SDG&E & SoCalGas 2009 BCAP Application
A.08-02-001

Workpapers of Herb Emmrich – SoCalGas Demand Forecast
February 2008

Workpapers of Herb Emmrich
Demand Forecasting

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2009 BCAP

SOCALGAS AVERAGE 2009-2011 DIRECT SERVED AND CUMULATIVE LOADS
FEBRUARY 2008

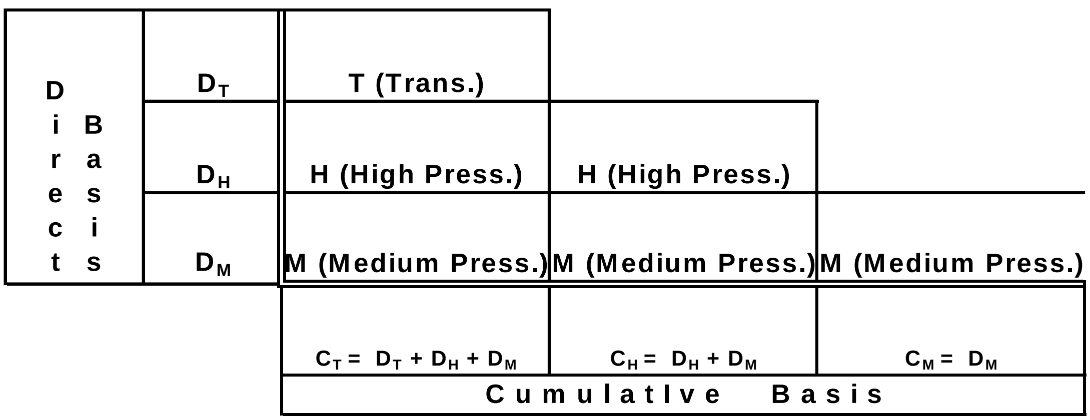
Marginal Demand Measures (MDM)

Marginal Demand Measures (MDMs) are used for rate design and cost allocation calculations. Figure 1, below, shows the relationships among the various MDMs that are provided in the accompanying tables.

Figure 1

LENART Diagram Depicting the Relationships

Among "Direct" and "Cumulative" MDMs



For example, the MDM data in the tables below for Noncore C&I (G-30), Avearge Year throughput gas demand have *direct* values for various segments of pressure service:

D_T = 457,697 MTh, D_H = 605,699 MTh, and D_M = 376,766 MTh.

The corresponding *cumulative* totals are:

C_T = 1,440,163 MTh, C_H = 982,465 MTh, and C_M = 376,766 MTh,

using the formulas indicated in the Figure 1, above.

2009 BCAP: SoCalGas Consolidated Gas Demand Forecast Summary (Mtherms)

Unaccounted Fcst (% * Demand)	0.892%
MDM #Yrs Av (2- or 3-yr)	3

Btu Factor: **1.0302**

	Co-Use-Fuel	UAF
	0.476%	**0.880%**
	0.483%	**0.892%**

Forecast Summary

MDM

		Nonresidential Core				Total
	Residential	G-10	G-AC	G-GE	G-NGV	Core
<< TCAP Period >> January 2009 - December 2011						
DIRECT (%'s Load or Cust/Mtrs Sum to 100%)						
Transmission %-Load:	0.01%	0.86%	0.00%	4.27%	31.32%	
Average Year Throughput (MTh)	132	8,315	0	772	36,715	**45,934**
Cold Year Throughput (1-in-35) (MTh)	144	8,720	0	772	36,715	**46,351**
Cold Year Peak Month (December) (MTh)	22	975	0	36	3,073	**4,106**
Peak Day (1-in-35 Core; 1-in-10 Noncore) (MTh)	1	49	-	1	99	**151**
%-Cust/Mtrs:	0.0005%	0.0413%	0.00%	2.89%	3.69%	
Number of Customers	26	89	-	24	10	**149**
High Pressure %-Load:	0.40%	4.96%	86.51%	35.83%	60.14%	
Average Year Throughput (MTh)	10,055	48,152	1,047	6,478	70,504	**136,236**
Cold Year Throughput (1-in-35) (MTh)	11,025	50,497	1,047	6,478	70,504	**139,550**
Cold Year Peak Month (December) (MTh)	1,677	5,647	63	303	5,901	**13,591**
Peak Day (1-in-35 Core; 1-in-10 Noncore) (MTh)	104	286	2	10	190	**592**
%-Cust/Mtrs:	0.1350%	1.2355%	68.42%	48.19%	48.36%	
Number of Customers	7,365	2,660	11	407	132	**10,575**
Medium Pressure %-Load:	99.59%	94.18%	13.49%	59.90%	8.54%	
Average Year Throughput (MTh)	2,473,802	914,052	163	10,830	10,012	**3,408,860**
Cold Year Throughput (1-in-35) (MTh)	2,712,286	958,554	163	10,830	10,012	**3,691,846**
Cold Year Peak Month (December) (MTh)	412,568	107,188	10	506	838	**521,110**
Peak Day (1-in-35 Core; 1-in-10 Noncore) (MTh)	25,566	5,434	0	16	27	**31,044**
%-Cust/Mtrs:	99.8645%	98.7232%	31.58%	48.92%	47.95%	
Number of Customers	5,447,959	212,537	5	413	131	**5,661,045**

2009 BCAP: SoCalGas Consolidated Gas Demand Forecast Summary (Mtherms)

3	Unaccounted	Btu Factor: 1.0302
4	Fcst (% * Demand)	
5	0.892%	
6	MDM #Yrs Av (2- or 3-yr)	
7	3	

	Co-Use-Fuel	UAF
5	0.476%	0.880%
6	0.483%	0.892%

Row	Forecast Summary	MDM	Residential	Nonresidential Core G-10	G-AC	G-GE	G-NGV	Total Core
11	<< TCAP Period >> January 2009 - December 2011							
34	**CUMULATIVE (Calc'd from DIRECT %'s)**							
35	Transmission	%-Load:	100.00%	100.00%	100.00%	100.00%	100.00%	
36	Average Year Throughput (MTh)		2,483,989	970,519	1,210	18,080	117,231	**3,591,030**
37	Cold Year Throughput (1-in-35) (MTh)		2,723,455	1,017,771	1,210	18,080	117,231	**3,877,747**
38	Cold Year Peak Month (December) (MTh)		414,267	113,810	73	845	9,813	**538,807**
39	Peak Day (1-in-35 Core; 1-in-10 Noncore) (MTh)		25,671	5,770	2	27	317	**31,787**
40		%-Cust/Mtrs:	100.00%	100.00%	100.00%	100.00%	100.00%	
41	Number of Customers		5,455,350	215,286	16	845	273	**5,671,770**
42	High Pressure	%-Load:	99.99%	99.14%	100.00%	95.73%	68.68%	
43	Average Year Throughput (MTh)		2,483,858	962,204	1,210	17,308	80,516	**3,545,096**
44	Cold Year Throughput (1-in-35) (MTh)		2,723,311	1,009,051	1,210	17,308	80,516	**3,831,396**
45	Cold Year Peak Month (December) (MTh)		414,245	112,835	73	809	6,739	**534,701**
46	Peak Day (1-in-35 Core; 1-in-10 Noncore) (MTh)		25,670	5,721	2	26	217	**31,636**
47		%-Cust/Mtrs:	100.00%	1.28%	68.42%	51.08%	52.05%	
48	Number of Customers		5,455,324	215,197	16	821	263	**5,671,621**
49	Medium Pressure	%-Load:	0.01%	0.86%	0.00%	4.27%	31.32%	
50	Average Year Throughput (MTh)		2,473,802	914,052	163	10,830	10,012	**3,408,860**
51	Cold Year Throughput (1-in-35) (MTh)		2,712,286	958,554	163	10,830	10,012	**3,691,846**
52	Cold Year Peak Month (December) (MTh)		412,568	107,188	10	506	838	**521,110**
53	Peak Day (1-in-35 Core; 1-in-10 Noncore) (MTh)		25,566	5,434	0	16	27	**31,044**
54		%-Cust/Mtrs:	0.00%	0.04%	0.00%	2.89%	3.69%	
55	Number of Customers		5,447,959	212,537	5	413	131	**5,661,045**

	A	B	C	D	E	O	P	R	S	U	V	W
1												
2												
3		**Unaccounted**										
4		**Fcst (% * Demand)**										
5		**0.892%**										
6		**MDM #Yrs Av (2- or 3-yr)**										
7		**3**										
8												
9	**Forecast Summary**			**MDM**		**Resp. % of**	**Noncore - C&I**	**Resp. % of Total Direct**	**Resp. % of Total Direct**		**Noncore - Electric Generatiion**	
10						**Total Dir.**	**G-30**	**EG (<3MMThms)**	**EG (>=3MMThms)**	**EG (<3MMThms)**	**EG (>=3MMThms)**	**EG (Total)**
11	<< TCAP Period >> January 2009 - December 2011											
12	**DIRECT (%'s Load or Cust/Mtrs Sum to 100%)**											
13	Transmission		%-Load:									
14		Average Year Throughput (MTh)				31.78%	457,697	20.71%	79.94%	15,782	2,198,967	2,214,749
15		Cold Year Throughput (1-in-35) (MTh)				31.70%	457,976	20.71%	79.94%	15,782	2,198,967	2,214,749
16		Cold Year Peak Month (December) (MTh)				31.56%	40,531	24.07%	77.39%	1,426	156,906	158,332
17		Peak Day (1-in-35 Core; 1-in-10 Noncore) (MTh)				30.36%	1,317	25.33%	78.27%	53	6,205	6,258
18			%-Cust/Mtrs:									
19			Number of Customers			4.96%	35	10.67%	51.06%	16	35	51
20	High Pressure		%-Load:									
21		Average Year Throughput (MTh)				42.06%	605,699	43.97%	19.34%	33,507	531,886	565,393
22		Cold Year Throughput (1-in-35) (MTh)				42.04%	607,389	43.97%	19.34%	33,507	531,886	565,393
23		Cold Year Peak Month (December) (MTh)				41.79%	53,676	39.98%	21.83%	2,369	44,266	46,634
24		Peak Day (1-in-35 Core; 1-in-10 Noncore) (MTh)				42.49%	1,842	41.89%	21.09%	88	1,672	1,760
25			%-Cust/Mtrs:									
26			Number of Customers			33.88%	239	28.67%	43.18%	43	30	73
27	Medium Pressure		%-Load:									
28		Average Year Throughput (MTh)				26.16%	376,766	35.32%	0.72%	26,913	19,909	46,822
29		Cold Year Throughput (1-in-35) (MTh)				26.26%	379,365	35.32%	0.72%	26,913	19,909	46,822
30		Cold Year Peak Month (December) (MTh)				26.65%	34,228	35.95%	0.78%	2,130	1,576	3,706
31		Peak Day (1-in-35 Core; 1-in-10 Noncore) (MTh)				27.15%	1,177	32.79%	0.64%	69	51	120
32			%-Cust/Mtrs:									
33		Number of Customers				61.16%	431	60.67%	5.76%	91	4	95

	A / B	C / D / E	O	P	R	S	U	V	W
1									
2									
3	**Unaccounted**								
4	**Fcst (% * Demand)**								
5	**0.892%**								
6	**MDM #Yrs Av (2- or 3-yr)**								
7	**3**								
8									
9	**Forecast Summary**	**MDM**	**Resp. % of**	**Noncore - C&I**	**Resp. % of Total Direct**	**Resp. % of Total Direct**	**Noncore - Electric Generatiion**		
10			**Total Dir.**	**G-30**	**EG (<3MMThms)**	**EG (>=3MMThms)**	**EG (<3MMThms)**	**EG (>=3MMThms)**	**EG (Total)**
11	<< TCAP Period >> January 2009 - December 2011								
34	**CUMULATIVE (Calc'd from DIRECT %'s)**								
35	Transmission %-Load:								
36	Average Year Throughput (MTh)		100.00%	1,440,163	100.00%	100.00%	76,202	2,750,762	2,826,964
37	Cold Year Throughput (1-in-35) (MTh)		100.00%	1,444,730	100.00%	100.00%	76,202	2,750,762	2,826,964
38	Cold Year Peak Month (December) (MTh)		100.00%	128,436	100.00%	100.00%	5,926	202,748	208,673
39	Peak Day (1-in-35 Core; 1-in-10 Noncore) (MTh)		100.00%	4,336	100.00%	100.00%	210	7,928	8,137
40	%-Cust/Mtrs:								
41	Number of Customers		100.00%	705	100.00%	100.00%	150	69	219
42	High Pressure %-Load:								
43	Average Year Throughput (MTh)		68.22%	982,465	79.29%	99.28%	60,420	551,795	612,215
44	Cold Year Throughput (1-in-35) (MTh)		68.30%	986,754	79.29%	99.28%	60,420	551,795	612,215
45	Cold Year Peak Month (December) (MTh)		68.44%	87,904	75.93%	99.22%	4,499	45,842	50,341
46	Peak Day (1-in-35 Core; 1-in-10 Noncore) (MTh)		69.64%	3,020	74.67%	99.36%	157	1,723	1,880
47	%-Cust/Mtrs:								
48	Number of Customers		95.04%	670	89.33%	94.24%	134	34	168
49	Medium Pressure %-Load:								
50	Average Year Throughput (MTh)		26.16%	376,766	35.32%	79.94%	26,913	19,909	46,822
51	Cold Year Throughput (1-in-35) (MTh)		26.26%	379,365	35.32%	79.94%	26,913	19,909	46,822
52	Cold Year Peak Month (December) (MTh)		26.65%	34,228	35.95%	77.39%	2,130	1,576	3,706
53	Peak Day (1-in-35 Core; 1-in-10 Noncore) (MTh)		27.15%	1,177	32.79%	78.27%	69	51	120
54	%-Cust/Mtrs:								
55	Number of Customers		61.16%	431	60.67%	51.06%	91	4	95

	A	B	C	D	E	X	Y	Z	AA	AB	AC
1											
2											
3		**Unaccounted**									
4		**Fcst (% * Demand)**									
5		**0.892%**									
6		**MDM #Yrs Av (2- or 3-yr)**									
7		**3**									
8											
9	**Forecast Summary**			**MDM**				**Resp. % of**	**Noncore- EOR**		**Total**
10								**Total Dir.**	**EOR**		**Retail Noncore**
11	<< TCAP Period >> January 2009 - December 2011										
12	**DIRECT (%'s Load or Cust/Mtrs Sum to 100%)**										
13	Transmission	%-Load:									
14		Average Year Throughput (MTh)						48.22%	75,307		**2,747,754**
15		Cold Year Throughput (1-in-35) (MTh)						48.22%	75,307		**2,748,032**
16		Cold Year Peak Month (December) (MTh)						44.55%	5,520		**204,384**
17		Peak Day (1-in-35 Core; 1-in-10 Noncore) (MTh)						44.50%	178		**7,752**
18		%-Cust/Mtrs:									
19		Number of Customers						56.33%	18		**105**
20	High Pressure	%-Load:									
21		Average Year Throughput (MTh)						51.42%	80,305		**1,251,397**
22		Cold Year Throughput (1-in-35) (MTh)						51.42%	80,305		**1,253,087**
23		Cold Year Peak Month (December) (MTh)						55.05%	6,821		**107,132**
24		Peak Day (1-in-35 Core; 1-in-10 Noncore) (MTh)						55.00%	220		**3,822**
25		%-Cust/Mtrs:									
26		Number of Customers						40.55%	13		**325**
27	Medium Pressure	%-Load:									
28		Average Year Throughput (MTh)						0.37%	575		**424,163**
29		Cold Year Throughput (1-in-35) (MTh)						0.37%	575		**426,761**
30		Cold Year Peak Month (December) (MTh)						0.40%	49		**37,983**
31		Peak Day (1-in-35 Core; 1-in-10 Noncore) (MTh)						0.50%	2		**1,299**
32		%-Cust/Mtrs:									
33		Number of Customers						3.12%	1		**527**

Unaccounted
Fcst (% * Demand)
0.892%
MDM #Yrs Av (2- or 3-yr)
3

Forecast Summary	MDM	Resp. % of Total Dir.	Noncore- EOR EOR	Total Retail Noncore
<< TCAP Period >> January 2009 - December 2011				
CUMULATIVE (Calc'd from DIRECT %'s)				
Transmission	%-Load:			
	Average Year Throughput (MTh)	100.00%	156,187	**4,423,313**
	Cold Year Throughput (1-in-35) (MTh)	100.00%	156,187	**4,427,880**
	Cold Year Peak Month (December) (MTh)	100.00%	12,390	**349,499**
	Peak Day (1-in-35 Core; 1-in-10 Noncore) (MTh)	100.00%	400	**12,873**
	%-Cust/Mtrs:			
	Number of Customers	100.00%	32	**957**
High Pressure	%-Load:			
	Average Year Throughput (MTh)	51.78%	80,880	**1,675,560**
	Cold Year Throughput (1-in-35) (MTh)	51.78%	80,880	**1,679,848**
	Cold Year Peak Month (December) (MTh)	55.45%	6,870	**145,115**
	Peak Day (1-in-35 Core; 1-in-10 Noncore) (MTh)	55.50%	222	**5,121**
	%-Cust/Mtrs:			
	Number of Customers	43.67%	14	**852**
Medium Pressure	%-Load:			
	Average Year Throughput (MTh)	0.37%	575	**424,163**
	Cold Year Throughput (1-in-35) (MTh)	0.37%	575	**426,761**
	Cold Year Peak Month (December) (MTh)	0.40%	49	**37,983**
	Peak Day (1-in-35 Core; 1-in-10 Noncore) (MTh)	0.50%	2	**1,299**
	%-Cust/Mtrs:			
	Number of Customers	3.12%	1	**527**

	A	B	C	D	E	AD	AE	AF	AG	AH	AI
1											
2											
3		**Unaccounted**									
4		**Fcst (% * Demand)**									
5		**0.892%**									
6		**MDM #Yrs Av (2- or 3-yr)**									
7		**3**									
8											
9	**Forecast Summary**			**MDM**							
10							Wholesale Noncore				**Total**
11	<< TCAP Period >> January 2009 - December 2011						Long Beach	SDG&E	Southwest Gas	Vernon	**Wholesale**
12	**DIRECT (%'s Load or Cust/Mtrs Sum to 100%)**										
13	Transmission	%-Load:					100.00%	100.00%	100.00%	100.00%	
14		Average Year Throughput (MTh)					117,093	1,230,285	81,737	116,135	**1,545,250**
15		Cold Year Throughput (1-in-35) (MTh)					123,645	1,283,768	83,795	116,135	**1,607,343**
16		Cold Year Peak Month (December) (MTh)					13,601	141,331	9,733	9,694	**174,359**
17		Peak Day (1-in-35 Core; 1-in-10 Noncore) (MTh)					649	6,537	655	338	**8,179**
18		%-Cust/Mtrs:					100.00%	100.00%	100.00%	100.00%	
19		Number of Customers					1	1	1	1	**4**
20	High Pressure	%-Load:					0.00%	0.00%	0.00%	0.00%	
21		Average Year Throughput (MTh)					0	0	0	0	**0**
22		Cold Year Throughput (1-in-35) (MTh)					0	0	0	0	**0**
23		Cold Year Peak Month (December) (MTh)					0	0	0	0	**0**
24		Peak Day (1-in-35 Core; 1-in-10 Noncore) (MTh)					-	-	-	-	**0**
25		%-Cust/Mtrs:					0.00%	0.00%	0.00%	0.00%	
26		Number of Customers					-	-	-	-	**0**
27	Medium Pressure	%-Load:					0.00%	0.00%	0.00%	0.00%	
28		Average Year Throughput (MTh)					0	0	0	0	**0**
29		Cold Year Throughput (1-in-35) (MTh)					0	0	0	0	**0**
30		Cold Year Peak Month (December) (MTh)					0	0	0	0	**0**
31		Peak Day (1-in-35 Core; 1-in-10 Noncore) (MTh)					-	-	-	-	**0**
32		%-Cust/Mtrs:					0.00%	0.00%	0.00%	0.00%	
33		Number of Customers					-	-	-	-	**0**

	A	B	C	D	E	AD	AE	AF	AG	AH	AI
1											
2											
3		**Unaccounted**									
4		**Fcst (% * Demand)**									
5		**0.892%**									
6		**MDM #Yrs Av (2- or 3-yr)**									
7		**3**									
8											
9	**Forecast Summary**			**MDM**							
10							Wholesale Noncore				**Total**
11	<< TCAP Period >> January 2009 - December 2011						Long Beach	SDG&E	Southwest Gas	Vernon	**Wholesale**
34	**CUMULATIVE (Calc'd from DIRECT %'s)**										
35	Transmission		%-Load:				100.00%	100.00%	100.00%	100.00%	
36		Average Year Throughput (MTh)					117,093	1,230,285	81,737	116,135	**1,545,250**
37		Cold Year Throughput (1-in-35) (MTh)					123,645	1,283,768	83,795	116,135	**1,607,343**
38		Cold Year Peak Month (December) (MTh)					13,601	141,331	9,733	9,694	**174,359**
39		Peak Day (1-in-35 Core; 1-in-10 Noncore) (MTh)					649	6,537	655	338	**8,179**
40			%-Cust/Mtrs:				100.00%	100.00%	100.00%	100.00%	
41			Number of Customers				1	1	1	1	**4**
42	High Pressure		%-Load:				0.00%	0.00%	0.00%	0.00%	
43		Average Year Throughput (MTh)					0	0	0	0	**0**
44		Cold Year Throughput (1-in-35) (MTh)					0	0	0	0	**0**
45		Cold Year Peak Month (December) (MTh)					0	0	0	0	**0**
46		Peak Day (1-in-35 Core; 1-in-10 Noncore) (MTh)					0	0	0	0	**0**
47			%-Cust/Mtrs:				0.00%	0.00%	0.00%	0.00%	
48			Number of Customers				0	0	0	0	**0**
49	Medium Pressure		%-Load:				0.00%	0.00%	0.00%	0.00%	
50		Average Year Throughput (MTh)					0	0	0	0	**0**
51		Cold Year Throughput (1-in-35) (MTh)					0	0	0	0	**0**
52		Cold Year Peak Month (December) (MTh)					0	0	0	0	**0**
53		Peak Day (1-in-35 Core; 1-in-10 Noncore) (MTh)					0	0	0	0	**0**
54			%-Cust/Mtrs:				0.00%	0.00%	0.00%	0.00%	
55			Number of Customers				0	0	0	0	**0**

	A	B	C	D	E	AJ	AK	AL	AM	AN	AO
1											
2											
3		**Unaccounted**									
4		**Fcst (% * Demand)**									
5		**0.892%**									
6		**MDM #Yrs Av (2- or 3-yr)**									
7		**3**									
8											
9	**Forecast Summary**			**MDM**							
10							International NC		**Total**		**Total**
11	<< TCAP Period >> January 2009 - December 2011						Ecogas		**Noncore**		**System**
12	**DIRECT (%'s Load or Cust/Mtrs Sum to 100%)**										
13	Transmission		%-Load:				100.00%				
14		Average Year Throughput (MTh)					53,990		**4,346,993**		**4,392,927**
15		Cold Year Throughput (1-in-35) (MTh)					53,990		**4,409,365**		**4,455,716**
16		Cold Year Peak Month (December) (MTh)					4,599		**383,342**		**387,448**
17		Peak Day (1-in-35 Core; 1-in-10 Noncore) (MTh)					148		**16,080**		**16,231**
18			%-Cust/Mtrs:				100.00%				
19			Number of Customers				1		**110**		**259**
20	High Pressure		%-Load:				0.00%				
21		Average Year Throughput (MTh)					0		**1,251,397**		**1,387,633**
22		Cold Year Throughput (1-in-35) (MTh)					0		**1,253,087**		**1,392,637**
23		Cold Year Peak Month (December) (MTh)					0		**107,132**		**120,723**
24		Peak Day (1-in-35 Core; 1-in-10 Noncore) (MTh)					-		**3,822**		**4,415**
25			%-Cust/Mtrs:				0.00%				
26			Number of Customers				-		**325**		**10,900**
27	Medium Pressure		%-Load:				0.00%				
28		Average Year Throughput (MTh)					0		**424,163**		**3,833,022**
29		Cold Year Throughput (1-in-35) (MTh)					0		**426,761**		**4,118,607**
30		Cold Year Peak Month (December) (MTh)					0		**37,983**		**559,093**
31		Peak Day (1-in-35 Core; 1-in-10 Noncore) (MTh)					-		**1,299**		**32,343**
32			%-Cust/Mtrs:				0.00%				
33		Number of Customers					-		**527**		**5,661,573**

Row	A	B	C	D	AK	AM	AO
1							
2							
3		**Unaccounted**					
4		**Fcst (% * Demand)**					
5		**0.892%**					
6		**MDM #Yrs Av (2- or 3-yr)**					
7		**3**					
8							
9	**Forecast Summary**			**MDM**			
10					International NC	**Total**	**Total**
11	<< TCAP Period >> January 2009 - December 2011				Ecogas	**Noncore**	**System**
34	**CUMULATIVE (Calc'd from DIRECT %'s)**						
35	Transmission		%-Load:		100.00%		
36		Average Year Throughput (MTh)			53,990	**6,022,553**	**9,613,583**
37		Cold Year Throughput (1-in-35) (MTh)			53,990	**6,089,213**	**9,966,960**
38		Cold Year Peak Month (December) (MTh)			4,599	**528,457**	**1,067,264**
39		Peak Day (1-in-35 Core; 1-in-10 Noncore) (MTh)			148	**21,201**	**52,988**
40			%-Cust/Mtrs:		100.00%		
41		Number of Customers			1	**962**	**5,672,732**
42	High Pressure		%-Load:		0.00%		
43		Average Year Throughput (MTh)			0	**1,675,560**	**5,220,656**
44		Cold Year Throughput (1-in-35) (MTh)			0	**1,679,848**	**5,511,244**
45		Cold Year Peak Month (December) (MTh)			0	**145,115**	**679,816**
46		Peak Day (1-in-35 Core; 1-in-10 Noncore) (MTh)			0	**5,121**	**36,757**
47			%-Cust/Mtrs:		0.00%		
48		Number of Customers			0	**852**	**5,672,473**
49	Medium Pressure		%-Load:		0.00%		
50		Average Year Throughput (MTh)			0	**424,163**	**3,833,022**
51		Cold Year Throughput (1-in-35) (MTh)			0	**426,761**	**4,118,607**
52		Cold Year Peak Month (December) (MTh)			0	**37,983**	**559,093**
53		Peak Day (1-in-35 Core; 1-in-10 Noncore) (MTh)			0	**1,299**	**32,343**
54			%-Cust/Mtrs:		0.00%		
55		Number of Customers			0	**527**	**5,661,573**

