy savings = all savings from energy efficiency programs funded by public goods charge and Procurement funding. This total includes savings from baseline Energy efficiency program funding of \$100 MM/yr accounted for in the CEC sales forecast. For incremental program savings above the levels included in the CEC forecast see attached workpapers.

(2) GWh Savings converted to MW by multiplying by .217, which is ratio of GWh to peak savings for 2004/5 applications
This is an estimate of average peak savings not coincident peak = GWh savings in peak period/ # of hours in period = 560 hours

(3) 2004/2005 annual goals from Attachment 7 (divided by 2).

**ATTACHMENT 9
Page 5**

SCE Total Electricity Program Savings

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	
Total Annual Electricity Savings GWH/yr	826	826	922	1,046	1,167	1,189	1,176	1,164	1,151	1,139	
Total Cumulative Savings GWH/yr	826	1,653	2,575	3,621	4,788	5,977	7,153	8,317	9,468	10,608	goal as % of max achievable
KemaXenergy Max Achievable	468	1,494	2,878	4,612	6,480	8,305	9,830	10,873	11,526	11,939	88.8%
Total Peak Savings (MW)	167	334	541	760	1,006	1,255	1,502	1,747	1,988	2,228	99.1%

Notes:

(1) Total savings = all savings from energy efficiency programs funded by public goods charge and Procurement funding. This total includes savings from Energy efficiency programs already in the CEC forecast. For incremental savings above the levels included in the CEC forecast, see attached workpapers.

(2) GWh Savings converted to MW by multiplying by .21, average of utility GWh to peak savings for 2004/5 applications. This is an estimate of average peak savings not coincident peak = GWh savings in peak period/ # of hours in period. Peak period is 560 hours per summer - 12 to 7 per weekday and 20 days/month * four summer months.

(3) 2004/05 annual goals from Attachment 7 (divided by 2).

ATTACHMENT 9

Page 6

SoCalGas Natural Gas Program Savings Goals

MM Therms/Year

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Total Annual Natural Gas Savings (MMTh/yr)	9.6	9.6	14.7	19.3	23.3	27.2	28.3	29.9	32.3	35.8
Total Cumulative Natural Gas Savings (MMTh/yr)	9.6	19.3	34.0	53.3	76.5	103.7	132.0	161.9	194.2	230.1

Notes:

Total savings = all savings from energy efficiency programs funded by public goods charge and Procurement funding. This total includes natural gas savings from Energy efficiency programs already included in the CEC forecast.

These natural gas savings goals do not include any incidental gas savings caused by SCE's electricity programs. These gas savings are reported by SCE for resource planning purposes.

2004/05 annual goals from Attachment 7 (divided by 2).

**ATTACHMENT 9
Page 7**

SDG&E Electricity Program Savings—Total and Incremental

		2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	
	Funding-\$ millions	55.00	55.00	60.50	64.74	67.97	71.03	72.45	73.18	73.91	75.4	
	Effectiveness kWh/\$	4.88	4.88	4.64	4.40	4.18	3.97	3.78	3.59	3.00	2.85	
Total Programs	Annual Savings-GWh	268.4	268.4	280.5	285.1	284.4	282.3	273.6	262.5	221.7	214.9	
	Cumulative Savings	268.4	536.8	817.3	1102.4	1386.8	1669.1	1942.7	2205.2	2426.9	2641.8	
Base program	Annual Savings-GWh	141.7	141.7	141.7	141.7	141.7	141.7	141.7	141.7	141.7	141.7	
Inc Program	Annual Savings-GWh	126.7	126.7	138.8	143.4	142.7	140.6	131.9	120.8	80.0	73.2	
Inc Program	Cumulative Savings	126.7	253.4	392.2	535.6	678.3	818.9	950.8	1071.6	1151.6	1224.8	
Incremental need-2004 to 2013												incremental need 2013 to 2004 gwh
												3419.0
												Fraction of need met by total program savings
												54.6%total/ need
												4836.0 total need w/o ee programs
												Fraction of need met by incremental savings
												35.8% incre/need
	yr to yr funding change	48.0%	0.0%	10.0%	7.0%	5.0%	4.5%	2.0%	1.0%	1.0%	2.0%	

Inc Program = total program savings less baseline savings (baseline impacts are already in the CEC forecast)

2006 star value for Effectiveness in kWh/\$ spent is the average effectiveness reported from 1998 to 2002 in the annual reports.