2009 BCAP

SoCalGas Consolidated Annual Demand Forecast
February 2008

2009 BCAP: SoCalGas Consolidated Gas Demand Forecast Summary (Mtherms)

Row		Residential	G-10	G-AC	G-GE	G-NGV	Total Core
59	***ANNUAL FORECAST DATA***		Nonresidential Core				**Total**
60		Residential	G-10	G-AC	G-GE	G-NGV	**Core**
61	**Average Year Throughput (Mth)**						
62	2006	2,506,159	1,033,545	1,268	16,300	77,575	**3,634,846**
63	2007	2,490,795	1,022,331	1,212	20,966	81,043	**3,616,346**
64	2008	2,469,918	994,890	1,236	18,358	91,505	**3,575,908**
65	2009	2,472,087	982,446	1,236	18,187	103,319	**3,577,275**
66	2010	2,484,028	971,288	1,236	18,080	116,657	**3,591,289**
67	2011	2,495,852	957,823	1,159	17,973	131,717	**3,604,525**
68	2012	2,504,230	940,584	1,159	17,866	135,007	**3,598,846**
69							
70							
71			Nonresidential Core				**Total**
72		Residential	G-10	G-AC	G-GE	G-NGV	**Core**
73	**Average Year**						
74	2006	2,494,776	1,006,328	1,268	16,300	77,464	**3,596,136**
75	2007	2,479,482	995,410	1,212	20,966	80,927	**3,577,996**
76	2008	2,458,700	968,691	1,236	18,358	91,374	**3,538,360**
77	2009	2,460,859	956,575	1,236	18,187	103,171	**3,540,028**
78	2010	2,472,746	945,711	1,236	18,080	116,490	**3,554,263**
79	2011	2,484,516	932,601	1,159	17,973	131,529	**3,567,778**
80	2012	2,492,856	915,815	1,159	17,866	134,814	**3,562,510**
81							
82							
83			Nonresidential Core				**Total**
84		Residential	G-10	G-AC	G-GE	G-NGV	**Core**
85	**Cold Year Throughput (Mth)**						
86	2006	2,747,762	1,083,318	1,268	16,300	77,575	**3,926,223**
87	2007	2,730,917	1,071,637	1,212	20,966	81,043	**3,905,774**
88	2008	2,708,028	1,043,275	1,236	18,358	91,505	**3,862,402**
89	2009	2,710,406	1,030,268	1,236	18,187	103,319	**3,863,416**
90	2010	2,723,498	1,018,579	1,236	18,080	116,657	**3,878,050**
91	2011	2,736,462	1,004,465	1,159	17,973	131,717	**3,891,776**
92	2012	2,745,647	986,424	1,159	17,866	135,007	**3,886,103**
93							
94							
95			Nonresidential Core				**Total**
96	**Peak Day Thrughput (Mth/Day)**	Residential	G-10	G-AC	G-GE	G-NGV	**Core**
97	2,006	25,809	6,091	3	31	209	**32,143**
98	2,007	25,713	6,033	2	28	219	**31,996**
99	2,008	25,584	5,904	2	28	247	**31,765**
100	2,009	25,597	5,843	2	27	279	**31,749**
101	2,010	25,671	5,773	2	27	315	**31,789**
102	2,011	25,745	5,694	2	27	356	**31,824**
103	2,012	25,797	5,596	2	27	365	**31,786**
104							
105							
106			Nonresidential Core				**Total**
107		Residential	G-10	G-AC	G-GE	G-NGV	**Core**
108	**Forecast Number of Customers**						
109	2006	5,179,346	210,784	17	878	216	**5,391,242**
110	2007	5,244,966	212,882	16	866	229	**5,458,960**
111	2008	5,313,349	213,678	16	858	243	**5,528,144**
112	2009	5,383,344	214,540	16	850	257	**5,599,007**
113	2010	5,455,319	215,333	16	845	273	**5,671,785**
114	2011	5,527,388	215,986	15	840	289	**5,744,517**
115	2012	5,599,682	216,571	15	835	306	**5,817,409**

	A	D	E	N	O	P	Q	R	S	T
1										
2										
59	***ANNUAL FORECAST DATA***				Noncore - G-30					Noncore - Electric Gene
60				G-30 (Dist.)	G-30 (Trans.)	**G-30 (Total)**	EG-Dist. (<3MMThms)	EG-Trans. (<3MMThms)	EG-Dist. (>=3MMThms)	EG-Trans. (>=3MMThms)
61	**Average Year Throughput (Mth)**									
62	2006			1,050,603	480,170	**1,530,773**	62,980	16,030	514,139	2,133,732
63	2007			1,040,911	479,060	**1,519,971**	62,046	14,185	547,182	2,060,740
64	2008			991,597	468,533	**1,460,130**	67,310	19,541	579,124	2,057,867
65	2009			981,139	458,043	**1,439,182**	64,746	20,223	556,880	2,197,026
66	2010			982,589	457,750	**1,440,339**	57,794	13,936	552,512	2,179,042
67	2011			983,667	457,299	**1,440,966**	58,720	13,187	545,993	2,220,833
68	2012			979,434	451,680	**1,431,114**	58,975	10,245	550,674	2,275,009
69										
70										
71					Noncore - G-30					Noncore - Electric Gene
72				G-30 (Dist.)	G-30 (Trans.)	**G-30 (Total)**	EG-Dist. (<3MMThms)	EG-Trans. (<3MMThms)	EG-Dist. (>=3MMThms)	EG-Trans. (>=3MMThms)
73	**Average Year**									
74	2006			0	0	**0**	0	0	0	0
75	2007			0	0	**0**	0	0	0	0
76	2008			0	0	**0**	0	0	0	0
77	2009			0	0	**0**	0	0	0	0
78	2010			0	0	**0**	0	0	0	0
79	2011			0	0	**0**	0	0	0	0
80	2012			0	0	**0**	0	0	0	0
81										
82										
83					Noncore - G-30					Noncore - Electric Gene
84				G-30 (Dist.)	G-30 (Trans.)	**G-30 (Total)**	EG-Dist. (<3MMThms)	EG-Trans. (<3MMThms)	EG-Dist. (>=3MMThms)	EG-Trans. (>=3MMThms)
85	**Cold Year Throughput (Mth)**									
86	2006			1,055,180	480,160	**1,535,340**	62,980	16,030	514,139	2,133,732
87	2007			1,045,200	479,339	**1,524,539**	62,046	14,185	547,182	2,060,740
88	2008			995,885	468,812	**1,464,697**	67,310	19,541	579,124	2,057,867
89	2009			985,427	458,322	**1,443,749**	64,746	20,223	556,880	2,197,026
90	2010			986,878	458,029	**1,444,907**	57,794	13,936	552,512	2,179,042
91	2011			987,956	457,578	**1,445,533**	58,720	13,187	545,993	2,220,833
92	2012			983,722	451,959	**1,435,682**	58,975	10,245	550,674	2,275,009
93										
94										
95					Noncore - G-30					Noncore - Electric Gene
96	**Peak Day Thrughput (Mth/Day)**			G-30 (Dist.)	G-30 (Trans.)	**G-30 (Total)**	EG-Dist. (<3MMThms)	EG-Trans. (<3MMThms)	EG-Dist. (>=3MMThms)	EG-Trans. (>=3MMThms)
97	2,006			3,230	1,433	**4,663**	128	6	1,553	5,831
98	2,007			3,165	1,349	**4,514**	288	122	1,809	5,833
99	2,008			3,043	1,344	**4,388**	187	117	1,955	6,926
100	2,009			3,017	1,319	**4,335**	173	113	1,977	5,958
101	2,010			3,021	1,318	**4,339**	159	11	1,512	6,593
102	2,011			3,021	1,312	**4,334**	138	35	1,680	6,063
103	2,012			2,996	1,273	**4,269**	182	31	1,950	6,863
104										
105										
106					Noncore - G-30					Noncore - Electric Gene
107				G-30 (Dist.)	G-30 (Trans.)	**G-30 (Total)**	EG-Dist. (<3MMThms)	EG-Trans. (<3MMThms)	EG-Dist. (>=3MMThms)	EG-Trans. (>=3MMThms)
108	**Forecast Number of Customers**									
109	2006			696	35	**731**	162	14	34	32
110	2007			693	35	**728**	153	16	34	32
111	2008			671	35	**706**	141	16	34	34
112	2009			671	35	**706**	141	16	34	35
113	2010			670	35	**705**	134	16	34	35
114	2011			670	35	**705**	127	16	34	36
115	2012			670	35	**705**	127	16	34	36

	A	D	E	U	V	W	Y	Z	AA	AC	AD
1											
2											
59	***ANNUAL FORECAST DATA***			ratiion				Noncore - EOR		**Total**	
60				**EG (<3MMThms)**	**EG (>=3MMThms)**	**EG (Total)**	EOR (Dist.)	EOR (Trans.)	**EOR (Total)**	**Retail Noncore**	
61	**Average Year Throughput (Mth)**										
62	2006			**79,009**	**2,647,871**	**2,726,880**	54,914	273,910	**328,824**	**4,586,478**	
63	2007			**76,231**	**2,607,922**	**2,684,153**	55,130	328,550	**383,680**	**4,587,804**	
64	2008			**86,851**	**2,636,991**	**2,723,841**	49,130	313,480	**362,610**	**4,546,582**	
65	2009			**84,969**	**2,753,907**	**2,838,875**	80,880	95,960	**176,840**	**4,454,897**	
66	2010			**71,730**	**2,731,554**	**2,803,284**	80,880	64,980	**145,860**	**4,389,483**	
67	2011			**71,907**	**2,766,827**	**2,838,733**	80,880	64,980	**145,860**	**4,425,559**	
68	2012			**69,221**	**2,825,683**	**2,894,904**	81,130	65,160	**146,290**	**4,472,309**	
69											
70											
71				ratiion				Noncore - EOR		**Total**	
72				**EG (<3MMThms)**	**EG (>=3MMThms)**	**EG (Total)**	EOR (Dist.)	EOR (Trans.)	**EOR (Total)**	**Retail Noncore**	
73	**Average Year**										
74	2006			**0**	**0**	**0**	0	0	**0**	**0**	
75	2007			**0**	**0**	**0**	0	0	**0**	**0**	
76	2008			**0**	**0**	**0**	0	0	**0**	**0**	
77	2009			**0**	**0**	**0**	0	0	**0**	**0**	
78	2010			**0**	**0**	**0**	0	0	**0**	**0**	
79	2011			**0**	**0**	**0**	0	0	**0**	**0**	
80	2012			**0**	**0**	**0**	0	0	**0**	**0**	
81											
82											
83				ratiion				Noncore - EOR		**Total**	
84				**EG (<3MMThms)**	**EG (>=3MMThms)**	**EG (Total)**	EOR (Dist.)	EOR (Trans.)	**EOR (Total)**	**Retail Noncore**	
85	**Cold Year Throughput (Mth)**										
86	2006			**79,009**	**2,647,871**	**2,726,880**	54,914	273,910	**328,824**	**4,591,045**	
87	2007			**76,231**	**2,607,922**	**2,684,153**	55,130	328,550	**383,680**	**4,592,371**	
88	2008			**86,851**	**2,636,991**	**2,723,841**	49,130	313,480	**362,610**	**4,551,149**	
89	2009			**84,969**	**2,753,907**	**2,838,875**	80,880	95,960	**176,840**	**4,459,464**	
90	2010			**71,730**	**2,731,554**	**2,803,284**	80,880	64,980	**145,860**	**4,394,050**	
91	2011			**71,907**	**2,766,827**	**2,838,733**	80,880	64,980	**145,860**	**4,430,127**	
92	2012			**69,221**	**2,825,683**	**2,894,904**	81,130	65,160	**146,290**	**4,476,876**	
93											
94											
95				ratiion				Noncore - EOR		**Total**	
96	**Peak Day Thrughput (Mth/Day)**			**EG (<3MMThms)**	**EG (>=3MMThms)**	**EG (Total)**	EOR (Dist.)	EOR (Trans.)	**EOR (Total)**	**Retail Noncore**	
97	2,006			**134**	**7,384**	**7,518**	190	950	**1,140**	**13,321**	
98	2,007			**410**	**7,642**	**8,052**	152	893	**1,045**	**13,611**	
99	2,008			**304**	**8,881**	**9,185**	119	770	**889**	**14,462**	
100	2,009			**286**	**7,935**	**8,221**	222	178	**400**	**12,956**	
101	2,010			**170**	**8,105**	**8,275**	222	178	**400**	**13,014**	
102	2,011			**173**	**7,743**	**7,916**	222	178	**400**	**12,650**	
103	2,012			**213**	**8,812**	**9,026**	222	178	**400**	**13,695**	
104											
105											
106				ratiion				Noncore - EOR		**Total**	
107				**EG (<3MMThms)**	**EG (>=3MMThms)**	**EG (Total)**	EOR (Dist.)	EOR (Trans.)	**EOR (Total)**	**Retail Noncore**	
108	**Forecast Number of Customers**										
109	2006			**176**	**66**	**242**	12	30	**42**	**1,014**	
110	2007			**169**	**66**	**235**	14	26	**40**	**1,003**	
111	2008			**157**	**68**	**225**	14	22	**35**	**966**	
112	2009			**157**	**69**	**226**	14	18	**32**	**964**	
113	2010			**150**	**69**	**219**	14	18	**32**	**957**	
114	2011			**143**	**70**	**213**	14	18	**32**	**950**	
115	2012			**143**	**70**	**213**	14	18	**32**	**950**	

	A	D	E	AE	AF	AG	AH	AI	AJ	AK	AL	AM
1												
2												
59	***ANNUAL FORECAST DATA***				Wholesale Noncore			**Total**		International NC		**Total**
60				Long Beach	SDG&E	Southwest Gas	Vernon	**Wholesale**		Ecogas		**Noncore**
61	**Average Year Throughput (Mth)**											
62	2006			108,995	**1,192,453**	106,079	66,454	**1,473,981**		52,913		**6,113,371**
63	2007			103,945	**1,132,609**	103,185	61,920	**1,401,659**		49,965		**6,039,428**
64	2008			117,095	**1,164,931**	97,258	115,024	**1,494,307**		53,184		**6,094,073**
65	2009			117,297	**1,253,225**	79,511	114,999	**1,565,032**		53,661		**6,073,591**
66	2010			116,837	**1,271,803**	81,742	116,220	**1,586,602**		54,140		**6,030,225**
67	2011			117,146	**1,165,827**	83,958	117,185	**1,484,116**		54,168		**5,963,843**
68	2012			117,161	**1,169,933**	86,261	117,852	**1,491,207**		54,196		**6,017,712**
69												
70												
71					Wholesale Noncore			**Total**		International NC		**Total**
72				Long Beach	SDG&E	Southwest Gas	Vernon	**Wholesale**		Ecogas		**Noncore**
73	**Average Year**											
74	2006			0	**0**	0	0	**0**		0		**0**
75	2007			0	**0**	0	0	**0**		0		**0**
76	2008			0	**0**	0	0	**0**		0		**0**
77	2009			0	**0**	0	0	**0**		0		**0**
78	2010			0	**0**	0	0	**0**		0		**0**
79	2011			0	**0**	0	0	**0**		0		**0**
80	2012			0	**0**	0	0	**0**		0		**0**
81												
82												
83					Wholesale Noncore			**Total**		International NC		**Total**
84				Long Beach	SDG&E	Southwest Gas	Vernon	**Wholesale**		Ecogas		**Noncore**
85	**Cold Year Throughput (Mth)**											
86	2006			108,995	**1,245,542**	106,079	66,454	**1,527,070**		52,913		**6,171,027**
87	2007			105,745	**1,185,504**	102,751	61,920	**1,455,919**		49,965		**6,098,255**
88	2008			123,645	**1,217,651**	111,533	115,024	**1,567,852**		53,184		**6,172,185**
89	2009			123,848	**1,306,488**	81,486	114,999	**1,626,822**		53,661		**6,139,947**
90	2010			123,388	**1,325,316**	83,801	116,220	**1,648,724**		54,140		**6,096,915**
91	2011			123,698	**1,219,501**	86,099	117,185	**1,546,482**		54,168		**6,030,777**
92	2012			123,713	**1,223,657**	88,474	117,852	**1,553,696**		54,196		**6,084,768**
93												
94												
95					Wholesale Noncore			**Total**		International NC		**Total**
96	**Peak Day Thrughput (Mth/Day)**			Long Beach	SDG&E	Southwest Gas	Vernon	**Wholesale**		Ecogas		**Noncore**
97	2,006			537	**6,659**	743	225	**8,165**		169		**21,655**
98	2,007			649	**6,064**	775	228	**7,717**		136		**21,463**
99	2,008			649	**6,124**	599	338	**7,710**		146		**22,318**
100	2,009			649	**6,755**	627	343	**8,375**		147		**21,478**
101	2,010			649	**6,640**	655	335	**8,279**		149		**21,442**
102	2,011			649	**6,217**	682	335	**7,884**		149		**20,682**
103	2,012			649	**6,339**	710	346	**8,044**		149		**21,888**
104												
105												
106					Wholesale Noncore			**Total**		International NC		**Total**
107				Long Beach	SDG&E	Southwest Gas	Vernon	**Wholesale**		Ecogas		**Noncore**
108	**Forecast Number of Customers**											
109	2006			1	**1**	1	1	**4**		1		**1,019**
110	2007			1	**1**	1	1	**4**		1		**1,008**
111	2008			1	**1**	1	1	**4**		1		**971**
112	2009			1	1	1	1	**4**		1		**969**
113	2010			1	1	1	1	**4**		1		**962**
114	2011			1	1	1	1	**4**		1		**955**
115	2012			1	1	1	1	**4**		1		**955**

	A	D	E	AN	AO	AP	AS	AT	AU
1									
2									
59	***ANNUAL FORECAST DATA***				**Total**				**Total**
60					**System End-Use Dmd**		**Co-Use-Fuel**	**"Un-Acnt'd-For" (UAF)**	**System Throughput**
61	**Average Year Throughput (Mth)**								
62	2006				**9,748,218**		**47,044**	**86,964**	**9,882,226**
63	2007				**9,655,774**		**46,598**	**86,139**	**9,788,511**
64	2008				**9,669,981**		**46,667**	**86,266**	**9,802,913**
65	2009				**9,650,865**		**46,574**	**86,095**	**9,783,535**
66	2010				**9,621,514**		**46,433**	**85,833**	**9,753,780**
67	2011				**9,568,368**		**46,176**	**85,359**	**9,699,904**
68	2012				**9,616,558**		**46,409**	**85,789**	**9,748,755**
69									
70									
71					**Total**				
72					**System End-Use Dmd**				
73	**Average Year**								
74	2006				**3,596,136**				
75	2007				**3,577,996**				
76	2008				**3,538,360**				
77	2009				**3,540,028**				
78	2010				**3,554,263**				
79	2011				**3,567,778**				
80	2012				**3,562,510**				
81									
82									
83					**Total**				
84					**System End-Use Dmd**		**Co-Use-Fuel**	**"Un-Acnt'd-For" (UAF)**	**System Throughput**
85	**Cold Year Throughput (Mth)**								
86	2006				**10,097,250**		**48,729**	**90,077**	**10,236,056**
87	2007				**10,004,029**		**48,279**	**89,246**	**10,141,554**
88	2008				**10,034,587**		**48,426**	**89,518**	**10,172,532**
89	2009				**10,003,363**		**48,276**	**89,240**	**10,140,878**
90	2010				**9,974,965**		**48,139**	**88,986**	**10,112,090**
91	2011				**9,922,553**		**47,886**	**88,519**	**10,058,958**
92	2012				**9,970,870**		**48,119**	**88,950**	**10,107,939**
93									
94									
95					**Total**				
96	**Peak Day Thrughput (Mth/Day)**				**System End-Use Dmd**				
97	2,006				**53,798**				
98	2,007				**53,460**				
99	2,008				**54,083**				
100	2,009				**53,228**				
101	2,010				**53,231**				
102	2,011				**52,506**				
103	2,012				**53,674**				
104									
105									
106					**Total**				
107					**System**				
108	**Forecast Number of Customers**								
109	2006				**5,392,261**				
110	2007				**5,459,968**				
111	2008				**5,529,115**				
112	2009				**5,599,976**				
113	2010				**5,672,747**				
114	2011				**5,745,472**				
115	2012				**5,818,364**				

2 0 0 9 B C A P

SOCALGAS CONSOLIDATED MONTHLY DEMAND FORECAST
FEBRUARY 2008

	A	B	C	F	G	H	I	J	K	L	M
1				**2009 BCAP: SoCalGas Consolidated Gas Demand Forecast Summary (Mtherms)**							
59	***MONTHLY FORECAST DATA***				Nonresidential Core					**Total**	
60				Residential	G-10		G-AC	G-GE	G-NGV	**Core**	
61	**Average Year Throughput (Mth)**										
62	2006	Jan		358,091	111,516		70	441	5,908	**476,026**	
63		Feb		297,408	103,471		66	653	5,717	**407,315**	
64		Mar		274,657	95,535		63	911	6,651	**377,817**	
65		Apr		208,321	83,966		56	726	5,804	**298,874**	
66		May		156,431	80,258		72	1,205	6,508	**244,473**	
67		Jun		122,945	73,835		110	1,775	6,538	**205,203**	
68		Jul		115,559	67,366		149	2,398	6,566	**192,038**	
69		Aug		115,221	66,926		204	2,470	6,951	**191,771**	
70		Sep		113,656	70,860		158	2,383	6,825	**193,882**	
71		Oct		142,835	73,332		138	1,440	6,992	**224,737**	
72		Nov		235,260	95,266		94	940	6,621	**338,181**	
73		Dec		365,775	111,214		88	959	6,493	**484,529**	
74											
75	2007	Jan		355,896	110,349		62	559	6,172	**473,038**	
76		Feb		295,585	102,386		62	920	5,972	**404,925**	
77		Mar		272,973	94,485		49	1,193	6,949	**375,649**	
78		Apr		207,044	83,042		85	1,734	6,063	**297,968**	
79		May		155,472	79,372		75	2,276	6,799	**243,993**	
80		Jun		122,191	73,014		98	2,761	6,830	**204,895**	
81		Jul		114,850	66,610		133	2,607	6,860	**191,061**	
82		Aug		114,514	66,164		175	2,932	7,262	**191,047**	
83		Sep		112,959	70,063		163	2,562	7,131	**192,878**	
84		Oct		141,959	72,499		138	1,642	7,305	**223,544**	
85		Nov		233,818	94,265		97	900	6,917	**335,997**	
86		Dec		363,533	110,082		75	878	6,784	**481,352**	
87											
88	2008	Jan		352,913	107,606		64	321	6,969	**467,873**	
89		Feb		293,107	99,801		85	566	6,743	**400,303**	
90		Mar		270,685	91,978		39	935	7,846	**371,483**	
91		Apr		205,309	80,780		67	1,197	6,846	**294,200**	
92		May		154,169	77,183		85	1,752	7,677	**240,866**	
93		Jun		121,167	70,952		114	2,263	7,712	**202,208**	
94		Jul		113,887	64,674		133	2,568	7,745	**189,009**	
95		Aug		113,555	64,218		175	2,888	8,199	**189,035**	
96		Sep		112,012	68,047		163	2,518	8,051	**190,792**	
97		Oct		140,769	70,416		138	1,610	8,248	**221,182**	
98		Nov		231,858	91,841		97	880	7,810	**332,486**	
99		Dec		360,486	107,395		75	858	7,659	**476,473**	
100											
101	2009	Jan		353,222	106,193		64	318	7,868	**467,666**	
102		Feb		293,365	98,487		85	561	7,613	**400,111**	
103		Mar		270,923	90,702		39	927	8,859	**371,449**	
104		Apr		205,489	79,657		67	1,186	7,730	**294,130**	
105		May		154,304	76,105		85	1,736	8,668	**240,899**	
106		Jun		121,274	69,953		114	2,242	8,708	**202,290**	

2009 BCAP: SoCalGas Consolidated Gas Demand Forecast Summary (Mtherms)

Row	A	B	F	G	I	J	K	L
59	***MONTHLY FORECAST DATA***			Nonresidential Core				**Total**
60			Residential	G-10	G-AC	G-GE	G-NGV	**Core**
61	**Average Year Throughput (Mth)**							
107		Jul	113,987	63,753	133	2,545	8,745	**189,164**
108		Aug	113,654	63,288	175	2,861	9,258	**189,237**
109		Sep	112,111	67,371	163	2,495	9,091	**191,230**
110		Oct	140,893	69,696	138	1,595	9,313	**221,635**
111		Nov	232,061	90,922	97	871	8,818	**332,770**
112		Dec	360,803	106,318	75	850	8,648	**476,694**
113								
114	2010	Jan	354,929	105,092	64	316	8,884	**469,286**
115		Feb	294,782	97,455	85	558	8,596	**401,476**
116		Mar	272,232	89,754	39	921	10,002	**372,948**
117		Apr	206,482	78,838	67	1,179	8,728	**295,294**
118		May	155,050	75,336	85	1,726	9,787	**241,983**
119		Jun	121,859	69,262	114	2,229	9,832	**203,296**
120		Jul	114,538	63,140	133	2,530	9,874	**190,215**
121		Aug	114,203	62,677	175	2,845	10,453	**190,353**
122		Sep	112,652	66,410	163	2,480	10,264	**191,970**
123		Oct	141,574	68,696	138	1,586	10,515	**222,509**
124		Nov	233,182	89,693	97	866	9,957	**333,796**
125		Dec	362,546	104,934	75	845	9,765	**478,164**
126								
127	2011	Jan	356,618	103,641	60	315	10,031	**470,664**
128		Feb	296,185	96,105	80	554	9,706	**402,630**
129		Mar	273,527	88,498	37	916	11,294	**374,271**
130		Apr	207,465	77,738	63	1,172	9,855	**296,293**
131		May	155,788	74,288	80	1,715	11,050	**242,922**
132		Jun	122,440	68,303	107	2,215	11,101	**204,165**
133		Jul	115,083	62,269	125	2,515	11,149	**191,141**
134		Aug	114,747	61,808	164	2,828	11,803	**191,350**
135		Sep	113,189	65,487	153	2,465	11,589	**192,883**
136		Oct	142,248	67,734	130	1,577	11,873	**223,560**
137		Nov	234,292	88,456	91	861	11,242	**334,942**
138		Dec	364,271	103,497	70	840	11,025	**479,704**
139								
140	2012	Jan	357,815	101,797	60	313	10,281	**470,266**
141		Feb	297,179	94,393	80	551	9,948	**402,151**
142		Mar	274,446	86,898	37	910	11,576	**373,866**
143		Apr	208,161	76,333	63	1,165	10,101	**295,822**
144		May	156,311	72,944	80	1,705	11,326	**242,366**
145		Jun	122,851	67,064	107	2,202	11,378	**203,601**
146		Jul	115,470	61,136	125	2,500	11,428	**190,657**
147		Aug	115,132	60,678	164	2,811	12,097	**190,882**
148		Sep	113,568	64,294	153	2,451	11,879	**192,345**
149		Oct	142,725	66,496	130	1,567	12,169	**223,087**
150		Nov	235,079	86,880	91	856	11,523	**334,428**
151		Dec	365,494	101,672	70	835	11,301	**479,372**

	A	B	C	N	O	P	Q	R	S	T
1										
59	***MONTHLY FORECAST DATA***				Noncore - G-30					Noncore - Electric Gene
60				G-30 (Dist.)	G-30 (Trans.)	**G-30 (Total)**	EG-Dist. (<3MMThms)	EG-Trans. (<3MMThms)	EG-Dist. (>=3MMThms)	EG-Trans. (>=3MMThms)
61	**Average Year Throughput (Mth)**									
62	2006	Jan		94,348	43,589	**137,937**	3,970	317	45,267	123,326
63		Feb		85,667	37,483	**123,150**	3,393	226	36,223	117,514
64		Mar		96,755	41,182	**137,937**	4,334	665	34,086	134,302
65		Apr		88,413	38,993	**127,407**	5,041	645	24,028	159,566
66		May		89,231	39,601	**128,832**	5,467	1,881	32,350	162,330
67		Jun		82,889	36,764	**119,653**	6,590	1,711	46,832	220,451
68		Jul		84,162	40,169	**124,331**	8,241	3,720	62,999	374,277
69		Aug		89,787	40,810	**130,596**	5,739	2,285	51,977	213,889
70		Sep		85,273	39,066	**124,339**	5,177	2,147	45,407	202,618
71		Oct		87,259	41,058	**128,317**	5,727	1,283	49,911	135,604
72		Nov		80,725	37,919	**118,643**	4,977	741	47,333	137,031
73		Dec		86,094	43,537	**129,631**	4,325	407	37,725	152,823
74										
75	2007	Jan		92,789	43,795	**136,585**	6,492	415	32,216	145,711
76		Feb		80,698	34,717	**115,415**	3,882	406	43,768	111,101
77		Mar		90,737	42,651	**133,388**	4,058	497	51,860	106,477
78		Apr		86,654	41,070	**127,724**	3,938	994	52,440	111,319
79		May		88,284	41,957	**130,241**	4,280	603	47,613	140,718
80		Jun		81,533	34,355	**115,888**	4,676	1,182	43,647	201,733
81		Jul		84,983	37,184	**122,167**	7,054	1,232	57,096	340,250
82		Aug		86,855	40,630	**127,485**	6,986	3,399	59,330	362,843
83		Sep		84,474	40,045	**124,519**	5,231	793	45,018	239,533
84		Oct		87,108	41,365	**128,472**	4,017	249	14,037	12,922
85		Nov		85,831	39,852	**125,683**	5,643	2,467	50,596	145,369
86		Dec		90,966	41,437	**132,403**	5,790	1,947	49,562	142,763
87										
88	2008	Jan		86,275	38,896	**125,171**	5,784	2,083	48,629	118,276
89		Feb		78,575	37,687	**116,263**	4,298	1,358	40,097	105,560
90		Mar		85,280	39,692	**124,972**	5,637	2,025	44,653	114,181
91		Apr		81,184	37,932	**119,115**	5,436	1,752	38,232	116,953
92		May		82,992	39,207	**122,199**	5,670	1,297	49,203	152,665
93		Jun		79,702	37,896	**117,599**	5,550	1,283	48,143	182,261
94		Jul		82,211	39,060	**121,271**	6,317	1,542	55,022	262,267
95		Aug		82,209	39,067	**121,276**	6,770	1,943	56,727	265,387
96		Sep		79,633	38,059	**117,692**	5,554	1,124	53,925	234,656
97		Oct		83,247	40,104	**123,351**	5,376	1,718	49,076	177,881
98		Nov		82,557	39,605	**122,162**	5,949	1,853	48,116	176,203
99		Dec		87,731	41,327	**129,058**	4,968	1,564	47,301	151,575
100										
101	2009	Jan		85,487	38,186	**123,673**	5,010	1,902	44,912	143,475
102		Feb		77,102	35,664	**112,766**	4,672	1,643	40,818	130,829
103		Mar		84,389	38,791	**123,180**	5,532	1,779	38,902	145,031
104		Apr		80,341	37,102	**117,443**	4,471	1,374	37,147	141,740
105		May		82,140	38,381	**120,521**	5,388	1,164	43,677	160,533
106		Jun		78,891	37,125	**116,016**	5,058	1,001	45,001	194,326

	A	B	C	N	O	P	Q	R	S	T
1										
59	***MONTHLY FORECAST DATA***				Noncore - G-30					Noncore - Electric Gene
60				G-30 (Dist.)	G-30 (Trans.)	**G-30 (Total)**	EG-Dist. (<3MMThms)	EG-Trans. (<3MMThms)	EG-Dist. (>=3MMThms)	EG-Trans. (>=3MMThms)
61	**Average Year Throughput (Mth)**									
107		Jul		81,411	38,327	**119,738**	6,061	1,296	54,435	265,868
108		Aug		81,442	38,396	**119,838**	6,569	1,977	56,497	275,468
109		Sep		78,886	37,406	**116,292**	5,356	924	53,165	236,347
110		Oct		82,420	39,322	**121,742**	5,836	2,665	47,936	175,564
111		Nov		81,728	38,801	**120,529**	5,947	2,274	47,383	167,543
112		Dec		86,902	40,541	**127,444**	4,846	2,225	47,008	160,302
113										
114	2010	Jan		85,680	38,107	**123,787**	4,994	2,248	48,354	147,843
115		Feb		77,273	35,603	**112,877**	3,897	702	37,852	131,053
116		Mar		84,589	38,727	**123,316**	4,447	651	40,687	144,444
117		Apr		80,548	37,070	**117,619**	4,382	626	38,531	145,312
118		May		82,260	38,376	**120,636**	4,645	742	40,906	156,147
119		Jun		79,000	37,120	**116,120**	4,937	847	44,260	185,698
120		Jul		81,489	38,318	**119,807**	5,772	1,776	53,142	270,061
121		Aug		81,521	38,388	**119,909**	5,834	2,332	57,255	276,369
122		Sep		78,955	37,400	**116,356**	5,104	506	53,101	235,871
123		Oct		82,500	39,318	**121,819**	4,572	1,183	44,631	173,881
124		Nov		81,796	38,793	**120,589**	4,790	1,235	45,736	157,532
125		Dec		86,978	40,528	**127,506**	4,420	1,089	48,056	154,831
126										
127	2011	Jan		85,648	38,012	**123,660**	4,290	1,168	42,453	147,699
128		Feb		77,262	35,593	**112,855**	3,678	349	37,146	131,618
129		Mar		84,602	38,713	**123,315**	4,234	534	39,336	149,170
130		Apr		80,552	37,056	**117,609**	4,115	524	39,221	141,476
131		May		82,390	38,370	**120,760**	4,750	620	42,383	156,372
132		Jun		79,120	37,111	**116,231**	5,506	1,169	45,469	191,407
133		Jul		81,658	38,310	**119,968**	5,691	1,552	54,688	276,790
134		Aug		81,689	38,380	**120,069**	6,702	1,846	57,027	282,025
135		Sep		79,116	37,394	**116,509**	4,967	990	53,015	245,915
136		Oct		82,670	39,313	**121,984**	5,037	1,923	48,295	179,537
137		Nov		81,910	38,702	**120,612**	5,520	1,546	44,498	163,242
138		Dec		87,050	40,344	**127,394**	4,231	965	42,462	155,583
139										
140	2012	Jan		85,968	38,783	**124,751**	4,283	275	39,782	151,058
141		Feb		77,262	35,794	**113,057**	3,938	386	37,741	137,288
142		Mar		83,953	37,687	**121,640**	4,420	580	39,219	152,353
143		Apr		80,090	36,372	**116,461**	4,236	357	39,977	149,431
144		May		82,170	38,142	**120,311**	4,578	392	43,391	158,732
145		Jun		78,912	36,907	**115,819**	5,031	964	44,637	197,509
146		Jul		81,374	37,963	**119,338**	5,838	1,406	55,984	293,186
147		Aug		81,316	37,867	**119,184**	6,909	2,035	58,076	294,493
148		Sep		78,774	36,944	**115,718**	5,005	626	54,080	242,638
149		Oct		82,143	38,530	**120,673**	5,034	1,100	48,274	175,248
150		Nov		81,192	37,571	**118,763**	5,188	1,558	43,376	165,431
151		Dec		86,280	39,120	**125,400**	4,515	565	46,139	157,644

	A	B	C	U	V	W	X	Y	Z	AA	AB	AC
1												
59	***MONTHLY FORECAST DATA***			atiion					Noncore - EOR			**Total**
60				**EG (<3MMThms)**	**EG (>=3MMThms)**	**EG (Total)**		EOR (Dist.)	EOR (Trans.)	**EOR (Total)**		**Retail Noncore**
61	**Average Year Throughput (Mth)**											
62	2006	Jan		**4,288**	**168,593**	**172,880**		4,002	19,961	**23,963**		**334,781**
63		Feb		**3,619**	**153,737**	**157,357**		3,904	19,474	**23,378**		**303,885**
64		Mar		**4,999**	**168,388**	**173,387**		4,296	21,427	**25,723**		**337,047**
65		Apr		**5,686**	**183,594**	**189,280**		4,053	20,217	**24,270**		**340,957**
66		May		**7,347**	**194,680**	**202,027**		4,191	20,905	**25,096**		**355,955**
67		Jun		**8,301**	**267,283**	**275,584**		4,080	20,350	**24,430**		**419,667**
68		Jul		**11,960**	**437,277**	**449,237**		4,276	21,328	**25,604**		**599,172**
69		Aug		**8,025**	**265,866**	**273,891**		4,262	21,260	**25,522**		**430,010**
70		Sep		**7,324**	**248,025**	**255,349**		4,697	23,429	**28,126**		**407,814**
71		Oct		**7,010**	**185,514**	**192,524**		5,785	28,854	**34,639**		**355,480**
72		Nov		**5,718**	**184,365**	**190,083**		5,465	27,259	**32,724**		**341,450**
73		Dec		**4,732**	**190,548**	**195,280**		5,903	29,446	**35,349**		**360,261**
74												
75	2007	Jan		**6,907**	**177,927**	**184,834**		4,630	30,270	**34,900**		**356,318**
76		Feb		**4,289**	**154,868**	**159,157**		4,270	25,660	**29,930**		**304,502**
77		Mar		**4,555**	**158,337**	**162,892**		4,320	25,440	**29,760**		**326,040**
78		Apr		**4,932**	**163,759**	**168,691**		4,480	24,610	**29,090**		**325,505**
79		May		**4,883**	**188,331**	**193,214**		4,840	28,720	**33,560**		**357,015**
80		Jun		**5,858**	**245,380**	**251,238**		4,560	28,490	**33,050**		**400,176**
81		Jul		**8,286**	**397,346**	**405,633**		4,900	28,810	**33,710**		**561,510**
82		Aug		**10,385**	**422,173**	**432,557**		4,690	27,670	**32,360**		**592,402**
83		Sep		**6,025**	**284,551**	**290,576**		4,530	26,770	**31,300**		**446,395**
84		Oct		**4,266**	**26,959**	**31,225**		4,690	27,670	**32,360**		**192,058**
85		Nov		**8,110**	**195,965**	**204,074**		4,530	26,770	**31,300**		**361,058**
86		Dec		**7,736**	**192,325**	**200,061**		4,690	27,670	**32,360**		**364,824**
87												
88	2008	Jan		**7,867**	**166,905**	**174,773**		4,660	27,090	**31,750**		**331,694**
89		Feb		**5,656**	**145,657**	**151,314**		4,360	25,340	**29,700**		**297,276**
90		Mar		**7,662**	**158,834**	**166,496**		4,660	27,090	**31,750**		**323,218**
91		Apr		**7,188**	**155,185**	**162,373**		4,490	26,210	**30,700**		**312,188**
92		May		**6,967**	**201,868**	**208,835**		4,660	27,090	**31,750**		**362,784**
93		Jun		**6,832**	**230,404**	**237,237**		4,490	26,210	**30,700**		**385,536**
94		Jul		**7,858**	**317,289**	**325,147**		3,680	27,090	**30,770**		**477,189**
95		Aug		**8,713**	**322,114**	**330,828**		3,680	27,090	**30,770**		**482,874**
96		Sep		**6,677**	**288,581**	**295,258**		3,550	26,210	**29,760**		**442,710**
97		Oct		**7,094**	**226,957**	**234,052**		3,680	27,090	**30,770**		**388,173**
98		Nov		**7,802**	**224,319**	**232,121**		3,540	23,100	**26,640**		**380,923**
99		Dec		**6,532**	**198,877**	**205,408**		3,680	23,870	**27,550**		**362,016**
100												
101	2009	Jan		**6,911**	**188,387**	**195,299**		6,870	21,800	**28,670**		**347,642**
102		Feb		**6,314**	**171,648**	**177,962**		6,190	19,680	**25,870**		**316,598**
103		Mar		**7,311**	**183,932**	**191,243**		6,870	5,520	**12,390**		**326,813**
104		Apr		**5,844**	**178,887**	**184,732**		6,650	5,340	**11,990**		**314,165**
105		May		**6,552**	**204,210**	**210,762**		6,870	5,520	**12,390**		**343,673**
106		Jun		**6,059**	**239,327**	**245,386**		6,650	5,340	**11,990**		**373,392**

	A	B	C	U	V	W	X	Y	Z	AA	AB	AC
1												
59	***MONTHLY FORECAST DATA***			ratiion					Noncore - EOR			**Total**
60				**EG (<3MMThms)**	**EG (>=3MMThms)**	**EG (Total)**		EOR (Dist.)	EOR (Trans.)	**EOR (Total)**		**Retail Noncore**
61	**Average Year Throughput (Mth)**											
107		Jul		**7,357**	**320,303**	**327,660**		6,870	5,520	**12,390**		**459,788**
108		Aug		**8,547**	**331,965**	**340,511**		6,870	5,520	**12,390**		**472,740**
109		Sep		**6,280**	**289,512**	**295,792**		6,650	5,340	**11,990**		**424,073**
110		Oct		**8,501**	**223,499**	**232,001**		6,870	5,520	**12,390**		**366,132**
111		Nov		**8,221**	**214,926**	**223,146**		6,650	5,340	**11,990**		**355,665**
112		Dec		**7,072**	**207,311**	**214,382**		6,870	5,520	**12,390**		**354,216**
113												
114	2010	Jan		**7,242**	**196,197**	**203,439**		6,870	5,520	**12,390**		**339,616**
115		Feb		**4,599**	**168,905**	**173,503**		6,190	4,980	**11,170**		**297,550**
116		Mar		**5,097**	**185,131**	**190,228**		6,870	5,520	**12,390**		**325,934**
117		Apr		**5,007**	**183,844**	**188,851**		6,650	5,340	**11,990**		**318,460**
118		May		**5,386**	**197,053**	**202,439**		6,870	5,520	**12,390**		**335,465**
119		Jun		**5,784**	**229,958**	**235,742**		6,650	5,340	**11,990**		**363,851**
120		Jul		**7,548**	**323,203**	**330,751**		6,870	5,520	**12,390**		**462,949**
121		Aug		**8,166**	**333,624**	**341,791**		6,870	5,520	**12,390**		**474,090**
122		Sep		**5,610**	**288,972**	**294,582**		6,650	5,340	**11,990**		**422,927**
123		Oct		**5,755**	**218,512**	**224,267**		6,870	5,520	**12,390**		**358,476**
124		Nov		**6,026**	**203,269**	**209,294**		6,650	5,340	**11,990**		**341,873**
125		Dec		**5,509**	**202,887**	**208,396**		6,870	5,520	**12,390**		**348,292**
126												
127	2011	Jan		**5,458**	**190,152**	**195,610**		6,870	5,520	**12,390**		**331,660**
128		Feb		**4,028**	**168,764**	**172,792**		6,190	4,980	**11,170**		**296,817**
129		Mar		**4,768**	**188,505**	**193,273**		6,870	5,520	**12,390**		**328,978**
130		Apr		**4,638**	**180,697**	**185,335**		6,650	5,340	**11,990**		**314,934**
131		May		**5,370**	**198,755**	**204,125**		6,870	5,520	**12,390**		**337,275**
132		Jun		**6,675**	**236,877**	**243,552**		6,650	5,340	**11,990**		**371,773**
133		Jul		**7,243**	**331,478**	**338,721**		6,870	5,520	**12,390**		**471,079**
134		Aug		**8,548**	**339,052**	**347,600**		6,870	5,520	**12,390**		**480,060**
135		Sep		**5,957**	**298,930**	**304,888**		6,650	5,340	**11,990**		**433,387**
136		Oct		**6,960**	**227,831**	**234,791**		6,870	5,520	**12,390**		**369,165**
137		Nov		**7,066**	**207,739**	**214,805**		6,650	5,340	**11,990**		**347,407**
138		Dec		**5,197**	**198,045**	**203,242**		6,870	5,520	**12,390**		**343,026**
139												
140	2012	Jan		**4,558**	**190,840**	**195,398**		6,870	5,520	**12,390**		**332,539**
141		Feb		**4,324**	**175,029**	**179,353**		6,440	5,160	**11,600**		**304,009**
142		Mar		**5,000**	**191,572**	**196,572**		6,870	5,520	**12,390**		**330,602**
143		Apr		**4,594**	**189,408**	**194,001**		6,650	5,340	**11,990**		**322,453**
144		May		**4,971**	**202,122**	**207,093**		6,870	5,520	**12,390**		**339,794**
145		Jun		**5,994**	**242,146**	**248,140**		6,650	5,340	**11,990**		**375,949**
146		Jul		**7,245**	**349,170**	**356,415**		6,870	5,520	**12,390**		**488,143**
147		Aug		**8,944**	**352,569**	**361,513**		6,870	5,520	**12,390**		**493,087**
148		Sep		**5,631**	**296,717**	**302,348**		6,650	5,340	**11,990**		**430,056**
149		Oct		**6,134**	**223,522**	**229,656**		6,870	5,520	**12,390**		**362,720**
150		Nov		**6,746**	**208,806**	**215,552**		6,650	5,340	**11,990**		**346,305**
151		Dec		**5,080**	**203,783**	**208,863**		6,870	5,520	**12,390**		**346,653**

	A	B	C	AE	AF	AG	AH	AI	AJ
1									
59	***MONTHLY FORECAST DATA***			Wholesale Noncore				**Total**	
60				Long Beach	SDG&E	Southwest Gas	Vernon	**Wholesale**	
61	**Average Year Throughput (Mth)**								
62	2006	Jan		12,449	**110,299**	12,646	5,392	**140,787**	
63		Feb		10,757	**117,225**	14,008	4,577	**146,567**	
64		Mar		13,127	**109,718**	13,567	5,336	**141,749**	
65		Apr		10,282	**92,542**	9,027	5,709	**117,561**	
66		May		8,398	**92,688**	6,014	5,186	**112,286**	
67		Jun		6,921	**75,858**	4,865	5,711	**93,356**	
68		Jul		6,333	**82,223**	4,591	5,597	**98,744**	
69		Aug		6,513	**112,383**	4,853	6,035	**129,784**	
70		Sep		6,313	**91,654**	5,002	5,734	**108,704**	
71		Oct		7,335	**87,875**	6,633	6,010	**107,853**	
72		Nov		8,245	**96,811**	8,994	4,570	**118,620**	
73		Dec		12,319	**123,177**	15,879	6,596	**157,971**	
74									
75	2007	Jan		14,051	**111,040**	17,435	6,555	**149,081**	
76		Feb		10,303	**96,179**	12,765	5,698	**124,945**	
77		Mar		9,693	**96,561**	8,940	6,292	**121,486**	
78		Apr		8,726	**82,847**	7,377	6,204	**105,154**	
79		May		7,670	**82,159**	5,427	4,882	**100,138**	
80		Jun		6,394	**74,375**	4,869	5,995	**91,633**	
81		Jul		5,777	**83,573**	4,581	6,215	**100,145**	
82		Aug		5,457	**97,226**	4,550	6,216	**113,449**	
83		Sep		5,528	**81,855**	5,011	5,455	**97,850**	
84		Oct		6,631	**107,669**	6,505	637	**121,441**	
85		Nov		11,363	**98,050**	10,714	1,324	**121,451**	
86		Dec		12,352	**121,077**	15,012	6,447	**154,888**	
87									
88	2008	Jan		12,661	**109,010**	14,079	9,455	**145,205**	
89		Feb		12,810	**95,513**	12,948	9,076	**130,347**	
90		Mar		12,100	**96,190**	10,828	9,359	**128,476**	
91		Apr		9,126	**76,086**	7,925	9,206	**102,344**	
92		May		8,014	**75,624**	6,168	9,494	**99,300**	
93		Jun		7,082	**79,415**	6,934	9,448	**102,879**	
94		Jul		7,323	**107,408**	6,656	10,007	**131,393**	
95		Aug		7,009	**116,645**	6,870	10,101	**140,625**	
96		Sep		7,070	**110,915**	6,282	9,908	**134,174**	
97		Oct		9,929	**89,567**	3,403	9,922	**112,821**	
98		Nov		11,404	**87,879**	6,376	9,454	**115,113**	
99		Dec		12,569	**120,679**	8,789	9,594	**151,631**	
100									
101	2009	Jan		12,656	**120,003**	10,188	9,494	**152,341**	
102		Feb		12,643	**97,075**	9,077	8,889	**127,684**	
103		Mar		12,080	**95,849**	7,631	9,387	**124,948**	
104		Apr		9,104	**75,687**	5,394	9,224	**99,410**	
105		May		8,069	**87,680**	4,138	9,528	**109,415**	
106		Jun		7,184	**92,516**	5,600	9,493	**114,793**	

	A	B	C	AE	AF	AG	AH	AI	AJ
1									
59	***MONTHLY FORECAST DATA***			Wholesale Noncore				**Total**	
60				Long Beach	SDG&E	Southwest Gas	Vernon	**Wholesale**	
61	**Average Year Throughput (Mth)**								
107		Jul		7,414	**113,350**	5,749	10,036	**136,548**	
108		Aug		6,995	**117,187**	6,236	10,133	**140,550**	
109		Sep		7,122	**110,968**	6,363	9,873	**134,326**	
110		Oct		10,038	**97,763**	3,490	9,889	**121,180**	
111		Nov		11,527	**109,854**	6,534	9,479	**137,395**	
112		Dec		12,466	**135,293**	9,109	9,573	**166,442**	
113									
114	2010	Jan		12,681	**125,853**	10,576	9,485	**158,595**	
115		Feb		12,668	**105,916**	9,421	8,888	**136,893**	
116		Mar		12,135	**105,840**	7,904	9,377	**135,255**	
117		Apr		9,178	**82,929**	5,571	9,298	**106,976**	
118		May		8,092	**79,897**	4,257	9,617	**101,863**	
119		Jun		7,123	**86,629**	5,692	9,600	**109,045**	
120		Jul		7,382	**117,077**	5,836	10,250	**140,545**	
121		Aug		6,935	**118,914**	6,329	10,333	**142,511**	
122		Sep		6,994	**111,261**	6,446	10,029	**134,729**	
123		Oct		9,876	**94,941**	3,580	9,989	**118,386**	
124		Nov		11,336	**108,239**	6,696	9,600	**135,871**	
125		Dec		12,437	**134,306**	9,436	9,754	**165,933**	
126									
127	2011	Jan		12,624	**122,180**	10,960	9,641	**155,405**	
128		Feb		12,656	**104,936**	9,762	9,047	**136,402**	
129		Mar		12,051	**107,843**	8,174	9,570	**137,638**	
130		Apr		9,150	**81,418**	5,747	9,391	**105,706**	
131		May		8,084	**78,220**	4,374	9,734	**100,412**	
132		Jun		7,218	**78,169**	5,783	9,741	**100,911**	
133		Jul		7,483	**94,906**	5,922	10,265	**118,577**	
134		Aug		7,000	**95,325**	6,422	10,331	**119,078**	
135		Sep		7,087	**91,794**	6,528	10,028	**115,438**	
136		Oct		9,912	**88,161**	3,668	10,000	**111,743**	
137		Nov		11,382	**99,563**	6,856	9,681	**127,482**	
138		Dec		12,499	**123,311**	9,760	9,756	**155,325**	
139									
140	2012	Jan		12,633	**119,372**	11,360	9,663	**153,029**	
141		Feb		12,624	**105,491**	10,116	9,260	**137,490**	
142		Mar		12,076	**106,244**	8,455	9,604	**136,378**	
143		Apr		9,126	**83,263**	5,930	9,491	**107,810**	
144		May		8,051	**79,566**	4,496	9,744	**101,857**	
145		Jun		7,240	**79,816**	5,878	9,814	**102,747**	
146		Jul		7,513	**96,361**	6,012	10,338	**120,224**	
147		Aug		7,042	**96,126**	6,519	10,340	**120,028**	
148		Sep		7,138	**92,111**	6,614	10,078	**115,941**	
149		Oct		9,904	**87,322**	3,760	10,027	**111,014**	
150		Nov		11,379	**100,314**	7,023	9,706	**128,423**	
151		Dec		12,434	**123,949**	10,097	9,787	**156,267**	