ATTACHMENT 9

Page 8

SDG&E Total Electricity and Natural Gas Program Savings Goals

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	
Total Annual Electricity Savings GWH/yr	268.4	268.4	280.5	285.1	284.4	282.3	273.6	262.5	221.7	214.9	
Total Cumulative Savings GWH/yr	268.4	536.8	817.3	1,102.4	1,386.8	1,669.1	1,942.7	2,205.2	2,426.9	2,641.8	goal as % of max achievable
KemaXenergy-Max Achievable GWH/yr	95	306	591	946	1,306	1,629	1,870	2,042	2,156	2,231	118.4%
Total Peak Savings (MW)	50.4	100.7	155.3	209.5	263.5	317.1	369.1	419.0	461.1	501.9	117.8%
Total Annual Natural Gas Savings (MMTh/yr)	1.8	1.8	2.7	3.1	3.7	4.1	4.5	4.9	5.3	5.7	
Total Cumulative Natural Gas Savings (MMTh/yr)	1.8	3.6	6.3	9.5	13.1	17.3	21.8	26.7	32.0	37.6	

Notes:

(1) Total savings = all savings from energy efficiency programs funded by public goods charge and Procurement funding. This total includes savings from Energy efficiency programs already in the CEC forecast. For incremental savings above the levels included in the CEC forecast, see attached workpapers.

(2) MW savings derived by multiplying GWh Savings by .19, average value SDG&E GWh to peak savings for 2004/5 applications. This is an estimate of average peak savings during all the peak hours; = GWh savings in peak period/ # of hours in period.

(3) 2004/05 annual goals are from Attachment 7 (divided by 2).

ATTACHMENT 9

**Statewide Summary of Natural Gas Savings Goals
for PG&E, SoCalGas and SDG&E Service Territories**

	Annual Ngas Savings	Total Funding
Year	MM therm/yr	\$ millions
2004	21.2	58.6
2005	21.2	58.6
2006	30.0	78.3
2007	37.3	98.5
2008	44.4	118.2
2009	51.6	139.1
2010	53.9	146.6
2011	56.8	156.1
2012	60.6	168.3
2013	66.6	186.6
Total	443.7	1209.0

IOU cum natural gas savings in 2013			
SCG	SDG&E	PG&E	total
230	37.7	175.95	444

Util as a % of
statewide total

51.85%	8.49%	39.66%
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max achievable 1057

2013 Goal/ Max
Achievable % **41.97%**

For methodology used for savings projections: CEC Staff Report
Proposed Natural Gas Savings Goals for Investor Owned Utilities

Mar-04

ATTACHMENT 9
Page 10

Individual IOU Funding Levels and Savings Goals

Year	SoCalGas		PG&E		SDG&E	
	Annual Funding	Annual Nat Gas Savings	Annual Funding	Annual Nat Gas Savings	Annual Funding	Annual Nat Gas Savings
	\$ millions/yr	M Th/yr	\$ millions/yr	M Th/Yr	\$ millions/yr	M Th/yr
2004	27.5	9.6	25.2	9.8	5.9	1.8
2005	27.5	9.6	25.2	9.8	5.9	1.8
2006	38.5	14.7	32.8	12.6	7.1	2.7
2007	50.8	19.3	39.3	14.9	8.4	3.1
2008	62.0	23.3	46.4	17.4	9.9	3.7
2009	73.2	27.2	54.7	20.3	11.2	4.1
2010	76.8	28.3	57.4	21.1	12.4	4.5
2011	82.2	29.9	60.3	22.0	13.6	4.9
2012	89.6	32.3	63.9	23.0	14.8	5.3
2013	100.3	35.8	70.3	25.1	16.0	5.7
Total	628.4	230.1	475.4	175.9	105.1	37.7

Derivation of Natural Gas Savings Goals for SoCalGas

	SoCalGas Goals		Cumulative Savings	Program Effectiveness	Source						
	Funding \$ million	Annual Savings				MM therms	therms/ \$ million				
	\$ million	MM therms	MM therms								
2004	\$ 27.5	9.6	9.6	350.0	taken from goals filing						
2005	\$ 27.5	9.6	19.3	350.0	taken from goals filing						
2006	\$ 38.5	14.7	34.0	383.0	Five-year average degraded at 1%/yr from 2003						
2007	\$ 50.8	19.3	53.3	379.2	effectiveness drops 1%/year from 2007 onward						
2008	\$ 62.0	23.3	76.5	375.4							
2009	\$ 73.2	27.2	103.7	371.6							
2010	\$ 76.8	28.3	132.0	367.9							
2011	\$ 82.2	29.9	161.9	364.2							
2012	\$ 89.6	32.3	194.2	360.6							
2013	\$ 100.3	35.8	230.1	357.0							
10 Year Totals-2004-2013	\$ 628.4	230.05									
3-yr goal-2004-06 cumulative	\$ 93.5	34.00									
5-year goal 2004-2009 cumulative	\$ 279.5	103.73									
10-year goal-2004-2013 cumulative	\$ 628.4	230.05	Goal as % of Xen est								
Compared to											
Xenergy Estimate of Econ Potential for SoCalGas		457.08	50.33%								
Xenergy Estimate of Max Achievable Potential		320.88	71.69%								
	2004 is base	2005	2006	2007	2008	2009	2010	2011	2012	2013	
Projected funding increases relative to 2003 base	0	0.0%	40.0%	32.0%	22.0%	18.0%	5.0%	7.0%	9.0%	12.0%	
Percentage funding increase 2004 vs 2013			264.9%								