	A	B	C	AK	AL	AM	AN	AO	AP	AS	AT	AU
1												
59	***MONTHLY FORECAST DATA***			International NC		**Total**		**Total**				**Total**
60				Ecogas		**Noncore**		**System End-Use Dmd**		**Co-Use-Fuel**	**"Un-Acnt'd-For" (UAF)**	**System Throughput**
61	**Average Year Throughput (Mth)**											
62	2006	Jan		3,681		**479,248**		**955,274**		**4,610**	**8,522**	**968,406**
63		Feb		3,545		**453,997**		**861,313**		**4,157**	**7,684**	**873,153**
64		Mar		4,297		**483,092**		**860,909**		**4,155**	**7,680**	**872,744**
65		Apr		4,044		**462,562**		**761,436**		**3,675**	**6,793**	**771,903**
66		May		4,616		**472,857**		**717,330**		**3,462**	**6,399**	**727,191**
67		Jun		4,596		**517,619**		**722,822**		**3,488**	**6,448**	**732,759**
68		Jul		4,800		**702,716**		**894,754**		**4,318**	**7,982**	**907,055**
69		Aug		4,775		**564,569**		**756,340**		**3,650**	**6,747**	**766,737**
70		Sep		4,648		**521,165**		**715,047**		**3,451**	**6,379**	**724,877**
71		Oct		5,203		**468,535**		**693,273**		**3,346**	**6,185**	**702,803**
72		Nov		4,418		**464,488**		**802,669**		**3,874**	**7,161**	**813,703**
73		Dec		4,290		**522,523**		**1,007,052**		**4,860**	**8,984**	**1,020,896**
74												
75	2007	Jan		4,221		**509,620**		**982,658**		**4,742**	**8,766**	**996,167**
76		Feb		3,291		**432,738**		**837,662**		**4,043**	**7,473**	**849,178**
77		Mar		3,958		**451,485**		**827,133**		**3,992**	**7,379**	**838,504**
78		Apr		3,671		**434,330**		**732,298**		**3,534**	**6,533**	**742,365**
79		May		4,162		**461,314**		**705,308**		**3,404**	**6,292**	**715,003**
80		Jun		4,272		**496,080**		**700,975**		**3,383**	**6,253**	**710,611**
81		Jul		4,442		**666,098**		**857,158**		**4,137**	**7,647**	**868,942**
82		Aug		4,427		**710,278**		**901,325**		**4,350**	**8,041**	**913,716**
83		Sep		4,221		**548,466**		**741,344**		**3,578**	**6,614**	**751,535**
84		Oct		4,967		**318,466**		**542,010**		**2,616**	**4,835**	**549,461**
85		Nov		4,124		**486,632**		**822,629**		**3,970**	**7,339**	**833,937**
86		Dec		4,210		**523,922**		**1,005,274**		**4,851**	**8,968**	**1,019,094**
87												
88	2008	Jan		4,532		**481,431**		**949,303**		**4,581**	**8,469**	**962,353**
89		Feb		4,516		**432,139**		**832,442**		**4,017**	**7,426**	**843,886**
90		Mar		4,490		**456,184**		**827,667**		**3,994**	**7,384**	**839,045**
91		Apr		4,434		**418,966**		**713,166**		**3,442**	**6,362**	**722,970**
92		May		4,410		**466,494**		**707,360**		**3,414**	**6,310**	**717,084**
93		Jun		4,392		**492,806**		**695,013**		**3,354**	**6,200**	**704,568**
94		Jul		4,366		**612,948**		**801,957**		**3,870**	**7,154**	**812,981**
95		Aug		4,350		**627,849**		**816,884**		**3,942**	**7,287**	**828,113**
96		Sep		4,359		**581,243**		**772,035**		**3,726**	**6,887**	**782,648**
97		Oct		4,363		**505,356**		**726,538**		**3,506**	**6,481**	**736,525**
98		Nov		4,443		**500,479**		**832,964**		**4,020**	**7,431**	**844,415**
99		Dec		4,531		**518,178**		**994,651**		**4,800**	**8,873**	**1,008,324**
100												
101	2009	Jan		4,572		**504,555**		**972,222**		**4,692**	**8,673**	**985,587**
102		Feb		4,557		**448,839**		**848,950**		**4,097**	**7,573**	**860,620**
103		Mar		4,531		**456,292**		**827,741**		**3,995**	**7,384**	**839,120**
104		Apr		4,474		**418,048**		**712,178**		**3,437**	**6,353**	**721,968**
105		May		4,449		**457,537**		**698,435**		**3,371**	**6,231**	**708,037**
106		Jun		4,431		**492,616**		**694,906**		**3,354**	**6,199**	**704,459**

	A	B	C	AK	AL	AM	AN	AO	AP	AS	AT	AU
1												
59	***MONTHLY FORECAST DATA***			International NC		**Total**		**Total**				**Total**
60				Ecogas		**Noncore**		**System End-Use Dmd**		**Co-Use-Fuel**	**"Un-Acnt'd-For" (UAF)**	**System Throughput**
61	**Average Year Throughput (Mth)**											
107		Jul		4,405		**600,741**		**789,905**		**3,812**	**7,047**	**800,764**
108		Aug		4,389		**617,679**		**806,915**		**3,894**	**7,198**	**818,008**
109		Sep		4,398		**562,797**		**754,028**		**3,639**	**6,727**	**764,393**
110		Oct		4,402		**491,714**		**713,350**		**3,443**	**6,364**	**723,156**
111		Nov		4,483		**497,543**		**830,313**		**4,007**	**7,407**	**841,727**
112		Dec		4,571		**525,229**		**1,001,923**		**4,835**	**8,938**	**1,015,696**
113												
114	2010	Jan		4,613		**502,825**		**972,110**		**4,691**	**8,672**	**985,474**
115		Feb		4,597		**439,040**		**840,517**		**4,056**	**7,498**	**852,071**
116		Mar		4,571		**465,760**		**838,709**		**4,048**	**7,482**	**850,238**
117		Apr		4,514		**429,949**		**725,243**		**3,500**	**6,470**	**735,213**
118		May		4,489		**441,816**		**683,800**		**3,300**	**6,100**	**693,200**
119		Jun		4,470		**477,367**		**680,662**		**3,285**	**6,072**	**690,019**
120		Jul		4,444		**607,938**		**798,153**		**3,852**	**7,120**	**809,125**
121		Aug		4,428		**621,029**		**811,381**		**3,916**	**7,238**	**822,535**
122		Sep		4,437		**562,093**		**754,063**		**3,639**	**6,727**	**764,429**
123		Oct		4,441		**481,303**		**703,812**		**3,397**	**6,279**	**713,487**
124		Nov		4,523		**482,267**		**816,063**		**3,938**	**7,280**	**827,281**
125		Dec		4,612		**518,837**		**997,002**		**4,811**	**8,894**	**1,010,707**
126												
127	2011	Jan		4,616		**491,681**		**962,345**		**4,644**	**8,585**	**975,575**
128		Feb		4,600		**437,818**		**840,448**		**4,056**	**7,498**	**852,001**
129		Mar		4,574		**471,190**		**845,461**		**4,080**	**7,542**	**857,084**
130		Apr		4,516		**425,155**		**721,448**		**3,482**	**6,436**	**731,366**
131		May		4,491		**442,178**		**685,100**		**3,306**	**6,112**	**694,518**
132		Jun		4,473		**477,156**		**681,322**		**3,288**	**6,078**	**690,688**
133		Jul		4,446		**594,102**		**785,243**		**3,790**	**7,005**	**796,037**
134		Aug		4,430		**603,568**		**794,917**		**3,836**	**7,091**	**805,845**
135		Sep		4,440		**553,264**		**746,148**		**3,601**	**6,656**	**756,405**
136		Oct		4,443		**485,350**		**708,911**		**3,421**	**6,324**	**718,656**
137		Nov		4,525		**479,414**		**814,356**		**3,930**	**7,265**	**825,551**
138		Dec		4,615		**502,966**		**982,670**		**4,742**	**8,766**	**996,178**
139												
140	2012	Jan		4,618		**490,186**		**960,452**		**4,635**	**8,568**	**973,655**
141		Feb		4,602		**446,101**		**848,253**		**4,094**	**7,567**	**859,914**
142		Mar		4,576		**471,557**		**845,423**		**4,080**	**7,542**	**857,045**
143		Apr		4,518		**434,781**		**730,604**		**3,526**	**6,518**	**740,647**
144		May		4,494		**446,145**		**688,511**		**3,323**	**6,142**	**697,975**
145		Jun		4,475		**483,171**		**686,773**		**3,314**	**6,127**	**696,214**
146		Jul		4,448		**612,815**		**803,472**		**3,878**	**7,168**	**814,517**
147		Aug		4,432		**617,547**		**808,430**		**3,901**	**7,212**	**819,543**
148		Sep		4,442		**550,439**		**742,784**		**3,585**	**6,626**	**752,995**
149		Oct		4,445		**478,179**		**701,266**		**3,384**	**6,256**	**710,906**
150		Nov		4,527		**479,255**		**813,683**		**3,927**	**7,259**	**824,868**
151		Dec		4,617		**507,536**		**986,908**		**4,763**	**8,804**	**1,000,475**

2009 BCAP: SoCalGas Consolidated Gas Demand Forecast Summary (Mtherms)

Row					Nonresidential Core				Total	Noncore - G-30		
59	***MONTHLY FORECAST DATA***											
60				Residential	G-10	G-AC	G-GE	G-NGV	**Core**	G-30 (Dist.)	G-30 (Trans.)	**G-30 (Total)**
156	**Average Year Sales (Mth)**											
157	2006	Jan	31	356,464	108,580	70	441	5,900	**471,455**	0	0	**0**
158		Feb	28	296,057	100,746	66	653	5,709	**403,231**	0	0	**0**
159		Mar	31	273,410	93,019	63	911	6,642	**374,044**	0	0	**0**
160		Apr	30	207,375	81,755	56	726	5,796	**295,708**	0	0	**0**
161		May	31	155,720	78,144	72	1,205	6,499	**241,640**	0	0	**0**
162		Jun	30	122,387	71,890	110	1,775	6,529	**202,691**	0	0	**0**
163		Jul	31	115,034	65,592	149	2,398	6,557	**189,730**	0	0	**0**
164		Aug	31	114,697	65,164	204	2,470	6,941	**189,476**	0	0	**0**
165		Sep	30	113,140	68,994	158	2,383	6,816	**191,490**	0	0	**0**
166		Oct	31	142,186	71,401	138	1,440	6,982	**222,148**	0	0	**0**
167		Nov	30	234,191	92,757	94	940	6,612	**334,594**	0	0	**0**
168		Dec	31	364,114	108,285	88	959	6,484	**479,930**	0	0	**0**
169												
170	2007	Jan	31	354,279	107,443	62	559	6,163	**468,507**	0	0	**0**
171		Feb	28	294,242	99,690	62	920	5,963	**400,877**	0	0	**0**
172		Mar	31	271,733	91,996	49	1,193	6,939	**371,911**	0	0	**0**
173		Apr	30	206,104	80,855	85	1,734	6,055	**294,832**	0	0	**0**
174		May	31	154,766	77,282	75	2,276	6,789	**241,187**	0	0	**0**
175		Jun	30	121,636	71,091	98	2,761	6,820	**202,407**	0	0	**0**
176		Jul	31	114,328	64,856	133	2,607	6,850	**188,775**	0	0	**0**
177		Aug	31	113,994	64,421	175	2,932	7,252	**188,774**	0	0	**0**
178		Sep	30	112,446	68,218	163	2,562	7,120	**190,510**	0	0	**0**
179		Oct	31	141,315	70,590	138	1,642	7,294	**220,980**	0	0	**0**
180		Nov	30	232,756	91,783	97	900	6,907	**332,443**	0	0	**0**
181		Dec	31	361,882	107,184	75	878	6,774	**476,793**	0	0	**0**
182												
183	2008	Jan	31	351,310	104,773	64	321	6,959	**463,426**	0	0	**0**
184		Feb	29	291,776	97,173	85	566	6,733	**396,334**	0	0	**0**
185		Mar	31	269,456	89,556	39	935	7,835	**367,820**	0	0	**0**
186		Apr	30	204,376	78,653	67	1,197	6,836	**291,130**	0	0	**0**
187		May	31	153,469	75,150	85	1,752	7,666	**238,122**	0	0	**0**
188		Jun	30	120,617	69,083	114	2,263	7,701	**199,778**	0	0	**0**
189		Jul	31	113,370	62,971	133	2,568	7,734	**186,778**	0	0	**0**
190		Aug	31	113,039	62,526	175	2,888	8,188	**186,816**	0	0	**0**
191		Sep	30	111,504	66,255	163	2,518	8,040	**188,480**	0	0	**0**
192		Oct	31	140,130	68,561	138	1,610	8,236	**218,676**	0	0	**0**
193		Nov	30	230,805	89,423	97	880	7,799	**329,003**	0	0	**0**
194		Dec	31	358,849	104,567	75	858	7,648	**471,997**	0	0	**0**
195												
196	2009	Jan	31	351,618	103,397	64	318	7,857	**463,254**	0	0	**0**
197		Feb	28	292,032	95,893	85	561	7,602	**396,174**	0	0	**0**
198		Mar	31	269,692	88,313	39	927	8,846	**367,817**	0	0	**0**
199		Apr	30	204,556	77,560	67	1,186	7,719	**291,088**	0	0	**0**
200		May	31	153,603	74,101	85	1,736	8,655	**238,181**	0	0	**0**
201		Jun	30	120,723	68,111	114	2,242	8,695	**199,884**	0	0	**0**

2009 BCAP: SoCalGas Consolidated Gas Demand Forecast Summary (Mtherms)

	A	B	C	F	G	I	J	K	L	N	O	P
59	***MONTHLY FORECAST DATA***				Nonresidential Core				**Total**	Noncore - G-30		
60				Residential	G-10	G-AC	G-GE	G-NGV	**Core**	G-30 (Dist.)	G-30 (Trans.)	**G-30 (Total)**
156	**Average Year Sales (Mth)**											
202		Jul	31	113,470	62,075	133	2,545	8,733	**186,955**	0	0	**0**
203		Aug	31	113,138	61,622	175	2,861	9,245	**187,041**	0	0	**0**
204		Sep	30	111,602	65,597	163	2,495	9,078	**188,934**	0	0	**0**
205		Oct	31	140,253	67,861	138	1,595	9,299	**219,147**	0	0	**0**
206		Nov	30	231,007	88,528	97	871	8,806	**329,309**	0	0	**0**
207		Dec	31	359,164	103,518	75	850	8,636	**472,243**	0	0	**0**
208												
209	2010	Jan	31	353,317	102,325	64	316	8,871	**464,893**	0	0	**0**
210		Feb	28	293,443	94,889	85	558	8,584	**397,559**	0	0	**0**
211		Mar	31	270,995	87,391	39	921	9,988	**369,334**	0	0	**0**
212		Apr	30	205,544	76,762	67	1,179	8,715	**292,268**	0	0	**0**
213		May	31	154,345	73,352	85	1,726	9,773	**239,281**	0	0	**0**
214		Jun	30	121,306	67,438	114	2,229	9,818	**200,904**	0	0	**0**
215		Jul	31	114,018	61,477	133	2,530	9,860	**188,018**	0	0	**0**
216		Aug	31	113,685	61,026	175	2,845	10,438	**188,168**	0	0	**0**
217		Sep	30	112,141	64,661	163	2,480	10,250	**189,695**	0	0	**0**
218		Oct	31	140,931	66,887	138	1,586	10,500	**220,042**	0	0	**0**
219		Nov	30	232,123	87,331	97	866	9,942	**330,360**	0	0	**0**
220		Dec	31	360,899	102,171	75	845	9,751	**473,740**	0	0	**0**
221												
222	2011	Jan	31	354,998	100,912	60	315	10,017	**466,301**	0	0	**0**
223		Feb	28	294,840	93,574	80	554	9,692	**398,740**	0	0	**0**
224		Mar	31	272,285	86,167	37	916	11,277	**370,682**	0	0	**0**
225		Apr	30	206,522	75,691	63	1,172	9,841	**293,289**	0	0	**0**
226		May	31	155,080	72,332	80	1,715	11,035	**240,242**	0	0	**0**
227		Jun	30	121,883	66,504	107	2,215	11,085	**201,795**	0	0	**0**
228		Jul	31	114,561	60,629	125	2,515	11,133	**188,963**	0	0	**0**
229		Aug	31	114,226	60,181	164	2,828	11,786	**189,184**	0	0	**0**
230		Sep	30	112,674	63,762	153	2,465	11,573	**190,628**	0	0	**0**
231		Oct	31	141,601	65,950	130	1,577	11,856	**221,113**	0	0	**0**
232		Nov	30	233,228	86,126	91	861	11,226	**331,532**	0	0	**0**
233		Dec	31	362,617	100,772	70	840	11,010	**475,309**	0	0	**0**
234												
235	2012	Jan	31	356,190	99,116	60	313	10,267	**465,946**	0	0	**0**
236		Feb	29	295,829	91,907	80	551	9,934	**398,302**	0	0	**0**
237		Mar	31	273,199	84,610	37	910	11,559	**370,315**	0	0	**0**
238		Apr	30	207,215	74,322	63	1,165	10,086	**292,853**	0	0	**0**
239		May	31	155,601	71,023	80	1,705	11,310	**239,719**	0	0	**0**
240		Jun	30	122,293	65,298	107	2,202	11,362	**201,261**	0	0	**0**
241		Jul	31	114,945	59,526	125	2,500	11,411	**188,507**	0	0	**0**
242		Aug	31	114,609	59,080	164	2,811	12,080	**188,744**	0	0	**0**
243		Sep	30	113,053	62,601	153	2,451	11,862	**190,119**	0	0	**0**
244		Oct	31	142,077	64,745	130	1,567	12,152	**220,671**	0	0	**0**
245		Nov	30	234,011	84,592	91	856	11,506	**331,056**	0	0	**0**
246		Dec	31	363,834	98,995	70	835	11,284	**475,018**	0	0	**0**

	A	B	C	Q	R	S	T	U	V	W	Y	Z	AA
1													
59	***MONTHLY FORECAST DATA***			Noncore - Electric Generatiion							Noncore - EOR		
60				EG-Dist. (<3MMThms)	EG-Trans. (<3MMThms)	EG-Dist. (>=3MMThms)	EG-Trans. (>=3MMThms)	**EG (<3MMThms)**	**EG (>=3MMThms)**	**EG (Total)**	EOR (Dist.)	EOR (Trans.)	**EOR (Total)**
156	**Average Year Sales (Mth)**												
157	2006	Jan	31	0	0	0	0	**0**	**0**	**0**	0	0	**0**
158		Feb	28	0	0	0	0	**0**	**0**	**0**	0	0	**0**
159		Mar	31	0	0	0	0	**0**	**0**	**0**	0	0	**0**
160		Apr	30	0	0	0	0	**0**	**0**	**0**	0	0	**0**
161		May	31	0	0	0	0	**0**	**0**	**0**	0	0	**0**
162		Jun	30	0	0	0	0	**0**	**0**	**0**	0	0	**0**
163		Jul	31	0	0	0	0	**0**	**0**	**0**	0	0	**0**
164		Aug	31	0	0	0	0	**0**	**0**	**0**	0	0	**0**
165		Sep	30	0	0	0	0	**0**	**0**	**0**	0	0	**0**
166		Oct	31	0	0	0	0	**0**	**0**	**0**	0	0	**0**
167		Nov	30	0	0	0	0	**0**	**0**	**0**	0	0	**0**
168		Dec	31	0	0	0	0	**0**	**0**	**0**	0	0	**0**
169													
170	2007	Jan	31	0	0	0	0	**0**	**0**	**0**	0	0	**0**
171		Feb	28	0	0	0	0	**0**	**0**	**0**	0	0	**0**
172		Mar	31	0	0	0	0	**0**	**0**	**0**	0	0	**0**
173		Apr	30	0	0	0	0	**0**	**0**	**0**	0	0	**0**
174		May	31	0	0	0	0	**0**	**0**	**0**	0	0	**0**
175		Jun	30	0	0	0	0	**0**	**0**	**0**	0	0	**0**
176		Jul	31	0	0	0	0	**0**	**0**	**0**	0	0	**0**
177		Aug	31	0	0	0	0	**0**	**0**	**0**	0	0	**0**
178		Sep	30	0	0	0	0	**0**	**0**	**0**	0	0	**0**
179		Oct	31	0	0	0	0	**0**	**0**	**0**	0	0	**0**
180		Nov	30	0	0	0	0	**0**	**0**	**0**	0	0	**0**
181		Dec	31	0	0	0	0	**0**	**0**	**0**	0	0	**0**
182													
183	2008	Jan	31	0	0	0	0	**0**	**0**	**0**	0	0	**0**
184		Feb	29	0	0	0	0	**0**	**0**	**0**	0	0	**0**
185		Mar	31	0	0	0	0	**0**	**0**	**0**	0	0	**0**
186		Apr	30	0	0	0	0	**0**	**0**	**0**	0	0	**0**
187		May	31	0	0	0	0	**0**	**0**	**0**	0	0	**0**
188		Jun	30	0	0	0	0	**0**	**0**	**0**	0	0	**0**
189		Jul	31	0	0	0	0	**0**	**0**	**0**	0	0	**0**
190		Aug	31	0	0	0	0	**0**	**0**	**0**	0	0	**0**
191		Sep	30	0	0	0	0	**0**	**0**	**0**	0	0	**0**
192		Oct	31	0	0	0	0	**0**	**0**	**0**	0	0	**0**
193		Nov	30	0	0	0	0	**0**	**0**	**0**	0	0	**0**
194		Dec	31	0	0	0	0	**0**	**0**	**0**	0	0	**0**
195													
196	2009	Jan	31	0	0	0	0	**0**	**0**	**0**	0	0	**0**
197		Feb	28	0	0	0	0	**0**	**0**	**0**	0	0	**0**
198		Mar	31	0	0	0	0	**0**	**0**	**0**	0	0	**0**
199		Apr	30	0	0	0	0	**0**	**0**	**0**	0	0	**0**
200		May	31	0	0	0	0	**0**	**0**	**0**	0	0	**0**
201		Jun	30	0	0	0	0	**0**	**0**	**0**	0	0	**0**

	A	B	C	Q	R	S	T	U	V	W	Y	Z	AA
1													
59	***MONTHLY FORECAST DATA***			Noncore - Electric Generatiion							Noncore - EOR		
60				EG-Dist. (<3MMThms)	EG-Trans. (<3MMThms)	EG-Dist. (>=3MMThms)	EG-Trans. (>=3MMThms)	**EG (<3MMThms)**	**EG (>=3MMThms)**	**EG (Total)**	EOR (Dist.)	EOR (Trans.)	**EOR (Total)**
156	**Average Year Sales (Mth)**												
202		Jul	31	0	0	0	0	**0**	**0**	**0**	0	0	**0**
203		Aug	31	0	0	0	0	**0**	**0**	**0**	0	0	**0**
204		Sep	30	0	0	0	0	**0**	**0**	**0**	0	0	**0**
205		Oct	31	0	0	0	0	**0**	**0**	**0**	0	0	**0**
206		Nov	30	0	0	0	0	**0**	**0**	**0**	0	0	**0**
207		Dec	31	0	0	0	0	**0**	**0**	**0**	0	0	**0**
208													
209	2010	Jan	31	0	0	0	0	**0**	**0**	**0**	0	0	**0**
210		Feb	28	0	0	0	0	**0**	**0**	**0**	0	0	**0**
211		Mar	31	0	0	0	0	**0**	**0**	**0**	0	0	**0**
212		Apr	30	0	0	0	0	**0**	**0**	**0**	0	0	**0**
213		May	31	0	0	0	0	**0**	**0**	**0**	0	0	**0**
214		Jun	30	0	0	0	0	**0**	**0**	**0**	0	0	**0**
215		Jul	31	0	0	0	0	**0**	**0**	**0**	0	0	**0**
216		Aug	31	0	0	0	0	**0**	**0**	**0**	0	0	**0**
217		Sep	30	0	0	0	0	**0**	**0**	**0**	0	0	**0**
218		Oct	31	0	0	0	0	**0**	**0**	**0**	0	0	**0**
219		Nov	30	0	0	0	0	**0**	**0**	**0**	0	0	**0**
220		Dec	31	0	0	0	0	**0**	**0**	**0**	0	0	**0**
221													
222	2011	Jan	31	0	0	0	0	**0**	**0**	**0**	0	0	**0**
223		Feb	28	0	0	0	0	**0**	**0**	**0**	0	0	**0**
224		Mar	31	0	0	0	0	**0**	**0**	**0**	0	0	**0**
225		Apr	30	0	0	0	0	**0**	**0**	**0**	0	0	**0**
226		May	31	0	0	0	0	**0**	**0**	**0**	0	0	**0**
227		Jun	30	0	0	0	0	**0**	**0**	**0**	0	0	**0**
228		Jul	31	0	0	0	0	**0**	**0**	**0**	0	0	**0**
229		Aug	31	0	0	0	0	**0**	**0**	**0**	0	0	**0**
230		Sep	30	0	0	0	0	**0**	**0**	**0**	0	0	**0**
231		Oct	31	0	0	0	0	**0**	**0**	**0**	0	0	**0**
232		Nov	30	0	0	0	0	**0**	**0**	**0**	0	0	**0**
233		Dec	31	0	0	0	0	**0**	**0**	**0**	0	0	**0**
234													
235	2012	Jan	31	0	0	0	0	**0**	**0**	**0**	0	0	**0**
236		Feb	29	0	0	0	0	**0**	**0**	**0**	0	0	**0**
237		Mar	31	0	0	0	0	**0**	**0**	**0**	0	0	**0**
238		Apr	30	0	0	0	0	**0**	**0**	**0**	0	0	**0**
239		May	31	0	0	0	0	**0**	**0**	**0**	0	0	**0**
240		Jun	30	0	0	0	0	**0**	**0**	**0**	0	0	**0**
241		Jul	31	0	0	0	0	**0**	**0**	**0**	0	0	**0**
242		Aug	31	0	0	0	0	**0**	**0**	**0**	0	0	**0**
243		Sep	30	0	0	0	0	**0**	**0**	**0**	0	0	**0**
244		Oct	31	0	0	0	0	**0**	**0**	**0**	0	0	**0**
245		Nov	30	0	0	0	0	**0**	**0**	**0**	0	0	**0**
246		Dec	31	0	0	0	0	**0**	**0**	**0**	0	0	**0**

	A	B	C	AC	AE	AF	AG	AH	AI	AK	AM	AO
1												
59	***MONTHLY FORECAST DATA***			**Total**	Wholesale Noncore				**Total**	International NC	**Total**	**Total**
60				**Retail Noncore**	Long Beach	SDG&E	Southwest Gas	Vernon	**Wholesale**	Ecogas	**Noncore**	**System End-Use Dmd**
156	**Average Year Sales (Mth)**											
157	2006	Jan	31	**0**	0	**0**	0	0	**0**	0	**0**	**471,455**
158		Feb	28	**0**	0	**0**	0	0	**0**	0	**0**	**403,231**
159		Mar	31	**0**	0	**0**	0	0	**0**	0	**0**	**374,044**
160		Apr	30	**0**	0	**0**	0	0	**0**	0	**0**	**295,708**
161		May	31	**0**	0	**0**	0	0	**0**	0	**0**	**241,640**
162		Jun	30	**0**	0	**0**	0	0	**0**	0	**0**	**202,691**
163		Jul	31	**0**	0	**0**	0	0	**0**	0	**0**	**189,730**
164		Aug	31	**0**	0	**0**	0	0	**0**	0	**0**	**189,476**
165		Sep	30	**0**	0	**0**	0	0	**0**	0	**0**	**191,490**
166		Oct	31	**0**	0	**0**	0	0	**0**	0	**0**	**222,148**
167		Nov	30	**0**	0	**0**	0	0	**0**	0	**0**	**334,594**
168		Dec	31	**0**	0	**0**	0	0	**0**	0	**0**	**479,930**
169												
170	2007	Jan	31	**0**	0	**0**	0	0	**0**	0	**0**	**468,507**
171		Feb	28	**0**	0	**0**	0	0	**0**	0	**0**	**400,877**
172		Mar	31	**0**	0	**0**	0	0	**0**	0	**0**	**371,911**
173		Apr	30	**0**	0	**0**	0	0	**0**	0	**0**	**294,832**
174		May	31	**0**	0	**0**	0	0	**0**	0	**0**	**241,187**
175		Jun	30	**0**	0	**0**	0	0	**0**	0	**0**	**202,407**
176		Jul	31	**0**	0	**0**	0	0	**0**	0	**0**	**188,775**
177		Aug	31	**0**	0	**0**	0	0	**0**	0	**0**	**188,774**
178		Sep	30	**0**	0	**0**	0	0	**0**	0	**0**	**190,510**
179		Oct	31	**0**	0	**0**	0	0	**0**	0	**0**	**220,980**
180		Nov	30	**0**	0	**0**	0	0	**0**	0	**0**	**332,443**
181		Dec	31	**0**	0	**0**	0	0	**0**	0	**0**	**476,793**
182												
183	2008	Jan	31	**0**	0	**0**	0	0	**0**	0	**0**	**463,426**
184		Feb	29	**0**	0	**0**	0	0	**0**	0	**0**	**396,334**
185		Mar	31	**0**	0	**0**	0	0	**0**	0	**0**	**367,820**
186		Apr	30	**0**	0	**0**	0	0	**0**	0	**0**	**291,130**
187		May	31	**0**	0	**0**	0	0	**0**	0	**0**	**238,122**
188		Jun	30	**0**	0	**0**	0	0	**0**	0	**0**	**199,778**
189		Jul	31	**0**	0	**0**	0	0	**0**	0	**0**	**186,778**
190		Aug	31	**0**	0	**0**	0	0	**0**	0	**0**	**186,816**
191		Sep	30	**0**	0	**0**	0	0	**0**	0	**0**	**188,480**
192		Oct	31	**0**	0	**0**	0	0	**0**	0	**0**	**218,676**
193		Nov	30	**0**	0	**0**	0	0	**0**	0	**0**	**329,003**
194		Dec	31	**0**	0	**0**	0	0	**0**	0	**0**	**471,997**
195												
196	2009	Jan	31	**0**	0	**0**	0	0	**0**	0	**0**	**463,254**
197		Feb	28	**0**	0	**0**	0	0	**0**	0	**0**	**396,174**
198		Mar	31	**0**	0	**0**	0	0	**0**	0	**0**	**367,817**
199		Apr	30	**0**	0	**0**	0	0	**0**	0	**0**	**291,088**
200		May	31	**0**	0	**0**	0	0	**0**	0	**0**	**238,181**
201		Jun	30	**0**	0	**0**	0	0	**0**	0	**0**	**199,884**

	A	B	C	AC	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO
1															
59	***MONTHLY FORECAST DATA***			**Total**	Wholesale Noncore				**Total**		International NC		**Total**		**Total**
60				**Retail Noncore**	Long Beach	SDG&E	Southwest Gas	Vernon	**Wholesale**		Ecogas		**Noncore**		**System End-Use Dmd**
156	**Average Year Sales (Mth)**														
202		Jul	31	**0**	0	**0**	0	0	**0**		0		**0**		**186,955**
203		Aug	31	**0**	0	**0**	0	0	**0**		0		**0**		**187,041**
204		Sep	30	**0**	0	**0**	0	0	**0**		0		**0**		**188,934**
205		Oct	31	**0**	0	**0**	0	0	**0**		0		**0**		**219,147**
206		Nov	30	**0**	0	**0**	0	0	**0**		0		**0**		**329,309**
207		Dec	31	**0**	0	**0**	0	0	**0**		0		**0**		**472,243**
208															
209	2010	Jan	31	**0**	0	**0**	0	0	**0**		0		**0**		**464,893**
210		Feb	28	**0**	0	**0**	0	0	**0**		0		**0**		**397,559**
211		Mar	31	**0**	0	**0**	0	0	**0**		0		**0**		**369,334**
212		Apr	30	**0**	0	**0**	0	0	**0**		0		**0**		**292,268**
213		May	31	**0**	0	**0**	0	0	**0**		0		**0**		**239,281**
214		Jun	30	**0**	0	**0**	0	0	**0**		0		**0**		**200,904**
215		Jul	31	**0**	0	**0**	0	0	**0**		0		**0**		**188,018**
216		Aug	31	**0**	0	**0**	0	0	**0**		0		**0**		**188,168**
217		Sep	30	**0**	0	**0**	0	0	**0**		0		**0**		**189,695**
218		Oct	31	**0**	0	**0**	0	0	**0**		0		**0**		**220,042**
219		Nov	30	**0**	0	**0**	0	0	**0**		0		**0**		**330,360**
220		Dec	31	**0**	0	**0**	0	0	**0**		0		**0**		**473,740**
221															
222	2011	Jan	31	**0**	0	**0**	0	0	**0**		0		**0**		**466,301**
223		Feb	28	**0**	0	**0**	0	0	**0**		0		**0**		**398,740**
224		Mar	31	**0**	0	**0**	0	0	**0**		0		**0**		**370,682**
225		Apr	30	**0**	0	**0**	0	0	**0**		0		**0**		**293,289**
226		May	31	**0**	0	**0**	0	0	**0**		0		**0**		**240,242**
227		Jun	30	**0**	0	**0**	0	0	**0**		0		**0**		**201,795**
228		Jul	31	**0**	0	**0**	0	0	**0**		0		**0**		**188,963**
229		Aug	31	**0**	0	**0**	0	0	**0**		0		**0**		**189,184**
230		Sep	30	**0**	0	**0**	0	0	**0**		0		**0**		**190,628**
231		Oct	31	**0**	0	**0**	0	0	**0**		0		**0**		**221,113**
232		Nov	30	**0**	0	**0**	0	0	**0**		0		**0**		**331,532**
233		Dec	31	**0**	0	**0**	0	0	**0**		0		**0**		**475,309**
234															
235	2012	Jan	31	**0**	0	**0**	0	0	**0**		0		**0**		**465,946**
236		Feb	29	**0**	0	**0**	0	0	**0**		0		**0**		**398,302**
237		Mar	31	**0**	0	**0**	0	0	**0**		0		**0**		**370,315**
238		Apr	30	**0**	0	**0**	0	0	**0**		0		**0**		**292,853**
239		May	31	**0**	0	**0**	0	0	**0**		0		**0**		**239,719**
240		Jun	30	**0**	0	**0**	0	0	**0**		0		**0**		**201,261**
241		Jul	31	**0**	0	**0**	0	0	**0**		0		**0**		**188,507**
242		Aug	31	**0**	0	**0**	0	0	**0**		0		**0**		**188,744**
243		Sep	30	**0**	0	**0**	0	0	**0**		0		**0**		**190,119**
244		Oct	31	**0**	0	**0**	0	0	**0**		0		**0**		**220,671**
245		Nov	30	**0**	0	**0**	0	0	**0**		0		**0**		**331,056**
246		Dec	31	**0**	0	**0**	0	0	**0**		0		**0**		**475,018**

2009 BCAP: SoCalGas Consolidated Gas Demand Forecast Summary (Mtherms)

	A	B	F	G	I	J	K	L
59	***MONTHLY FORECAST DATA***			Nonresidential Core				**Total**
60			Residential	G-10	G-AC	G-GE	G-NGV	**Core**
251	**Cold Year Throughput (Mth)**							
252	2006	Jan	408,675	120,911	70	441	5,908	**536,004**
253		Feb	337,774	111,210	66	653	5,717	**455,420**
254		Mar	308,014	101,627	63	911	6,651	**417,265**
255		Apr	228,589	87,645	56	726	5,804	**322,820**
256		May	165,298	83,193	72	1,205	6,508	**256,276**
257		Jun	125,563	75,417	110	1,775	6,538	**209,404**
258		Jul	115,981	67,678	149	2,398	6,566	**192,773**
259		Aug	115,474	67,081	204	2,470	6,951	**192,179**
260		Sep	114,416	71,893	158	2,383	6,825	**195,675**
261		Oct	148,831	74,816	138	1,440	6,992	**232,217**
262		Nov	261,185	101,299	94	940	6,621	**370,139**
263		Dec	417,964	120,547	88	959	6,493	**546,051**
264								
265	2007	Jan	406,169	119,657	62	559	6,172	**532,620**
266		Feb	335,703	110,055	62	920	5,972	**452,712**
267		Mar	306,125	100,514	49	1,193	6,949	**414,830**
268		Apr	227,187	86,684	85	1,734	6,063	**321,753**
269		May	164,285	82,278	75	2,276	6,799	**255,713**
270		Jun	124,793	74,581	98	2,761	6,830	**209,064**
271		Jul	115,270	66,920	133	2,607	6,860	**191,790**
272		Aug	114,766	66,315	175	2,932	7,262	**191,450**
273		Sep	113,715	71,085	163	2,562	7,131	**194,656**
274		Oct	147,918	73,965	138	1,642	7,305	**230,969**
275		Nov	259,584	100,246	97	900	6,917	**367,744**
276		Dec	415,402	119,335	75	878	6,784	**542,474**
277								
278	2008	Jan	402,765	116,743	64	321	6,969	**526,862**
279		Feb	332,889	107,333	85	566	6,743	**447,617**
280		Mar	303,560	97,885	39	935	7,846	**410,265**
281		Apr	225,283	84,351	67	1,197	6,846	**317,745**
282		May	162,908	80,033	85	1,752	7,677	**252,455**
283		Jun	123,747	72,489	114	2,263	7,712	**206,325**
284		Jul	114,304	64,979	133	2,568	7,745	**189,730**
285		Aug	113,804	64,363	175	2,888	8,199	**189,430**
286		Sep	112,761	69,047	163	2,518	8,051	**192,542**
287		Oct	146,679	71,847	138	1,610	8,248	**228,522**
288		Nov	257,408	97,716	97	880	7,810	**363,911**
289		Dec	411,920	116,488	75	858	7,659	**537,000**
290								
291	2009	Jan	403,119	115,226	64	318	7,868	**526,596**
292		Feb	333,182	105,934	85	561	7,613	**447,376**
293		Mar	303,826	96,534	39	927	8,859	**410,184**
294		Apr	225,481	83,185	67	1,186	7,730	**317,649**
295		May	163,051	78,921	85	1,736	8,668	**252,461**
296		Jun	123,856	71,472	114	2,242	8,708	**206,391**
297		Jul	114,404	64,055	133	2,545	8,745	**189,882**
298		Aug	113,904	63,429	175	2,861	9,258	**189,628**
299		Sep	112,860	68,358	163	2,495	9,091	**192,967**
300		Oct	146,807	71,105	138	1,595	9,313	**228,959**
301		Nov	257,634	96,733	97	871	8,818	**364,154**
302		Dec	412,282	115,315	75	850	8,648	**537,170**

	A	B	F	G	H	I	J	K	L	M
1			**2009 BCAP: SoCalGas Consolidated Gas Demand Forecast Summary (Mtherms)**							
59	***MONTHLY FORECAST DATA***			Nonresidential Core					**Total**	
60			Residential	G-10		G-AC	G-GE	G-NGV	**Core**	
251	**Cold Year Throughput (Mth)**									
303										
304	2010	Jan	405,066	114,026		64	316	8,884	**528,356**	
305		Feb	334,791	104,822		85	558	8,596	**448,852**	
306		Mar	305,294	95,518		39	921	10,002	**411,774**	
307		Apr	226,570	82,325		67	1,179	8,728	**318,869**	
308		May	163,838	78,120		85	1,726	9,787	**253,556**	
309		Jun	124,454	70,764		114	2,229	9,832	**207,392**	
310		Jul	114,957	63,439		133	2,530	9,874	**190,932**	
311		Aug	114,454	62,815		175	2,845	10,453	**190,742**	
312		Sep	113,406	67,386		163	2,480	10,264	**193,699**	
313		Oct	147,516	70,087		138	1,586	10,515	**229,843**	
314		Nov	258,879	95,442		97	866	9,957	**365,240**	
315		Dec	414,273	113,835		75	845	9,765	**538,793**	
316										
317	2011	Jan	406,994	112,453		60	315	10,031	**529,852**	
318		Feb	336,385	103,371		80	554	9,706	**450,096**	
319		Mar	306,747	94,180		37	916	11,294	**413,173**	
320		Apr	227,649	81,177		63	1,172	9,855	**319,915**	
321		May	164,618	77,033		80	1,715	11,050	**254,497**	
322		Jun	125,047	69,784		107	2,215	11,101	**208,254**	
323		Jul	115,504	62,564		125	2,515	11,149	**191,856**	
324		Aug	114,999	61,944		164	2,828	11,803	**191,738**	
325		Sep	113,945	66,448		153	2,465	11,589	**194,602**	
326		Oct	148,219	69,104		130	1,577	11,873	**230,902**	
327		Nov	260,111	94,127		91	861	11,242	**366,432**	
328		Dec	416,245	112,279		70	840	11,025	**540,460**	
329										
330	2012	Jan	408,360	110,458		60	313	10,281	**529,472**	
331		Feb	337,514	101,536		80	551	9,948	**449,629**	
332		Mar	307,777	92,481		37	910	11,576	**412,780**	
333		Apr	228,413	79,711		63	1,165	10,101	**319,453**	
334		May	165,171	75,641		80	1,705	11,326	**253,923**	
335		Jun	125,466	68,519		107	2,202	11,378	**207,673**	
336		Jul	115,891	61,426		125	2,500	11,428	**191,369**	
337		Aug	115,385	60,811		164	2,811	12,097	**191,268**	
338		Sep	114,328	65,239		153	2,451	11,879	**194,049**	
339		Oct	148,716	67,841		130	1,567	12,169	**230,423**	
340		Nov	260,984	92,455		91	856	11,523	**365,909**	
341		Dec	417,642	110,306		70	835	11,301	**540,154**	
342										
343										
344				Nonresidential Core					**Total**	
345	**Peak Day TPut (Mth/Day)**		Residential	G-10		G-AC	G-GE	G-NGV	**Core**	
346	2006		25,809	6,091		3	31	209	**32,143**	
347	2007		25,713	6,033		2	28	219	**31,996**	
348	2008		25,584	5,904		2	28	247	**31,765**	
349	2009		25,597	5,843		2	27	279	**31,749**	
350	2010		25,671	5,773		2	27	315	**31,789**	
351	2011		25,745	5,694		2	27	356	**31,824**	
352	2012		25,797	5,596		2	27	365	**31,786**	

	A	B	N	O	P	Q	R	S	T
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59	***MONTHLY FORECAST DAT***			Noncore - G-30					Noncore - Electric Gene
60			G-30 (Dist.)	G-30 (Trans.)	**G-30 (Total)**	EG-Dist. (<3MMThms)	EG-Trans. (<3MMThms)	EG-Dist. (>=3MMThms)	EG-Trans. (>=3MMThms)
251	**Cold Year Throughput (Mth)**								
252	2006	Jan	94,237	44,657	**138,895**	3,970	317	45,267	123,326
253		Feb	85,298	38,615	**123,913**	3,393	226	36,223	117,514
254		Mar	96,386	42,181	**138,567**	4,334	665	34,086	134,302
255		Apr	88,826	38,965	**127,791**	5,041	645	24,028	159,566
256		May	88,568	40,430	**128,999**	5,467	1,881	32,350	162,330
257		Jun	82,172	37,530	**119,702**	6,590	1,711	46,832	220,451
258		Jul	84,643	39,694	**124,337**	8,241	3,720	62,999	374,277
259		Aug	91,541	39,060	**130,601**	5,739	2,285	51,977	213,889
260		Sep	86,881	37,472	**124,352**	5,177	2,147	45,407	202,618
261		Oct	88,174	40,256	**128,430**	5,727	1,283	49,911	135,604
262		Nov	81,553	37,580	**119,133**	4,977	741	47,333	137,031
263		Dec	86,900	43,719	**130,619**	4,325	407	37,725	152,823
264									
265	2007	Jan	93,688	43,854	**137,542**	6,492	415	32,216	145,711
266		Feb	81,415	34,763	**116,178**	3,882	406	43,768	111,101
267		Mar	91,329	42,690	**134,019**	4,058	497	51,860	106,477
268		Apr	87,015	41,094	**128,108**	3,938	994	52,440	111,319
269		May	88,441	41,967	**130,408**	4,280	603	47,613	140,718
270		Jun	81,579	34,358	**115,938**	4,676	1,182	43,647	201,733
271		Jul	84,989	37,184	**122,174**	7,054	1,232	57,096	340,250
272		Aug	86,859	40,631	**127,490**	6,986	3,399	59,330	362,843
273		Sep	84,487	40,046	**124,533**	5,231	793	45,018	239,533
274		Oct	87,214	41,372	**128,585**	4,017	249	14,037	12,922
275		Nov	86,291	39,882	**126,173**	5,643	2,467	50,596	145,369
276		Dec	91,893	41,498	**133,390**	5,790	1,947	49,562	142,763
277									
278	2008	Jan	87,174	38,954	**126,129**	5,784	2,083	48,629	118,276
279		Feb	79,292	37,734	**117,026**	4,298	1,358	40,097	105,560
280		Mar	85,872	39,730	**125,602**	5,637	2,025	44,653	114,181
281		Apr	81,545	37,955	**119,500**	5,436	1,752	38,232	116,953
282		May	83,148	39,217	**122,366**	5,670	1,297	49,203	152,665
283		Jun	79,749	37,900	**117,648**	5,550	1,283	48,143	182,261
284		Jul	82,217	39,060	**121,278**	6,317	1,542	55,022	262,267
285		Aug	82,214	39,068	**121,281**	6,770	1,943	56,727	265,387
286		Sep	79,645	38,060	**117,705**	5,554	1,124	53,925	234,656
287		Oct	83,353	40,111	**123,464**	5,376	1,718	49,076	177,881
288		Nov	83,017	39,635	**122,652**	5,949	1,853	48,116	176,203
289		Dec	88,659	41,387	**130,046**	4,968	1,564	47,301	151,575
290									
291	2009	Jan	86,386	38,244	**124,630**	5,010	1,902	44,912	143,475
292		Feb	77,819	35,710	**113,529**	4,672	1,643	40,818	130,829
293		Mar	84,980	38,830	**123,810**	5,532	1,779	38,902	145,031
294		Apr	80,702	37,126	**117,828**	4,471	1,374	37,147	141,740
295		May	82,297	38,391	**120,688**	5,388	1,164	43,677	160,533
296		Jun	78,938	37,128	**116,066**	5,058	1,001	45,001	194,326
297		Jul	81,417	38,327	**119,745**	6,061	1,296	54,435	265,868
298		Aug	81,447	38,396	**119,843**	6,569	1,977	56,497	275,468
299		Sep	78,898	37,407	**116,305**	5,356	924	53,165	236,347
300		Oct	82,526	39,329	**121,855**	5,836	2,665	47,936	175,564
301		Nov	82,188	38,831	**121,019**	5,947	2,274	47,383	167,543
302		Dec	87,830	40,602	**128,431**	4,846	2,225	47,008	160,302

	A	B	N	O	P	Q	R	S	T
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59	***MONTHLY FORECAST DAT***			Noncore - G-30					Noncore - Electric Gene
60			G-30 (Dist.)	G-30 (Trans.)	**G-30 (Total)**	EG-Dist. (<3MMThms)	EG-Trans. (<3MMThms)	EG-Dist. (>=3MMThms)	EG-Trans. (>=3MMThms)
251	**Cold Year Throughput (Mth)**								
303									
304	2010	Jan	86,579	38,166	**124,745**	4,994	2,248	48,354	147,843
305		Feb	77,990	35,650	**113,640**	3,897	702	37,852	131,053
306		Mar	85,181	38,765	**123,946**	4,447	651	40,687	144,444
307		Apr	80,909	37,094	**118,003**	4,382	626	38,531	145,312
308		May	82,416	38,386	**120,802**	4,645	742	40,906	156,147
309		Jun	79,047	37,123	**116,169**	4,937	847	44,260	185,698
310		Jul	81,495	38,319	**119,814**	5,772	1,776	53,142	270,061
311		Aug	81,525	38,389	**119,914**	5,834	2,332	57,255	276,369
312		Sep	78,968	37,401	**116,369**	5,104	506	53,101	235,871
313		Oct	82,607	39,325	**121,932**	4,572	1,183	44,631	173,881
314		Nov	82,256	38,823	**121,079**	4,790	1,235	45,736	157,532
315		Dec	87,905	40,588	**128,494**	4,420	1,089	48,056	154,831
316									
317	2011	Jan	86,547	38,070	**124,617**	4,290	1,168	42,453	147,699
318		Feb	77,978	35,640	**113,618**	3,678	349	37,146	131,618
319		Mar	85,193	38,752	**123,945**	4,234	534	39,336	149,170
320		Apr	80,913	37,080	**117,993**	4,115	524	39,221	141,476
321		May	82,546	38,380	**120,927**	4,750	620	42,383	156,372
322		Jun	79,167	37,114	**116,281**	5,506	1,169	45,469	191,407
323		Jul	81,664	38,311	**119,974**	5,691	1,552	54,688	276,790
324		Aug	81,694	38,381	**120,074**	6,702	1,846	57,027	282,025
325		Sep	79,128	37,394	**116,523**	4,967	990	53,015	245,915
326		Oct	82,777	39,320	**122,097**	5,037	1,923	48,295	179,537
327		Nov	82,370	38,732	**121,102**	5,520	1,546	44,498	163,242
328		Dec	87,978	40,404	**128,382**	4,231	965	42,462	155,583
329									
330	2012	Jan	86,867	38,841	**125,709**	4,283	275	39,782	151,058
331		Feb	77,978	35,841	**113,819**	3,938	386	37,741	137,288
332		Mar	84,545	37,726	**122,271**	4,420	580	39,219	152,353
333		Apr	80,451	36,395	**116,846**	4,236	357	39,977	149,431
334		May	82,326	38,152	**120,478**	4,578	392	43,391	158,732
335		Jun	78,959	36,910	**115,869**	5,031	964	44,637	197,509
336		Jul	81,380	37,964	**119,344**	5,838	1,406	55,984	293,186
337		Aug	81,321	37,868	**119,189**	6,909	2,035	58,076	294,493
338		Sep	78,786	36,945	**115,731**	5,005	626	54,080	242,638
339		Oct	82,250	38,537	**120,787**	5,034	1,100	48,274	175,248
340		Nov	81,652	37,601	**119,253**	5,188	1,558	43,376	165,431
341		Dec	87,207	39,180	**126,387**	4,515	565	46,139	157,644
342									
343									
344				Noncore - G-30					Noncore - Electric Gene
345	**Peak Day TPut (Mth/Day)**		G-30 (Dist.)	G-30 (Trans.)	**G-30 (Total)**	EG-Dist. (<3MMThms)	EG-Trans. (<3MMThms)	EG-Dist. (>=3MMThms)	EG-Trans. (>=3MMThms)
346	2006		3,230	1,433	**4,663**	128	6	1,553	5,831
347	2007		3,165	1,349	**4,514**	288	122	1,809	5,833
348	2008		3,043	1,344	**4,388**	187	117	1,955	6,926
349	2009		3,017	1,319	**4,335**	173	113	1,977	5,958
350	2010		3,021	1,318	**4,339**	159	11	1,512	6,593
351	2011		3,021	1,312	**4,334**	138	35	1,680	6,063
352	2012		2,996	1,273	**4,269**	182	31	1,950	6,863