Notes:

SoCalGas' cumulative goal (230 MW) is approximately 52% of total savings, or proportional to SoCalGas' share of natural gas sales, which are estimated at (less gas used as a feedstock) roughly 52% of 2003 statewide sales. (Source: CEC 2002 Natural Gas Forecast) The analysis uses a 1% degradation, year over year, in the assumed effectiveness of programs post 2006.

Derivation of Natural Gas Savings Goals for SDG&E

	SDG&E Funding \$ million \$ million	Annual Savings MM therms	Cumulative Savings MM therms	Effectiveness M therms/ \$ million
2004	\$ 5.9	1.8	1.8	312
2005	\$ 5.9	1.8	3.6	312.0
2006	\$ 7.1	2.7	6.3	379.3
2007	\$ 8.4	3.1	9.5	375.5
2008	\$ 9.9	3.7	13.1	371.8
2009	\$ 11.2	4.1	17.3	368.0
2010	\$ 12.4	4.5	21.8	364.4
2011	\$ 13.6	4.9	26.7	360.7
2012	\$ 14.8	5.3	32.0	357.1
2013	\$ 16.0	5.7	37.6	353.5
10-Year Totals - 2004-2013	\$ 105.1	\$ 37.7		
3-yr goal-2004-06 cumulative	\$ 18.9	\$ 6.4		
5-year goal 2004-2009 cumulative	\$ 48.3	\$ 17.3		
10-year goal-2004-2013 cumulative	\$ 105.1	\$ 37.7		
Xenergy Estimate of Econ Potential	135.32	27.84%		
Xenergy Estimate of Max Achievable	89.845	41.92%		

note 2003 spending was \$3.89 million

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Projected funding increases Relative to 2003	0.0%	20.0%	17.5%	18.0%	17.9%	15.0%	10.0%	10.0%	9.0%	8.8%
		17.5%	18.0%	14.0%	10.0%	10.0%	9.0%	8.0%		
Percentage funding increase 2004 vs 2013	171.3%									

Notes:

This analysis utilizes a 1% Degradation Factor when calculating the effectiveness of program savings beginning in 2006 with statewide value of 375 therms/ million.

Derivation of Natural Gas Savings Goals for PG&E

	PG&E goals Funding \$ million \$ million	Annual Savings MM therms	Cumulative Savings MM therms	Projected Effectiveness Mtherms saved/ \$ million program spent								
2004	\$ 25.2	9.8	9.8	387								
2005	\$ 25.2	9.8	20	387.0								
2006	\$ 32.8	12.6	32	383.1								
2007	\$ 39.3	14.9	47	379.3								
2008	\$ 46.4	17.4	64	375.5								
2009	\$ 54.7	20.3	85	371.8								
2010	\$ 57.4	21.1	106	368.0								
2011	\$ 60.3	22.0	128	364.4								
2012	\$ 63.9	23.0	151	360.7								
2013	\$ 70.3	25.1	176	357.1								
Xenergy Estimate of Econ Potential	628.84	27.98%										
Xenergy Estimate of Max Achievable	417.515	42.14%										
10-Year Totals – 2004- 2013	\$ 475.4	175.95										
3-yr goal - 2004-06 cumulative	\$ 83.2	32.06										
5-year goal - 2004-2009 cumulative	\$ 223.5	84.71										
10-year goal - 2004-2013 cumulative	\$ 475.4	175.95										
Projected funding increases	2004 0.0%	2005 0.0%	2006 30.0%	2007 20.0%	2008 18.0%	2009 17.9%	2010 5.0%	2011 5.0%	2012 6.0%	2013 10.0%	2014 8.8%	
Annual funding increase - 2004 vs 2013			178.9%									

Notes:

PGE share of Natural gas sales in 2003 = 40% and PGE share of 2013 statewide goals is 39.6% (Source: CEC 2002 Natural Gas Forecast)
The analysis uses a 1% degradation, year over year, in the assumed effectiveness of programs post 2006.