	A	B	U	V	W	Y	Z	AA	AC
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59	***MONTHLY FORECAST DAT***		atiion				Noncore - EOR		**Total**
60			**EG (<3MMThms)**	**EG (>=3MMThms)**	**EG (Total)**	EOR (Dist.)	EOR (Trans.)	**EOR (Total)**	**Retail Noncore**
251	**Cold Year Throughput (Mth)**								
252	2006	Jan	**4,288**	**168,593**	**172,880**	4,002	19,961	**23,963**	**335,738**
253		Feb	**3,619**	**153,737**	**157,357**	3,904	19,474	**23,378**	**304,648**
254		Mar	**4,999**	**168,388**	**173,387**	4,296	21,427	**25,723**	**337,677**
255		Apr	**5,686**	**183,594**	**189,280**	4,053	20,217	**24,270**	**341,341**
256		May	**7,347**	**194,680**	**202,027**	4,191	20,905	**25,096**	**356,122**
257		Jun	**8,301**	**267,283**	**275,584**	4,080	20,350	**24,430**	**419,717**
258		Jul	**11,960**	**437,277**	**449,237**	4,276	21,328	**25,604**	**599,178**
259		Aug	**8,025**	**265,866**	**273,891**	4,262	21,260	**25,522**	**430,015**
260		Sep	**7,324**	**248,025**	**255,349**	4,697	23,429	**28,126**	**407,827**
261		Oct	**7,010**	**185,514**	**192,524**	5,785	28,854	**34,639**	**355,593**
262		Nov	**5,718**	**184,365**	**190,083**	5,465	27,259	**32,724**	**341,940**
263		Dec	**4,732**	**190,548**	**195,280**	5,903	29,446	**35,349**	**361,249**
264									
265	2007	Jan	**6,907**	**177,927**	**184,834**	4,630	30,270	**34,900**	**357,276**
266		Feb	**4,289**	**154,868**	**159,157**	4,270	25,660	**29,930**	**305,265**
267		Mar	**4,555**	**158,337**	**162,892**	4,320	25,440	**29,760**	**326,671**
268		Apr	**4,932**	**163,759**	**168,691**	4,480	24,610	**29,090**	**325,890**
269		May	**4,883**	**188,331**	**193,214**	4,840	28,720	**33,560**	**357,182**
270		Jun	**5,858**	**245,380**	**251,238**	4,560	28,490	**33,050**	**400,225**
271		Jul	**8,286**	**397,346**	**405,633**	4,900	28,810	**33,710**	**561,516**
272		Aug	**10,385**	**422,173**	**432,557**	4,690	27,670	**32,360**	**592,407**
273		Sep	**6,025**	**284,551**	**290,576**	4,530	26,770	**31,300**	**446,409**
274		Oct	**4,266**	**26,959**	**31,225**	4,690	27,670	**32,360**	**192,171**
275		Nov	**8,110**	**195,965**	**204,074**	4,530	26,770	**31,300**	**361,548**
276		Dec	**7,736**	**192,325**	**200,061**	4,690	27,670	**32,360**	**365,812**
277									
278	2008	Jan	**7,867**	**166,905**	**174,773**	4,660	27,090	**31,750**	**332,652**
279		Feb	**5,656**	**145,657**	**151,314**	4,360	25,340	**29,700**	**298,039**
280		Mar	**7,662**	**158,834**	**166,496**	4,660	27,090	**31,750**	**323,848**
281		Apr	**7,188**	**155,185**	**162,373**	4,490	26,210	**30,700**	**312,573**
282		May	**6,967**	**201,868**	**208,835**	4,660	27,090	**31,750**	**362,951**
283		Jun	**6,832**	**230,404**	**237,237**	4,490	26,210	**30,700**	**385,585**
284		Jul	**7,858**	**317,289**	**325,147**	3,680	27,090	**30,770**	**477,195**
285		Aug	**8,713**	**322,114**	**330,828**	3,680	27,090	**30,770**	**482,879**
286		Sep	**6,677**	**288,581**	**295,258**	3,550	26,210	**29,760**	**442,724**
287		Oct	**7,094**	**226,957**	**234,052**	3,680	27,090	**30,770**	**388,286**
288		Nov	**7,802**	**224,319**	**232,121**	3,540	23,100	**26,640**	**381,413**
289		Dec	**6,532**	**198,877**	**205,408**	3,680	23,870	**27,550**	**363,004**
290									
291	2009	Jan	**6,911**	**188,387**	**195,299**	6,870	21,800	**28,670**	**348,599**
292		Feb	**6,314**	**171,648**	**177,962**	6,190	19,680	**25,870**	**317,361**
293		Mar	**7,311**	**183,932**	**191,243**	6,870	5,520	**12,390**	**327,443**
294		Apr	**5,844**	**178,887**	**184,732**	6,650	5,340	**11,990**	**314,549**
295		May	**6,552**	**204,210**	**210,762**	6,870	5,520	**12,390**	**343,839**
296		Jun	**6,059**	**239,327**	**245,386**	6,650	5,340	**11,990**	**373,442**
297		Jul	**7,357**	**320,303**	**327,660**	6,870	5,520	**12,390**	**459,795**
298		Aug	**8,547**	**331,965**	**340,511**	6,870	5,520	**12,390**	**472,744**
299		Sep	**6,280**	**289,512**	**295,792**	6,650	5,340	**11,990**	**424,087**
300		Oct	**8,501**	**223,499**	**232,001**	6,870	5,520	**12,390**	**366,245**
301		Nov	**8,221**	**214,926**	**223,146**	6,650	5,340	**11,990**	**356,156**
302		Dec	**7,072**	**207,311**	**214,382**	6,870	5,520	**12,390**	**355,204**

	A	B	U	V	W	Y	Z	AA	AC
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59	***MONTHLY FORECAST DAT***		atiion				Noncore - EOR		**Total**
60			**EG (<3MMThms)**	**EG (>=3MMThms)**	**EG (Total)**	EOR (Dist.)	EOR (Trans.)	**EOR (Total)**	**Retail Noncore**
251	**Cold Year Throughput (Mth)**								
303									
304	2010	Jan	**7,242**	**196,197**	**203,439**	6,870	5,520	**12,390**	**340,574**
305		Feb	**4,599**	**168,905**	**173,503**	6,190	4,980	**11,170**	**298,313**
306		Mar	**5,097**	**185,131**	**190,228**	6,870	5,520	**12,390**	**326,564**
307		Apr	**5,007**	**183,844**	**188,851**	6,650	5,340	**11,990**	**318,844**
308		May	**5,386**	**197,053**	**202,439**	6,870	5,520	**12,390**	**335,631**
309		Jun	**5,784**	**229,958**	**235,742**	6,650	5,340	**11,990**	**363,901**
310		Jul	**7,548**	**323,203**	**330,751**	6,870	5,520	**12,390**	**462,955**
311		Aug	**8,166**	**333,624**	**341,791**	6,870	5,520	**12,390**	**474,095**
312		Sep	**5,610**	**288,972**	**294,582**	6,650	5,340	**11,990**	**422,941**
313		Oct	**5,755**	**218,512**	**224,267**	6,870	5,520	**12,390**	**358,589**
314		Nov	**6,026**	**203,269**	**209,294**	6,650	5,340	**11,990**	**342,363**
315		Dec	**5,509**	**202,887**	**208,396**	6,870	5,520	**12,390**	**349,280**
316									
317	2011	Jan	**5,458**	**190,152**	**195,610**	6,870	5,520	**12,390**	**332,617**
318		Feb	**4,028**	**168,764**	**172,792**	6,190	4,980	**11,170**	**297,579**
319		Mar	**4,768**	**188,505**	**193,273**	6,870	5,520	**12,390**	**329,609**
320		Apr	**4,638**	**180,697**	**185,335**	6,650	5,340	**11,990**	**315,318**
321		May	**5,370**	**198,755**	**204,125**	6,870	5,520	**12,390**	**337,442**
322		Jun	**6,675**	**236,877**	**243,552**	6,650	5,340	**11,990**	**371,823**
323		Jul	**7,243**	**331,478**	**338,721**	6,870	5,520	**12,390**	**471,085**
324		Aug	**8,548**	**339,052**	**347,600**	6,870	5,520	**12,390**	**480,065**
325		Sep	**5,957**	**298,930**	**304,888**	6,650	5,340	**11,990**	**433,400**
326		Oct	**6,960**	**227,831**	**234,791**	6,870	5,520	**12,390**	**369,278**
327		Nov	**7,066**	**207,739**	**214,805**	6,650	5,340	**11,990**	**347,897**
328		Dec	**5,197**	**198,045**	**203,242**	6,870	5,520	**12,390**	**344,013**
329									
330	2012	Jan	**4,558**	**190,840**	**195,398**	6,870	5,520	**12,390**	**333,496**
331		Feb	**4,324**	**175,029**	**179,353**	6,440	5,160	**11,600**	**304,772**
332		Mar	**5,000**	**191,572**	**196,572**	6,870	5,520	**12,390**	**331,232**
333		Apr	**4,594**	**189,408**	**194,001**	6,650	5,340	**11,990**	**322,837**
334		May	**4,971**	**202,122**	**207,093**	6,870	5,520	**12,390**	**339,961**
335		Jun	**5,994**	**242,146**	**248,140**	6,650	5,340	**11,990**	**375,999**
336		Jul	**7,245**	**349,170**	**356,415**	6,870	5,520	**12,390**	**488,149**
337		Aug	**8,944**	**352,569**	**361,513**	6,870	5,520	**12,390**	**493,092**
338		Sep	**5,631**	**296,717**	**302,348**	6,650	5,340	**11,990**	**430,069**
339		Oct	**6,134**	**223,522**	**229,656**	6,870	5,520	**12,390**	**362,833**
340		Nov	**6,746**	**208,806**	**215,552**	6,650	5,340	**11,990**	**346,795**
341		Dec	**5,080**	**203,783**	**208,863**	6,870	5,520	**12,390**	**347,640**
342									
343									
344			atiion				Noncore - EOR		**Total**
345	**Peak Day TPut (Mth/Day)**		**EG (<3MMThms)**	**EG (>=3MMThms)**	**EG (Total)**	EOR (Dist.)	EOR (Trans.)	**EOR (Total)**	**Retail Noncore**
346	2006		**134**	**7,384**	**7,518**	190	950	**1,140**	**13,321**
347	2007		**410**	**7,642**	**8,052**	152	893	**1,045**	**13,611**
348	2008		**304**	**8,881**	**9,185**	119	770	**889**	**14,462**
349	2009		**286**	**7,935**	**8,221**	222	178	**400**	**12,956**
350	2010		**170**	**8,105**	**8,275**	222	178	**400**	**13,014**
351	2011		**173**	**7,743**	**7,916**	222	178	**400**	**12,650**
352	2012		**213**	**8,812**	**9,026**	222	178	**400**	**13,695**

	A	B	AE	AF	AG	AH	AI	AJ
1								
59	***MONTHLY FORECAST DAT***		Wholesale Noncore				**Total**	
60			Long Beach	SDG&E	Southwest Gas	Vernon	**Wholesale**	
251	**Cold Year Throughput (Mth)**							
252	2006	Jan	12,449	**120,057**	12,646	5,392	**150,544**	
253		Feb	10,757	**125,594**	14,008	4,577	**154,936**	
254		Mar	13,127	**116,886**	13,567	5,336	**148,917**	
255		Apr	10,282	**96,357**	9,027	5,709	**121,376**	
256		May	8,398	**94,734**	6,014	5,186	**114,332**	
257		Jun	6,921	**76,376**	4,865	5,711	**93,874**	
258		Jul	6,333	**87,237**	4,591	5,597	**103,758**	
259		Aug	6,513	**112,419**	4,853	6,035	**129,820**	
260		Sep	6,313	**91,975**	5,002	5,734	**109,025**	
261		Oct	7,335	**88,355**	6,633	6,010	**108,332**	
262		Nov	8,245	**102,096**	8,994	4,570	**123,905**	
263		Dec	12,319	**133,456**	15,879	6,596	**168,250**	
264								
265	2007	Jan	14,051	**120,761**	17,435	6,555	**158,803**	
266		Feb	10,303	**104,516**	12,765	5,698	**133,282**	
267		Mar	9,693	**103,701**	8,940	6,292	**128,626**	
268		Apr	8,726	**86,647**	7,377	6,204	**108,954**	
269		May	7,670	**84,196**	5,427	4,882	**102,175**	
270		Jun	6,394	**74,891**	4,869	5,995	**92,148**	
271		Jul	5,777	**88,573**	4,581	6,215	**105,146**	
272		Aug	5,457	**97,262**	4,550	6,216	**113,486**	
273		Sep	5,528	**82,174**	5,011	5,455	**98,169**	
274		Oct	6,631	**108,146**	6,505	637	**121,919**	
275		Nov	12,029	**103,317**	9,895	1,324	**126,564**	
276		Dec	13,485	**131,319**	15,396	6,447	**166,648**	
277								
278	2008	Jan	13,879	**118,698**	17,923	9,455	**159,955**	
279		Feb	13,886	**103,820**	16,037	9,076	**142,819**	
280		Mar	12,991	**103,303**	13,335	9,359	**138,987**	
281		Apr	9,776	**79,873**	9,191	9,206	**108,046**	
282		May	8,330	**77,652**	6,646	9,494	**102,122**	
283		Jun	7,189	**79,926**	7,480	9,448	**104,043**	
284		Jul	7,412	**112,402**	7,568	10,007	**137,388**	
285		Aug	7,093	**116,682**	7,946	10,101	**141,820**	
286		Sep	7,155	**111,232**	6,356	9,908	**134,651**	
287		Oct	10,162	**90,043**	3,479	9,922	**113,605**	
288		Nov	12,069	**93,132**	6,513	9,454	**121,169**	
289		Dec	13,702	**130,889**	9,061	9,594	**163,246**	
290								
291	2009	Jan	13,875	**129,788**	10,526	9,494	**163,684**	
292		Feb	13,719	**105,463**	9,377	8,889	**137,448**	
293		Mar	12,971	**103,031**	7,870	9,387	**133,259**	
294		Apr	9,754	**79,511**	5,550	9,224	**104,039**	
295		May	8,386	**89,725**	4,243	9,528	**111,882**	
296		Jun	7,291	**93,031**	5,684	9,493	**115,499**	
297		Jul	7,503	**118,409**	5,829	10,036	**141,777**	
298		Aug	7,079	**117,224**	6,322	10,133	**140,758**	
299		Sep	7,207	**111,286**	6,441	9,873	**134,807**	
300		Oct	10,271	**98,245**	3,570	9,889	**121,974**	
301		Nov	12,193	**115,166**	6,678	9,479	**143,517**	
302		Dec	13,599	**145,610**	9,395	9,573	**178,177**	

	A	B	AE	AF	AG	AH	AI	AJ
1								
59	***MONTHLY FORECAST DAT***			Wholesale Noncore			**Total**	
60			Long Beach	SDG&E	Southwest Gas	Vernon	**Wholesale**	
251	**Cold Year Throughput (Mth)**							
303								
304	2010	Jan	13,899	**135,682**	10,928	9,485	**169,995**	
305		Feb	13,745	**114,340**	9,733	8,888	**146,706**	
306		Mar	13,026	**113,051**	8,152	9,377	**143,606**	
307		Apr	9,828	**86,769**	5,733	9,298	**111,629**	
308		May	8,409	**81,949**	4,366	9,617	**104,341**	
309		Jun	7,231	**87,144**	5,780	9,600	**109,755**	
310		Jul	7,471	**122,172**	5,920	10,250	**145,813**	
311		Aug	7,019	**118,951**	6,420	10,333	**142,723**	
312		Sep	7,079	**111,579**	6,527	10,029	**135,213**	
313		Oct	10,109	**95,425**	3,662	9,989	**119,186**	
314		Nov	12,001	**113,580**	6,846	9,600	**142,028**	
315		Dec	13,571	**144,672**	9,733	9,754	**177,731**	
316								
317	2011	Jan	13,842	**132,036**	11,327	9,641	**166,847**	
318		Feb	13,733	**113,382**	10,087	9,047	**146,249**	
319		Mar	12,942	**115,071**	8,433	9,570	**146,016**	
320		Apr	9,800	**85,268**	5,916	9,391	**110,375**	
321		May	8,401	**80,275**	4,488	9,734	**102,897**	
322		Jun	7,325	**78,683**	5,874	9,741	**101,623**	
323		Jul	7,572	**100,030**	6,009	10,265	**123,876**	
324		Aug	7,083	**95,363**	6,516	10,331	**119,293**	
325		Sep	7,173	**92,112**	6,612	10,028	**115,924**	
326		Oct	10,146	**88,647**	3,754	10,000	**112,548**	
327		Nov	12,048	**104,925**	7,012	9,681	**133,666**	
328		Dec	13,632	**133,710**	10,070	9,756	**167,168**	
329								
330	2012	Jan	13,852	**129,235**	11,740	9,663	**164,489**	
331		Feb	13,700	**113,939**	10,453	9,260	**147,352**	
332		Mar	12,967	**113,474**	8,723	9,604	**144,767**	
333		Apr	9,776	**87,115**	6,104	9,491	**112,487**	
334		May	8,368	**81,619**	4,614	9,744	**104,344**	
335		Jun	7,347	**80,327**	5,972	9,814	**103,461**	
336		Jul	7,602	**101,503**	6,102	10,338	**125,545**	
337		Aug	7,126	**96,164**	6,616	10,340	**120,247**	
338		Sep	7,224	**92,426**	6,700	10,078	**116,428**	
339		Oct	10,138	**87,809**	3,849	10,027	**111,823**	
340		Nov	12,045	**105,686**	7,184	9,706	**134,622**	
341		Dec	13,568	**134,359**	10,417	9,787	**168,131**	
342								
343								
344				Wholesale Noncore			**Total**	
345	**Peak Day TPut (Mth/Day)**		Long Beach	SDG&E	Southwest Gas	Vernon	**Wholesale**	
346	2006		537	**6,659**	743	225	**8,165**	
347	2007		649	**6,064**	775	228	**7,717**	
348	2008		649	**6,124**	599	338	**7,710**	
349	2009		649	**6,755**	627	343	**8,375**	
350	2010		649	**6,640**	655	335	**8,279**	
351	2011		649	**6,217**	682	335	**7,884**	
352	2012		649	**6,339**	710	346	**8,044**	

	A	B	AK	AL	AM	AN	AO	AP	AS	AT	AU
1											
59	***MONTHLY FORECAST DAT***		International NC		**Total**		**Total**				**Total**
60			Ecogas		**Noncore**		**System End-Use Dmd**		**Co-Use-Fuel**	**"Un-Acnt'd-For" (UAF)**	**System Throughput**
251	**Cold Year Throughput (Mth)**										
252	2006	Jan	3,681		**489,963**		**1,025,967**		**4,951**	**9,153**	**1,040,071**
253		Feb	3,545		**463,130**		**918,550**		**4,433**	**8,194**	**931,177**
254		Mar	4,297		**490,891**		**908,156**		**4,383**	**8,102**	**920,641**
255		Apr	4,044		**466,761**		**789,581**		**3,810**	**7,044**	**800,435**
256		May	4,616		**475,070**		**731,345**		**3,529**	**6,524**	**741,399**
257		Jun	4,596		**518,187**		**727,591**		**3,511**	**6,491**	**737,593**
258		Jul	4,800		**707,736**		**900,509**		**4,346**	**8,033**	**912,888**
259		Aug	4,775		**564,610**		**756,789**		**3,652**	**6,751**	**767,192**
260		Sep	4,648		**521,499**		**717,175**		**3,461**	**6,398**	**727,034**
261		Oct	5,203		**469,128**		**701,345**		**3,385**	**6,257**	**710,987**
262		Nov	4,418		**470,263**		**840,402**		**4,056**	**7,497**	**851,955**
263		Dec	4,290		**533,789**		**1,079,840**		**5,211**	**9,633**	**1,094,684**
264											
265	2007	Jan	4,221		**520,299**		**1,052,919**		**5,081**	**9,393**	**1,067,393**
266		Feb	3,291		**441,838**		**894,550**		**4,317**	**7,980**	**906,848**
267		Mar	3,958		**459,255**		**874,086**		**4,218**	**7,798**	**886,101**
268		Apr	3,671		**438,515**		**760,268**		**3,669**	**6,782**	**770,719**
269		May	4,162		**463,519**		**719,231**		**3,471**	**6,416**	**729,118**
270		Jun	4,272		**496,645**		**705,709**		**3,406**	**6,296**	**715,410**
271		Jul	4,442		**671,105**		**862,895**		**4,164**	**7,698**	**874,757**
272		Aug	4,427		**710,319**		**901,769**		**4,352**	**8,045**	**914,166**
273		Sep	4,221		**548,798**		**743,454**		**3,588**	**6,632**	**753,674**
274		Oct	4,967		**319,056**		**550,026**		**2,654**	**4,907**	**557,587**
275		Nov	4,124		**492,236**		**859,979**		**4,150**	**7,672**	**871,801**
276		Dec	4,210		**536,670**		**1,079,143**		**5,208**	**9,627**	**1,093,978**
277											
278	2008	Jan	4,532		**497,138**		**1,024,001**		**4,942**	**9,135**	**1,038,078**
279		Feb	4,516		**445,374**		**892,990**		**4,310**	**7,966**	**905,266**
280		Mar	4,490		**467,326**		**877,590**		**4,235**	**7,829**	**889,655**
281		Apr	4,434		**425,053**		**742,798**		**3,585**	**6,626**	**753,009**
282		May	4,410		**469,483**		**721,938**		**3,484**	**6,440**	**731,862**
283		Jun	4,392		**494,020**		**700,345**		**3,380**	**6,248**	**709,973**
284		Jul	4,366		**618,949**		**808,679**		**3,903**	**7,214**	**819,796**
285		Aug	4,350		**629,049**		**818,479**		**3,950**	**7,302**	**829,731**
286		Sep	4,359		**581,734**		**774,275**		**3,737**	**6,907**	**784,919**
287		Oct	4,363		**506,254**		**734,776**		**3,546**	**6,555**	**744,877**
288		Nov	4,443		**507,025**		**870,936**		**4,203**	**7,770**	**882,908**
289		Dec	4,531		**530,781**		**1,067,780**		**5,153**	**9,526**	**1,082,459**
290											
291	2009	Jan	4,572		**516,855**		**1,043,451**		**5,036**	**9,309**	**1,057,795**
292		Feb	4,557		**459,366**		**906,742**		**4,376**	**8,089**	**919,207**
293		Mar	4,531		**465,233**		**875,417**		**4,225**	**7,810**	**887,451**
294		Apr	4,474		**423,062**		**740,711**		**3,575**	**6,608**	**750,894**
295		May	4,449		**460,170**		**712,631**		**3,439**	**6,357**	**722,427**
296		Jun	4,431		**493,372**		**699,763**		**3,377**	**6,243**	**709,383**
297		Jul	4,405		**605,976**		**795,859**		**3,841**	**7,100**	**806,799**
298		Aug	4,389		**617,891**		**807,519**		**3,897**	**7,204**	**818,620**
299		Sep	4,398		**563,292**		**756,260**		**3,650**	**6,747**	**766,656**
300		Oct	4,402		**492,621**		**721,580**		**3,482**	**6,437**	**731,500**
301		Nov	4,483		**504,155**		**868,309**		**4,190**	**7,746**	**880,245**
302		Dec	4,571		**537,952**		**1,075,122**		**5,188**	**9,591**	**1,089,902**

	A	B	AK	AL	AM	AN	AO	AP	AS	AT	AU
1											
59	***MONTHLY FORECAST DAT***		International NC		**Total**		**Total**				**Total**
60			Ecogas		**Noncore**		**System End-Use Dmd**		**Co-Use-Fuel**	**"Un-Acnt'd-For" (UAF)**	**System Throughput**
251	**Cold Year Throughput (Mth)**										
303											
304	2010	Jan	4,613		**515,182**		**1,043,539**		**5,036**	**9,309**	**1,057,884**
305		Feb	4,597		**449,616**		**898,468**		**4,336**	**8,015**	**910,819**
306		Mar	4,571		**474,741**		**886,516**		**4,278**	**7,909**	**898,702**
307		Apr	4,514		**434,986**		**753,856**		**3,638**	**6,725**	**764,219**
308		May	4,489		**444,461**		**698,017**		**3,369**	**6,227**	**707,612**
309		Jun	4,470		**478,126**		**685,519**		**3,308**	**6,115**	**694,942**
310		Jul	4,444		**613,212**		**804,144**		**3,881**	**7,174**	**815,199**
311		Aug	4,428		**621,245**		**811,987**		**3,919**	**7,244**	**823,150**
312		Sep	4,437		**562,591**		**756,290**		**3,650**	**6,747**	**766,687**
313		Oct	4,441		**482,216**		**712,059**		**3,436**	**6,352**	**721,848**
314		Nov	4,523		**488,914**		**854,155**		**4,122**	**7,620**	**865,897**
315		Dec	4,612		**531,623**		**1,070,415**		**5,166**	**9,549**	**1,085,130**
316											
317	2011	Jan	4,616		**504,080**		**1,033,932**		**4,990**	**9,224**	**1,048,145**
318		Feb	4,600		**448,428**		**898,524**		**4,336**	**8,016**	**910,876**
319		Mar	4,574		**480,198**		**893,371**		**4,311**	**7,970**	**905,652**
320		Apr	4,516		**430,209**		**750,124**		**3,620**	**6,692**	**760,436**
321		May	4,491		**444,830**		**699,327**		**3,375**	**6,239**	**708,941**
322		Jun	4,473		**477,918**		**686,172**		**3,311**	**6,121**	**695,605**
323		Jul	4,446		**599,408**		**791,264**		**3,819**	**7,059**	**802,141**
324		Aug	4,430		**603,788**		**795,526**		**3,839**	**7,097**	**806,462**
325		Sep	4,440		**553,764**		**748,366**		**3,612**	**6,676**	**758,654**
326		Oct	4,443		**486,269**		**717,171**		**3,461**	**6,398**	**727,030**
327		Nov	4,525		**486,088**		**852,520**		**4,114**	**7,605**	**864,240**
328		Dec	4,615		**515,796**		**1,056,256**		**5,097**	**9,423**	**1,070,776**
329											
330	2012	Jan	4,618		**502,604**		**1,032,077**		**4,981**	**9,207**	**1,046,264**
331		Feb	4,602		**456,726**		**906,355**		**4,374**	**8,086**	**918,815**
332		Mar	4,576		**480,575**		**893,355**		**4,311**	**7,970**	**905,636**
333		Apr	4,518		**439,843**		**759,295**		**3,664**	**6,774**	**769,733**
334		May	4,494		**448,799**		**702,722**		**3,391**	**6,269**	**712,382**
335		Jun	4,475		**483,934**		**691,607**		**3,338**	**6,170**	**701,115**
336		Jul	4,448		**618,142**		**809,512**		**3,907**	**7,222**	**820,640**
337		Aug	4,432		**617,771**		**809,039**		**3,904**	**7,217**	**820,161**
338		Sep	4,442		**550,940**		**744,989**		**3,595**	**6,646**	**755,230**
339		Oct	4,445		**479,101**		**709,525**		**3,424**	**6,330**	**719,279**
340		Nov	4,527		**485,944**		**851,853**		**4,111**	**7,599**	**863,563**
341		Dec	4,617		**520,388**		**1,060,543**		**5,118**	**9,461**	**1,075,122**
342											
343											
344			International NC		**Total**		**Total**				
345	**Peak Day TPut (Mth/Day)**		Ecogas		**Noncore**		**System End-Use Dmd**				
346	2006		169		**21,655**		**53,798**				
347	2007		136		**21,463**		**53,460**				
348	2008		146		**22,318**		**54,083**				
349	2009		147		**21,478**		**53,228**				
350	2010		149		**21,442**		**53,231**				
351	2011		149		**20,682**		**52,506**				
352	2012		149		**21,888**		**53,674**				

2009 BCAP: SoCalGas Consolidated Gas Demand Forecast Summary (Mtherms)

	A	B	F	G	I	J	K	L	N	O	P
59	***MONTHLY FORECAST DATA***			Nonresidential Core				**Total**	Noncore - G-30		
60			Residential	G-10	G-AC	G-GE	G-NGV	**Core**	G-30 (Dist.)	G-30 (Trans.)	**G-30 (Total)**
357	**Forecast Number of Customers**										
358	2006	Jan	5,155,544	211,782	19	894	216	**5,368,455**	696	35	**731**
359		Feb	5,161,900	211,806	19	892	216	**5,374,833**	696	35	**731**
360		Mar	5,169,712	211,761	21	879	216	**5,382,589**	696	35	**731**
361		Apr	5,176,197	211,798	18	888	216	**5,389,117**	696	35	**731**
362		May	5,179,478	211,441	17	888	216	**5,392,040**	696	35	**731**
363		Jun	5,180,428	210,816	17	883	216	**5,392,360**	696	35	**731**
364		Jul	5,176,526	210,322	16	881	216	**5,387,961**	696	35	**731**
365		Aug	5,177,299	209,833	16	877	216	**5,388,241**	696	35	**731**
366		Sep	5,181,690	209,496	16	872	216	**5,392,290**	696	35	**731**
367		Oct	5,188,947	209,440	16	864	216	**5,399,483**	696	35	**731**
368		Nov	5,197,151	209,756	16	861	216	**5,408,000**	696	35	**731**
369		Dec	5,207,283	211,155	16	860	216	**5,419,530**	696	35	**731**
370											
371	2007	Jan	5,227,310	214,692	16	859	229	**5,443,106**	695	35	**730**
372		Feb	5,233,590	214,811	16	860	229	**5,449,506**	695	35	**730**
373		Mar	5,238,581	214,573	15	849	229	**5,454,247**	695	35	**730**
374		Apr	5,239,283	213,727	16	875	229	**5,454,130**	694	35	**729**
375		May	5,241,570	213,202	16	876	229	**5,455,892**	694	35	**729**
376		Jun	5,242,640	212,836	16	862	229	**5,456,583**	694	35	**729**
377		Jul	5,241,185	212,240	16	877	229	**5,454,547**	694	35	**729**
378		Aug	5,239,990	211,785	16	875	229	**5,452,895**	694	35	**729**
379		Sep	5,247,295	211,563	16	872	229	**5,459,974**	694	35	**729**
380		Oct	5,251,806	210,765	16	868	229	**5,463,684**	687	35	**722**
381		Nov	5,262,075	211,432	16	865	229	**5,474,617**	687	35	**722**
382		Dec	5,274,269	212,964	16	860	229	**5,488,339**	687	35	**722**
383											
384	2008	Jan	5,295,758	215,562	16	866	243	**5,512,444**	671	35	**706**
385		Feb	5,302,125	215,681	16	863	243	**5,518,927**	671	35	**706**
386		Mar	5,307,188	215,442	16	852	243	**5,523,740**	671	35	**706**
387		Apr	5,307,492	214,521	16	866	243	**5,523,137**	671	35	**706**
388		May	5,309,817	213,994	16	866	243	**5,524,936**	671	35	**706**
389		Jun	5,310,913	213,626	16	864	243	**5,525,662**	671	35	**706**
390		Jul	5,309,496	212,993	16	864	243	**5,523,612**	671	35	**706**
391		Aug	5,308,295	212,537	16	862	243	**5,521,952**	671	35	**706**
392		Sep	5,315,699	212,313	16	857	243	**5,529,127**	671	35	**706**
393		Oct	5,320,079	211,530	16	852	243	**5,532,719**	671	35	**706**
394		Nov	5,330,485	212,200	16	846	243	**5,543,789**	671	35	**706**
395		Dec	5,342,843	213,738	16	840	243	**5,557,680**	671	35	**706**
396											
397	2009	Jan	5,364,864	216,406	16	858	257	**5,582,401**	671	35	**706**
398		Feb	5,371,317	216,526	16	855	257	**5,588,972**	671	35	**706**
399		Mar	5,376,452	216,287	16	844	257	**5,593,856**	671	35	**706**
400		Apr	5,377,170	215,397	16	857	257	**5,593,698**	671	35	**706**
401		May	5,379,533	214,868	16	858	257	**5,595,533**	671	35	**706**
402		Jun	5,380,652	214,499	16	856	257	**5,596,280**	671	35	**706**
403		Jul	5,379,682	213,868	16	856	257	**5,594,679**	671	35	**706**

2009 BCAP: SoCalGas Consolidated Gas Demand Forecast Summary (Mtherms)

Row	A	B	F	G	I	J	K	L	N	O	P
1											
59	***MONTHLY FORECAST DATA***			Nonresidential Core				**Total**	Noncore - G-30		
60			Residential	G-10	G-AC	G-GE	G-NGV	**Core**	G-30 (Dist.)	G-30 (Trans.)	**G-30 (Total)**
357	**Forecast Number of Customers**										
404		Aug	5,378,471	213,410	16	854	257	**5,593,008**	671	35	**706**
405		Sep	5,385,976	213,186	16	849	257	**5,600,283**	671	35	**706**
406		Oct	5,390,796	212,380	16	844	257	**5,604,293**	671	35	**706**
407		Nov	5,401,343	213,052	16	838	257	**5,615,507**	671	35	**706**
408		Dec	5,413,870	214,597	16	833	257	**5,629,572**	671	35	**706**
409											
410	2010	Jan	5,436,502	217,244	16	853	273	**5,654,888**	671	35	**706**
411		Feb	5,443,045	217,365	16	850	273	**5,661,548**	671	35	**706**
412		Mar	5,448,252	217,125	16	839	273	**5,666,504**	671	35	**706**
413		Apr	5,449,102	216,207	16	852	273	**5,666,450**	671	35	**706**
414		May	5,451,501	215,676	16	853	273	**5,668,319**	670	35	**705**
415		Jun	5,452,640	215,305	16	851	273	**5,669,085**	670	35	**705**
416		Jul	5,451,730	214,652	16	851	273	**5,667,521**	670	35	**705**
417		Aug	5,450,507	214,192	16	849	273	**5,665,837**	670	35	**705**
418		Sep	5,458,115	213,967	16	844	273	**5,673,215**	670	35	**705**
419		Oct	5,462,783	213,122	16	839	273	**5,677,032**	670	35	**705**
420		Nov	5,473,474	213,796	16	833	273	**5,688,392**	670	35	**705**
421		Dec	5,486,171	215,346	16	828	273	**5,702,633**	670	35	**705**
422											
423	2011	Jan	5,508,787	217,943	15	848	289	**5,727,882**	670	35	**705**
424		Feb	5,515,419	218,064	15	845	289	**5,734,632**	670	35	**705**
425		Mar	5,520,698	217,824	15	834	289	**5,739,660**	670	35	**705**
426		Apr	5,521,220	216,858	15	847	289	**5,739,230**	670	35	**705**
427		May	5,523,654	216,326	15	848	289	**5,741,132**	670	35	**705**
428		Jun	5,524,813	215,954	15	846	289	**5,741,917**	670	35	**705**
429		Jul	5,523,550	215,283	15	846	289	**5,739,983**	670	35	**705**
430		Aug	5,522,314	214,822	15	844	289	**5,738,284**	670	35	**705**
431		Sep	5,530,025	214,597	15	839	289	**5,745,765**	670	35	**705**
432		Oct	5,534,545	213,749	15	834	289	**5,749,432**	670	35	**705**
433		Nov	5,545,380	214,425	15	828	289	**5,760,937**	670	35	**705**
434		Dec	5,558,247	215,980	15	823	289	**5,775,353**	670	35	**705**
435											
436	2012	Jan	5,580,919	218,575	15	843	306	**5,800,658**	670	35	**705**
437		Feb	5,587,640	218,697	15	840	306	**5,807,498**	670	35	**705**
438		Mar	5,592,992	218,456	15	829	306	**5,812,598**	670	35	**705**
439		Apr	5,593,440	217,462	15	842	306	**5,812,066**	670	35	**705**
440		May	5,595,909	216,928	15	843	306	**5,814,002**	670	35	**705**
441		Jun	5,597,088	216,555	15	841	306	**5,814,805**	670	35	**705**
442		Jul	5,595,731	215,848	15	841	306	**5,812,741**	670	35	**705**
443		Aug	5,594,483	215,386	15	839	306	**5,811,029**	670	35	**705**
444		Sep	5,602,298	215,160	15	834	306	**5,818,613**	670	35	**705**
445		Oct	5,606,894	214,289	15	829	306	**5,822,333**	670	35	**705**
446		Nov	5,617,872	214,967	15	823	306	**5,833,984**	670	35	**705**
447		Dec	5,630,911	216,525	15	818	306	**5,848,575**	670	35	**705**

	A	B	Q	R	S	T	U	V	W
1									
59	***MONTHLY FORECAST DATA***		Noncore - Electric Generatiion						
60			EG-Dist. (<3MMThms)	EG-Trans. (<3MMThms)	EG-Dist. (>=3MMThms)	EG-Trans. (>=3MMThms)	**EG (<3MMThms)**	**EG (>=3MMThms)**	**EG (Total)**
357	**Forecast Number of Customers**								
358	2006	Jan	169	14	34	32	**183**	**66**	**249**
359		Feb	168	14	34	32	**182**	**66**	**248**
360		Mar	166	14	34	32	**180**	**66**	**246**
361		Apr	164	14	34	32	**178**	**66**	**244**
362		May	164	14	34	32	**178**	**66**	**244**
363		Jun	163	14	34	32	**177**	**66**	**243**
364		Jul	158	14	34	32	**172**	**66**	**238**
365		Aug	158	14	34	32	**172**	**66**	**238**
366		Sep	158	14	34	32	**172**	**66**	**238**
367		Oct	158	14	34	32	**172**	**66**	**238**
368		Nov	158	14	34	32	**172**	**66**	**238**
369		Dec	158	14	34	32	**172**	**66**	**238**
370									
371	2007	Jan	153	14	34	32	**167**	**66**	**233**
372		Feb	153	14	34	32	**167**	**66**	**233**
373		Mar	153	14	34	32	**167**	**66**	**233**
374		Apr	153	14	34	32	**167**	**66**	**233**
375		May	153	14	34	32	**167**	**66**	**233**
376		Jun	154	14	34	32	**168**	**66**	**234**
377		Jul	154	18	34	32	**172**	**66**	**238**
378		Aug	154	18	34	32	**172**	**66**	**238**
379		Sep	153	18	34	32	**171**	**66**	**237**
380		Oct	153	18	34	32	**171**	**66**	**237**
381		Nov	153	18	34	32	**171**	**66**	**237**
382		Dec	153	18	34	32	**171**	**66**	**237**
383									
384	2008	Jan	141	16	34	33	**157**	**67**	**224**
385		Feb	141	16	34	33	**157**	**67**	**224**
386		Mar	141	16	34	33	**157**	**67**	**224**
387		Apr	141	16	34	33	**157**	**67**	**224**
388		May	141	16	34	35	**157**	**69**	**226**
389		Jun	141	16	34	35	**157**	**69**	**226**
390		Jul	141	16	34	35	**157**	**69**	**226**
391		Aug	141	16	34	35	**157**	**69**	**226**
392		Sep	141	16	34	35	**157**	**69**	**226**
393		Oct	141	16	34	35	**157**	**69**	**226**
394		Nov	141	16	34	35	**157**	**69**	**226**
395		Dec	141	16	34	35	**157**	**69**	**226**
396									
397	2009	Jan	141	16	34	35	**157**	**69**	**226**
398		Feb	141	16	34	35	**157**	**69**	**226**
399		Mar	141	16	34	35	**157**	**69**	**226**
400		Apr	141	16	34	35	**157**	**69**	**226**
401		May	141	16	34	35	**157**	**69**	**226**
402		Jun	141	16	34	35	**157**	**69**	**226**
403		Jul	141	16	34	35	**157**	**69**	**226**

	A	B	C	D	E	Q	R	S	T	U	V	W	X
1													
59	***MONTHLY FORECAST DATA***					Noncore - Electric Generatiion							
60						EG-Dist. (<3MMThms)	EG-Trans. (<3MMThms)	EG-Dist. (>=3MMThms)	EG-Trans. (>=3MMThms)	**EG (<3MMThms)**	**EG (>=3MMThms)**	**EG (Total)**	
357	**Forecast Number of Customers**												
404		Aug				141	16	34	35	**157**	**69**	**226**	
405		Sep				141	16	34	35	**157**	**69**	**226**	
406		Oct				141	16	34	35	**157**	**69**	**226**	
407		Nov				141	16	34	35	**157**	**69**	**226**	
408		Dec				141	16	34	35	**157**	**69**	**226**	
409													
410	2010	Jan				134	16	34	35	**150**	**69**	**219**	
411		Feb				134	16	34	35	**150**	**69**	**219**	
412		Mar				134	16	34	35	**150**	**69**	**219**	
413		Apr				134	16	34	35	**150**	**69**	**219**	
414		May				134	16	34	35	**150**	**69**	**219**	
415		Jun				134	16	34	35	**150**	**69**	**219**	
416		Jul				134	16	34	35	**150**	**69**	**219**	
417		Aug				134	16	34	36	**150**	**70**	**220**	
418		Sep				134	16	34	36	**150**	**70**	**220**	
419		Oct				134	16	34	36	**150**	**70**	**220**	
420		Nov				134	16	34	36	**150**	**70**	**220**	
421		Dec				134	16	34	36	**150**	**70**	**220**	
422													
423	2011	Jan				127	16	34	36	**143**	**70**	**213**	
424		Feb				127	16	34	36	**143**	**70**	**213**	
425		Mar				127	16	34	36	**143**	**70**	**213**	
426		Apr				127	16	34	36	**143**	**70**	**213**	
427		May				127	16	34	36	**143**	**70**	**213**	
428		Jun				127	16	34	36	**143**	**70**	**213**	
429		Jul				127	16	34	36	**143**	**70**	**213**	
430		Aug				127	16	34	36	**143**	**70**	**213**	
431		Sep				127	16	34	36	**143**	**70**	**213**	
432		Oct				127	16	34	36	**143**	**70**	**213**	
433		Nov				127	16	34	36	**143**	**70**	**213**	
434		Dec				127	16	34	36	**143**	**70**	**213**	
435													
436	2012	Jan				127	16	34	36	**143**	**70**	**213**	
437		Feb				127	16	34	36	**143**	**70**	**213**	
438		Mar				127	16	34	36	**143**	**70**	**213**	
439		Apr				127	16	34	36	**143**	**70**	**213**	
440		May				127	16	34	36	**143**	**70**	**213**	
441		Jun				127	16	34	36	**143**	**70**	**213**	
442		Jul				127	16	34	36	**143**	**70**	**213**	
443		Aug				127	16	34	36	**143**	**70**	**213**	
444		Sep				127	16	34	36	**143**	**70**	**213**	
445		Oct				127	16	34	36	**143**	**70**	**213**	
446		Nov				127	16	34	36	**143**	**70**	**213**	
447		Dec				127	16	34	36	**143**	**70**	**213**	

	A	B	C	D	E	Y	Z	AA	AB	AC	AD
1											
59	***MONTHLY FORECAST DATA***						Noncore - EOR			**Total**	
60						EOR (Dist.)	EOR (Trans.)	**EOR (Total)**		**Retail Noncore**	
357	**Forecast Number of Customers**										
358	2006	Jan				11	30	**41**		**1,021**	
359		Feb				11	30	**41**		**1,020**	
360		Mar				11	30	**41**		**1,018**	
361		Apr				11	30	**41**		**1,016**	
362		May				11	30	**41**		**1,016**	
363		Jun				11	30	**41**		**1,015**	
364		Jul				11	30	**41**		**1,010**	
365		Aug				11	30	**41**		**1,010**	
366		Sep				11	30	**41**		**1,010**	
367		Oct				13	30	**43**		**1,012**	
368		Nov				13	30	**43**		**1,012**	
369		Dec				13	30	**43**		**1,012**	
370											
371	2007	Jan				14	30	**44**		**1,007**	
372		Feb				15	30	**45**		**1,008**	
373		Mar				15	30	**45**		**1,008**	
374		Apr				15	28	**43**		**1,005**	
375		May				15	28	**43**		**1,005**	
376		Jun				14	23	**37**		**1,000**	
377		Jul				14	23	**37**		**1,004**	
378		Aug				14	23	**37**		**1,004**	
379		Sep				14	23	**37**		**1,003**	
380		Oct				14	23	**37**		**996**	
381		Nov				14	23	**37**		**996**	
382		Dec				14	23	**37**		**996**	
383											
384	2008	Jan				14	22	**36**		**966**	
385		Feb				14	22	**36**		**966**	
386		Mar				14	22	**36**		**966**	
387		Apr				14	22	**36**		**966**	
388		May				14	22	**36**		**968**	
389		Jun				14	22	**36**		**968**	
390		Jul				13	22	**35**		**967**	
391		Aug				13	22	**35**		**967**	
392		Sep				13	22	**35**		**967**	
393		Oct				13	22	**35**		**967**	
394		Nov				13	19	**32**		**964**	
395		Dec				13	19	**32**		**964**	
396											
397	2009	Jan				14	19	**33**		**965**	
398		Feb				14	19	**33**		**965**	
399		Mar				14	18	**32**		**964**	
400		Apr				14	18	**32**		**964**	
401		May				14	18	**32**		**964**	
402		Jun				14	18	**32**		**964**	
403		Jul				14	18	**32**		**964**	

	A	B	C	D	E	Y	Z	AA	AB	AC	AD
1											
59	***MONTHLY FORECAST DATA***					Noncore - EOR				**Total**	
60						EOR (Dist.)	EOR (Trans.)	**EOR (Total)**		**Retail Noncore**	
357	**Forecast Number of Customers**										
404		Aug				14	18	**32**		**964**	
405		Sep				14	18	**32**		**964**	
406		Oct				14	18	**32**		**964**	
407		Nov				14	18	**32**		**964**	
408		Dec				14	18	**32**		**964**	
409											
410	2010	Jan				14	18	**32**		**957**	
411		Feb				14	18	**32**		**957**	
412		Mar				14	18	**32**		**957**	
413		Apr				14	18	**32**		**957**	
414		May				14	18	**32**		**956**	
415		Jun				14	18	**32**		**956**	
416		Jul				14	18	**32**		**956**	
417		Aug				14	18	**32**		**957**	
418		Sep				14	18	**32**		**957**	
419		Oct				14	18	**32**		**957**	
420		Nov				14	18	**32**		**957**	
421		Dec				14	18	**32**		**957**	
422											
423	2011	Jan				14	18	**32**		**950**	
424		Feb				14	18	**32**		**950**	
425		Mar				14	18	**32**		**950**	
426		Apr				14	18	**32**		**950**	
427		May				14	18	**32**		**950**	
428		Jun				14	18	**32**		**950**	
429		Jul				14	18	**32**		**950**	
430		Aug				14	18	**32**		**950**	
431		Sep				14	18	**32**		**950**	
432		Oct				14	18	**32**		**950**	
433		Nov				14	18	**32**		**950**	
434		Dec				14	18	**32**		**950**	
435											
436	2012	Jan				14	18	**32**		**950**	
437		Feb				14	18	**32**		**950**	
438		Mar				14	18	**32**		**950**	
439		Apr				14	18	**32**		**950**	
440		May				14	18	**32**		**950**	
441		Jun				14	18	**32**		**950**	
442		Jul				14	18	**32**		**950**	
443		Aug				14	18	**32**		**950**	
444		Sep				14	18	**32**		**950**	
445		Oct				14	18	**32**		**950**	
446		Nov				14	18	**32**		**950**	
447		Dec				14	18	**32**		**950**	

	A	B	C	D	E	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO
1																
59	***MONTHLY FORECAST DATA***					Wholesale Noncore				**Total**		International NC		**Total**		**Total**
60						Long Beach	SDG&E	Southwest Gas	Vernon	**Wholesale**		Ecogas		**Noncore**		**System End-Use Dmd**
357	**Forecast Number of Customers**															
358	2006	Jan				1	1	1	1	**4**		1		**1,026**		**5,369,481**
359		Feb				1	1	1	1	**4**		1		**1,025**		**5,375,858**
360		Mar				1	1	1	1	**4**		1		**1,023**		**5,383,612**
361		Apr				1	1	1	1	**4**		1		**1,021**		**5,390,138**
362		May				1	1	1	1	**4**		1		**1,021**		**5,393,061**
363		Jun				1	1	1	1	**4**		1		**1,020**		**5,393,380**
364		Jul				1	1	1	1	**4**		1		**1,015**		**5,388,976**
365		Aug				1	1	1	1	**4**		1		**1,015**		**5,389,256**
366		Sep				1	1	1	1	**4**		1		**1,015**		**5,393,305**
367		Oct				1	1	1	1	**4**		1		**1,017**		**5,400,500**
368		Nov				1	1	1	1	**4**		1		**1,017**		**5,409,017**
369		Dec				1	1	1	1	**4**		1		**1,017**		**5,420,547**
370																
371	2007	Jan				1	1	1	1	**4**		1		**1,012**		**5,444,118**
372		Feb				1	1	1	1	**4**		1		**1,013**		**5,450,519**
373		Mar				1	1	1	1	**4**		1		**1,013**		**5,455,260**
374		Apr				1	1	1	1	**4**		1		**1,010**		**5,455,140**
375		May				1	1	1	1	**4**		1		**1,010**		**5,456,902**
376		Jun				1	1	1	1	**4**		1		**1,005**		**5,457,588**
377		Jul				1	1	1	1	**4**		1		**1,009**		**5,455,556**
378		Aug				1	1	1	1	**4**		1		**1,009**		**5,453,904**
379		Sep				1	1	1	1	**4**		1		**1,008**		**5,460,982**
380		Oct				1	1	1	1	**4**		1		**1,001**		**5,464,685**
381		Nov				1	1	1	1	**4**		1		**1,001**		**5,475,618**
382		Dec				1	1	1	1	**4**		1		**1,001**		**5,489,340**
383																
384	2008	Jan				1	1	1	1	**4**		1		**971**		**5,513,415**
385		Feb				1	1	1	1	**4**		1		**971**		**5,519,898**
386		Mar				1	1	1	1	**4**		1		**971**		**5,524,711**
387		Apr				1	1	1	1	**4**		1		**971**		**5,524,108**
388		May				1	1	1	1	**4**		1		**973**		**5,525,909**
389		Jun				1	1	1	1	**4**		1		**973**		**5,526,635**
390		Jul				1	1	1	1	**4**		1		**972**		**5,524,584**
391		Aug				1	1	1	1	**4**		1		**972**		**5,522,924**
392		Sep				1	1	1	1	**4**		1		**972**		**5,530,099**
393		Oct				1	1	1	1	**4**		1		**972**		**5,533,691**
394		Nov				1	1	1	1	**4**		1		**969**		**5,544,758**
395		Dec				1	1	1	1	**4**		1		**969**		**5,558,649**
396																
397	2009	Jan				1	1	1	1	**4**		1		**970**		**5,583,371**
398		Feb				1	1	1	1	**4**		1		**970**		**5,589,942**
399		Mar				1	1	1	1	**4**		1		**969**		**5,594,825**
400		Apr				1	1	1	1	**4**		1		**969**		**5,594,667**
401		May				1	1	1	1	**4**		1		**969**		**5,596,502**
402		Jun				1	1	1	1	**4**		1		**969**		**5,597,249**
403		Jul				1	1	1	1	**4**		1		**969**		**5,595,648**

	A	B	C	D	E	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO
1																
59	***MONTHLY FORECAST DATA***					Wholesale Noncore				**Total**		International NC		**Total**		**Total**
60						Long Beach	SDG&E	Southwest Gas	Vernon	**Wholesale**		Ecogas		**Noncore**		**System End-Use Dmd**
357	**Forecast Number of Customers**															
404		Aug				1	1	1	1	**4**		1		**969**		**5,593,977**
405		Sep				1	1	1	1	**4**		1		**969**		**5,601,252**
406		Oct				1	1	1	1	**4**		1		**969**		**5,605,262**
407		Nov				1	1	1	1	**4**		1		**969**		**5,616,476**
408		Dec				1	1	1	1	**4**		1		**969**		**5,630,541**
409																
410	2010	Jan				1	1	1	1	**4**		1		**962**		**5,655,850**
411		Feb				1	1	1	1	**4**		1		**962**		**5,662,510**
412		Mar				1	1	1	1	**4**		1		**962**		**5,667,466**
413		Apr				1	1	1	1	**4**		1		**962**		**5,667,412**
414		May				1	1	1	1	**4**		1		**961**		**5,669,280**
415		Jun				1	1	1	1	**4**		1		**961**		**5,670,046**
416		Jul				1	1	1	1	**4**		1		**961**		**5,668,482**
417		Aug				1	1	1	1	**4**		1		**962**		**5,666,799**
418		Sep				1	1	1	1	**4**		1		**962**		**5,674,177**
419		Oct				1	1	1	1	**4**		1		**962**		**5,677,994**
420		Nov				1	1	1	1	**4**		1		**962**		**5,689,354**
421		Dec				1	1	1	1	**4**		1		**962**		**5,703,595**
422																
423	2011	Jan				1	1	1	1	**4**		1		**955**		**5,728,837**
424		Feb				1	1	1	1	**4**		1		**955**		**5,735,587**
425		Mar				1	1	1	1	**4**		1		**955**		**5,740,615**
426		Apr				1	1	1	1	**4**		1		**955**		**5,740,185**
427		May				1	1	1	1	**4**		1		**955**		**5,742,087**
428		Jun				1	1	1	1	**4**		1		**955**		**5,742,872**
429		Jul				1	1	1	1	**4**		1		**955**		**5,740,938**
430		Aug				1	1	1	1	**4**		1		**955**		**5,739,239**
431		Sep				1	1	1	1	**4**		1		**955**		**5,746,720**
432		Oct				1	1	1	1	**4**		1		**955**		**5,750,387**
433		Nov				1	1	1	1	**4**		1		**955**		**5,761,892**
434		Dec				1	1	1	1	**4**		1		**955**		**5,776,308**
435																
436	2012	Jan				1	1	1	1	**4**		1		**955**		**5,801,613**
437		Feb				1	1	1	1	**4**		1		**955**		**5,808,453**
438		Mar				1	1	1	1	**4**		1		**955**		**5,813,553**
439		Apr				1	1	1	1	**4**		1		**955**		**5,813,021**
440		May				1	1	1	1	**4**		1		**955**		**5,814,957**
441		Jun				1	1	1	1	**4**		1		**955**		**5,815,760**
442		Jul				1	1	1	1	**4**		1		**955**		**5,813,696**
443		Aug				1	1	1	1	**4**		1		**955**		**5,811,984**
444		Sep				1	1	1	1	**4**		1		**955**		**5,819,568**
445		Oct				1	1	1	1	**4**		1		**955**		**5,823,288**
446		Nov				1	1	1	1	**4**		1		**955**		**5,834,939**
447		Dec				1	1	1	1	**4**		1		**955**		**5,849,530**

2009 BCAP

SoCalGas Demand Forecast for the Gas Resource Plan
February 2008

SoCalGas coincident_1-in-10
All Units are in MMcf/D

12Mo Operating Year (Apr-Mar)	2006/7	2007/8	2008/9	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26?
core	2,888	2,874	2,853	2,852	2,856	2,859	2,856	2,849	2,842	2,836	2,830	2,820	2,811	2,805	2,805	2,804	2,806	2,809	2,813	2,820
noncore	453	438	426	421	421	421	414	415	415	416	416	415	412	411	409	408	408	407	406	406
eor-Steam + CoGen	111	101	86	39	39	39	29	29	29	29	29	29	29	29	29	29	29	29	29	29
eg (UEG/EWG+Purpa50)	625	685	795	701	706	671	779	752	725	699	740	782	823	865	906	940	973	1,007	1,040	1,074
SmCog+Ref-EG	104	96	97	97	98	98	97	105	106	107	107	108	108	108	108	108	108	109	109	109
sdge	621	564	570	631	620	578	584	581	579	579	587	595	604	613	622	629	637	644	652	672
lb	52	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63
swg	72	75	58	61	64	66	69	72	74	77	79	80	82	83	85	87	89	90	92	94
vernon	22	22	33	33	33	33	34	34	34	34	34	34	34	34	34	34	34	34	34	34
ECO-Gas	16	13	14	14	14	14	14	14	15	15	15	15	15	15	15	15	15	15	15	15
TOTAL	4,965	4,933	4,994	4,911	4,912	4,842	4,940	4,915	4,883	4,854	4,899	4,940	4,981	5,025	5,076	5,117	5,160	5,205	5,253	5,315
Noncore (Incl. Wholesale)	2,077	2,059	2,142	2,060	2,056	1,983	2,084	2,066	2,040	2,018	2,069	2,120	2,169	2,220	2,271	2,313	2,354	2,397	2,439	2,494

12Mo Operating Year (Apr-Mar)	2006/7	2007/8	2008/9	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26?
core	2,888	2,874	2,853	2,852	2,856	2,859	2,856	2,849	2,842	2,836	2,830	2,820	2,811	2,805	2,805	2,804	2,806	2,809	2,813	2,820
noncore c&i *	563	540	512	460	460	459	443	444	444	445	445	444	441	440	438	437	437	436	435	435
eg **	730	782	892	798	803	768	876	857	832	806	848	889	931	972	1,014	1,048	1,081	1,115	1,149	1,183
wholesale ***	784	737	738	802	793	755	764	764	764	767	777	787	797	808	819	827	836	846	855	877
TOTAL	4,965	4,933	4,994	4,911	4,912	4,842	4,940	4,915	4,883	4,854	4,899	4,940	4,981	5,025	5,076	5,117	5,160	5,205	5,253	5,315

* includes eor-steaming *and eor-cogen*
** *ex* cludes EOR cogeneration
*** includes international service and wholesale eg

File: GasResourcePlan_PeakDayLoad(11Jan2008)4DMB_1-in-10_WP_large.xls

SoCalGas coincident_1-in-35
All Units are in MMcf/D

12Mo Operating Year (Apr-Mar)	2006/7	2007/8	2008/9	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26?
core	3120	3106	3083	3082	3086	3089	3085	3078	3070	3063	3057	3046	3037	3030	3030	3029	3030	3033	3038	3045
noncore	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
eor-Steam + CoGen	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
eg (UEG/EWG+Purpa50)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SmCog+Ref-EG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sdge	388	387	385	389	391	392	385.5	384.8	384	386	388	388	390	392	394	396	399	401	404	420
lb	52	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57
swg	74	78	67	71	74	78	82	85	89	92	94	96	98	100	102	104	106	108	110	112
vernon	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
ECO-Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	3639	3633	3599	3605	3613	3621	3615	3610	3605	3604	3601	3592	3587	3584	3588	3591	3597	3604	3614	3639
Noncore (Incl. Wholesale)	519	527	515	523	528	532	529	532	535	541	544	546	550	554	558	562	567	572	576	595

12Mo Operating Year (Apr-Mar)	2006/7	2007/8	2008/9	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26?
core	3120	3106	3083	3082	3086	3089	3085	3078	3070	3063	3057	3046	3037	3030	3030	3029	3030	3033	3038	3045
noncore c&i *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
eg **	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
wholesale ***	519	527	515	523	528	532	529	532	535	541	544	546	550	554	558	562	567	572	576	595
TOTAL	3639	3633	3599	3605	3613	3621	3615	3610	3605	3604	3601	3592	3587	3584	3588	3591	3597	3604	3614	3639

* includes eor-steaming *and eor-cogen*
** *ex* cludes EOR cogeneration
*** includes international service and wholesale eg

Scg_Ann-Col (1-in-10)_EgDRY

	Total System (MDth/d)	Total System (MDth/Yr)	Total Core (MDth/Yr)	Total Noncore-Retail (MDth/Yr)	Total Noncore-Whsle Dom. (MDth/Yr)	Total Noncore-Whsle Intern'l (MDth/Yr)
2009	2,722	993,541	376,453	445,946	165,776	5,366
2010	2,719	992,480	377,928	439,405	169,733	5,414
2011	2,704	986,854	379,316	443,013	159,108	5,417
2012	2,710	991,708	378,771	447,688	159,829	5,420
2013	2,710	989,213	377,483	456,265	150,043	5,422
2014	2,711	989,682	376,246	459,251	148,761	5,425
2015	2,715	991,154	375,029	462,299	148,399	5,428
2016	2,720	995,595	374,007	466,951	149,206	5,431
2017	2,747	1,002,573	372,136	474,906	150,098	5,434
2018	2,743	1,001,123	370,602	474,164	150,920	5,437
2019	2,752	1,004,387	369,463	477,636	151,849	5,439
2020	2,758	1,009,318	369,334	481,747	152,793	5,442
2021	2,803	1,023,178	369,311	492,453	155,968	5,445
2022	2,870	1,047,592	369,507	514,034	158,602	5,448
2023	2,882	1,051,900	370,038	514,253	162,157	5,451
2024	2,917	1,067,684	370,963	525,939	165,327	5,454
2025	2,971	1,084,399	372,244	536,835	169,862	5,457

File: Scg_SlackCapacity_1-in-10&DryHydro_WP.xls

2 0 0 9 B C A P

EUFORECASTER – END-USE MODEL FOR THE RESIDENTIAL, COMMERCIAL AND INDUSTRIAL MARKETS
FEBRUARY 2008

I. Introduction

End Use Forecaster is a market-segmentation and modeling framework that forecasts the impacts of competitive strategies and market scenarios on sales, revenues, and market shares. **EUForecaster is used to prepare the demand forecasts for the residential, core commercial and industrial, and noncore commercial and industrial markets.**

The object of this chapter is to familiarize you with the overall End Use Forecaster modeling structure and to describe how the system relates to common business issues concerning demand forecasting and market assessment. This chapter also serves to explain how the various modules within End Use Forecaster relate to one another. Subsequent chapters define the contents and features of each individual module.

End Use Forecaster: An Overview

End Use Forecaster, formerly known as Quant.sim, is a market segmentation, competitive assessment, and sales projection application developed to respond to market needs and overcome the limitations of existing demand forecasting and market planning tools. The application, originally developed in 1993, is constructed using SAS software.

We have found that each utility's market structure and competitive environment is unique and that a major shortcoming of other tools has been an inability to accurately capture this diversity. End Use Forecaster's Market Segmentation module provides the ability to update the model to reflect new strategies without writing SAS programming code. Unique market conditions translate into an inherently flexible, dynamic modeling framework that can rapidly adapt to new market conditions.

This flexibility is afforded through a model development approach that separates specific market issues from theoretical modeling constructs:

- ***Logic and theory***, the portion of the system comprised of the programming code and data structures, is stored and managed in one location
- ***Market data***, which are unique for every company and strategy, are stored in a separate location

This structure makes market segmentation and analyses relatively easy tasks compared to adapting spreadsheet models or rewriting "black box" programming code. As an example, consider the "DSM planning" and "competitive assessment" market dimensions in the Table 1 below. The DSM dimensions show a standard end-use forecast model design for the utility industry, while the competitive assessment dimensions illustrate another way to set up End Use Forecaster to analyze new retail competition if retail choice is present in the jurisdiction.

Table 1. Alternative Market Segmentation Designs – Utility Industry Example

Market Dimension	DSM Planning	Competitive Assessment
Dimension 1	Market sector (residential, commercial, industrial, agricultural)	Risk of switching
Dimension 2	Customer type (dwelling, building, industry segments)	Customer value (to energy provider)
Dimension 3	End uses	Products and services
Dimension 4	Fuel types	Provider choices
Dimension 5	Efficiency levels	Product choices

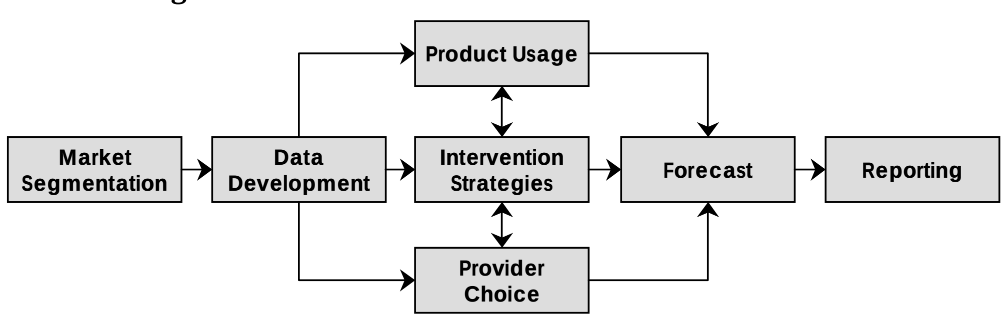
End Use Forecaster has other dimensions that capture factors affecting product demands. Perhaps the most important of these is End Use Forecaster's "vintaging" capability. Vintaging refers to product or service turnover that is a function of either physical lives or contract period. Accurate assessments of product turnover are crucial to obtaining accurate forecasts for any product where purchases are derived from a fraction of the population in the market at a moment of time. An example of vintaging would be accounting for energy-consuming equipment such as motors, boilers, water heaters, chillers, etc., where demand over a given time interval is the sum of demands from new customers plus those customers replacing existing equipment.

The effective use of the inherent multidimensionality of most business forecasting issues is a key strength of the End Use Forecaster framework. Critical dimensions of business issues (e.g., geography, customers, products, competitors, equipment lives, etc.) are included in every forecast, along with dimensions users can modify to resolve a variety of business issues. For example, forecasters may be interested in the price elasticity of demand, marketing staff may want to study market shares across various scenarios, and corporate finance may need the bottom line revenue forecast. All these (and more) are immediately available in every forecast due to the concentration of rich and flexible dimensionality.

Seven primary modules form the heart of the End Use Forecaster framework: Market Segmentation, Data Development, Product Usage, Provider Choice, Intervention Strategies, Forecasting, and Reporting. .

Figure 1 depicts the relationships between these modules. Each is summarized below and in the remaining chapters of this Reference Guide.

Figure 1. End Use Forecaster Modules and Structure



Interface Design

The user interface to the End Use Forecaster model is constructed using SAS/AF (Applications Facility). SAS/AF software provides dozens of predefined "classes" that enabled the development of End Use Forecaster. These classes include a wide selection of both visual and non-visual aspects. The visual classes, or widgets, define objects that are placed on the screen, including icons, push buttons, text boxes tables, etc. The non-visual classes use screen control language (SCL) that define the objects controlling End Use Forecaster behind the scenes. Figure 2 and Figure 3 show the first two screens users see after starting End Use Forecaster.

Figure 2. Welcome Screen

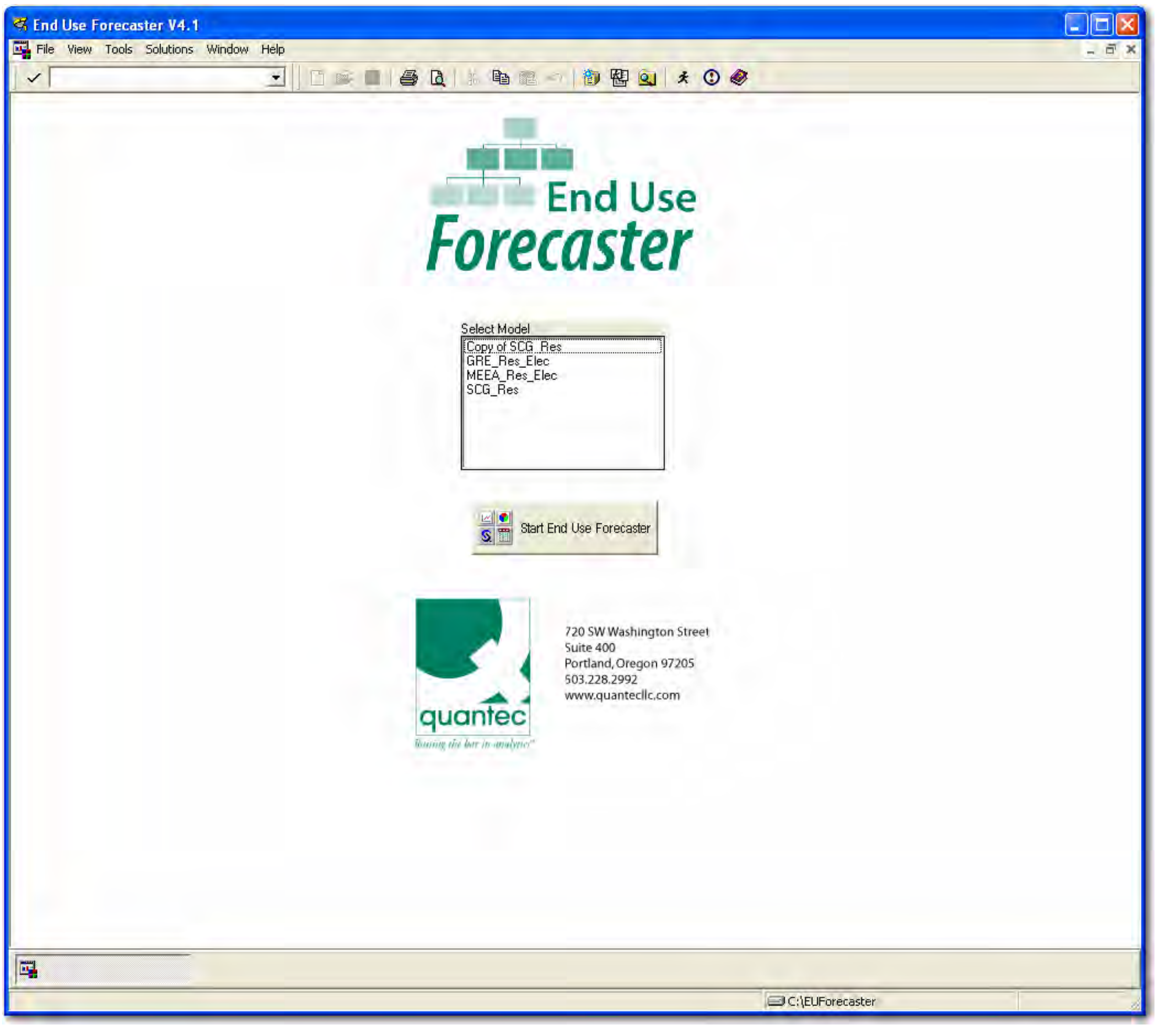
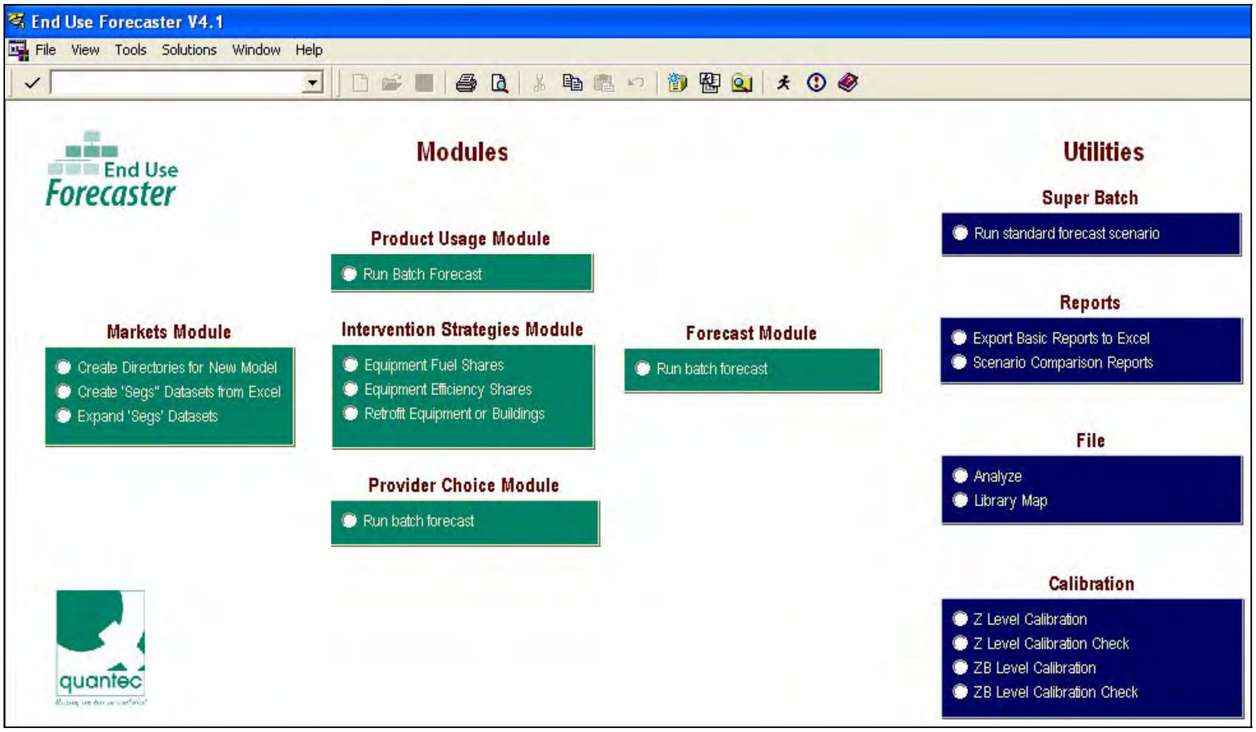


Figure 3. Main Dashboard



The interface is the only part of the End Use Forecaster framework that is compiled. All of the mathematical operations are in open SAS code, and End Use Forecaster's SAS/AF interface can also be edited and recompiled. This is a true "open architecture" design that allows users to modify and extend the End Use Forecaster framework.

In addition to End Use Forecaster's customized sets of tools, there is also a wide variety of data management, analysis, and reporting tools that are packaged with the SAS System.

Data Exchange

End Use Forecaster uses SAS/ACCESS software to provide direct and transparent access to various databases such as:

- DB2 Under UNIX and PC Hosts
- ORACLE
- SYBASE
- SQL/DS
- ODBC
- PC File Formats (Excel, Access)
- SYSTEM 2000 software

Since data access functions are separated from End Use Forecaster's logic, underlying data sources may change, but the model's capabilities will not be affected.

Market Segmentation

Market Segments

The primary goal of any market segmentation design in End Use Forecaster is to disaggregate the overall market into meaningful portions of customer types that behave similarly in terms of product demands and the set of choices they face. These disaggregations are arranged hierarchically, with Dimension 1 at the top of the "tree." Each Dimension 1 class can have one or more Dimension 2 classes, each Dimension 2 class can have one or more Dimension 3 classes, and so on.

Strategic Information Needs

A secondary goal of the market segmentation design is to designate groups of customers and products for which sufficient data are available to be fed into End Use Forecaster's forecasting framework. It may not be desirable to disaggregate the market into segments for which little or no data are available or where there is little distinction between two or more groups. Every new market segment requires additional disk storage space and more time to assemble the required End Use Forecaster data inputs. The objective should be to ***optimize*** the number of market segments: create enough market sectors to provide differentiation on answers to important questions but not so many that they become a burden to the overall process.

Data Development and Entry

Successful implementation of the End Use Forecaster model relies on highly integrated sets of information. Data entry is closely related to the market segmentation process, and both are addressed in this Reference Guide. Each set of input data uses different dimensions, so highly structured templates were designed to minimize redundancy and eliminate error at the same time.

End Use Forecaster uses market segmentation information and templates to set up all the required SAS datasets such that they are entirely consistent with the segmentation design.

Data Entry Formats

End Use Forecaster's datasets can be populated in several ways. The most common methods are:

- Exporting/importing data using SAS/ACCESS for PC file formats
- Programmatic data entry through simple SAS programs

As users gradually increase the number of distinct market segments from dozens to hundreds to thousands, it is anticipated that they will take advantage of SAS/ACCESS links to other company databases. Such links would allow for real-time forecast updates as database information is updated.

Product Usage Module: Modeling Equipment Consumption

End Use Forecaster tracks consumption of resources (such as natural gas, electricity, water, minutes of telephone or Internet use, gasoline, etc.) through the Product Usage module. This module is only used when there are secondary, derived demands from customers' product choices. For example, a utility would be interested in the use of energy from appliances to generate natural gas or electricity forecasts, but other types of manufacturers may not need this information to develop sales forecasts. If certain parts of the model are not needed in a given application, you may assign default values (usually a 0 or 1) that essentially turn off that portion of the model.

Product usage can vary with a variety of factors such as weather, non-weather seasonal factors, customer characteristics, prices, and other product attributes. Several modeling techniques explain and predict product usage, including scalars (exogenous estimates), econometric functions, and other statistical models.

Regardless of the approach taken, the Product Usage module provides a forecast of the predicted consumption by combining (1) a forecast of consumption factors or drivers (i.e., independent or exogenous variables) and (2) a set of coefficients associated with each exogenous variable.

Provider Choice Module: Modeling Customer Service and Purchase Decisions

Types of Choices: The Provider Choice module analyzes customer choice decisions among competitors and product options. For example, a commercial building operator chooses between fuel (provider) types for HVAC systems, and then from various equipment efficiency levels (product options) within the fuel type. Purchase decisions are represented by a nested structure of provider and product option choices.

Modes of Choice Modeling

The Provider Choice module is designed for two types of modeling: (1) the estimation of choice parameters, and (2) the forecast of market shares given these choice parameters. More specifically, the Provider Choice Module:[1]

- ***Simulates parameter estimates*** relating to customer choice in markets where micro-(customer) level information is not available, but aggregate cost and market share figures are known, or
- ***Uses parameter estimates*** from the application of logistic regression, or other models of customer choice, to micro-level customer data.

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1 The Provider Choice Module can be bypassed in some applications such as DSM potential analysis. In this type of framework, the base line fuel and efficiency shares are held constant and are determined outside the model. The Intervention Strategies Module is then used to view alternate market shares associated with, for example, technical and achievable DSM potential.

If primary market research is used to develop the micro data necessary for parameter estimates, the Provider Choice module essentially transforms a "static" market research report into a dynamic what-if analysis structure. This can significantly extend the usefulness and life of company market research resources.

After model parameters are simulated or input into the Provider Choice Module, it then forecasts the market share associated with each product and service alternative over the planning horizon.

Average versus Marginal Shares

The comparison of average versus marginal shares and associated trends is a key result of incorporating dynamic choice functions in the End Use Forecaster forecasting framework.

For example, the infusion of new energy consumption technologies (such as condensing furnaces) may be reaching 35% of new construction buildings, but if new construction in a given year only represents 2% of the total market, then the total impact on the market is merely 0.7%. As these rates of change accelerate and decelerate through the future, and as simulated what-if scenarios impact these forecasts of consumer choice, markedly different forecasts are possible over the longer term, while at the same time maintaining a realistic short-term profile.

Intervention Strategies Module: Analyzing Marketing Scenarios and DSM Potential

The Intervention Strategies module – a generic term to apply to activities typically associated with demand-side management (DSM) – is intended to capture the impacts of marketing, energy efficiency potential, and other programs designed to influence customer behavior. This module makes available a series of program designs that simulate the "what-if" impacts on the market shares, usage, and the resulting demand forecast. Three general types of program designs are available:

- ***Provider (fuel) substitution scenarios***. These scenarios modify the forecasted choices or market shares among provider (fuel) sources. Separate sets of assumptions apply to existing buildings and new construction buildings, permitting different types of programs to be designed.
- ***Product option (equipment efficiency) scenarios***. These scenarios modify efficiency or product option shares. For example, an efficiency program usually favors the highest available efficiency level for each market sector. These impacts affect choices at the point of new construction or replacement of existing end uses, and different assumptions can apply to each market. A technical potential scenario normally assigns a 100% share to the most efficient option. An achievable potential scenario assigns less than a 100% share to the most efficient option, with the level determined by experience with similar program designs or market research.
- ***Usage retrofit program scenarios***. These programs encourage consumers to change their product usage given the equipment they already have (e.g., improve the efficiency of existing equipment by installing efficiency measures or through better O&M procedures).

Examples include measures to tighten residential and commercial building envelopes, industrial process changes, and pipe and duct insulation.

Intervention strategies are incorporated directly into the relevant Product Usage or Provider Choice forecasts.

Forecast Module: Putting It All Together

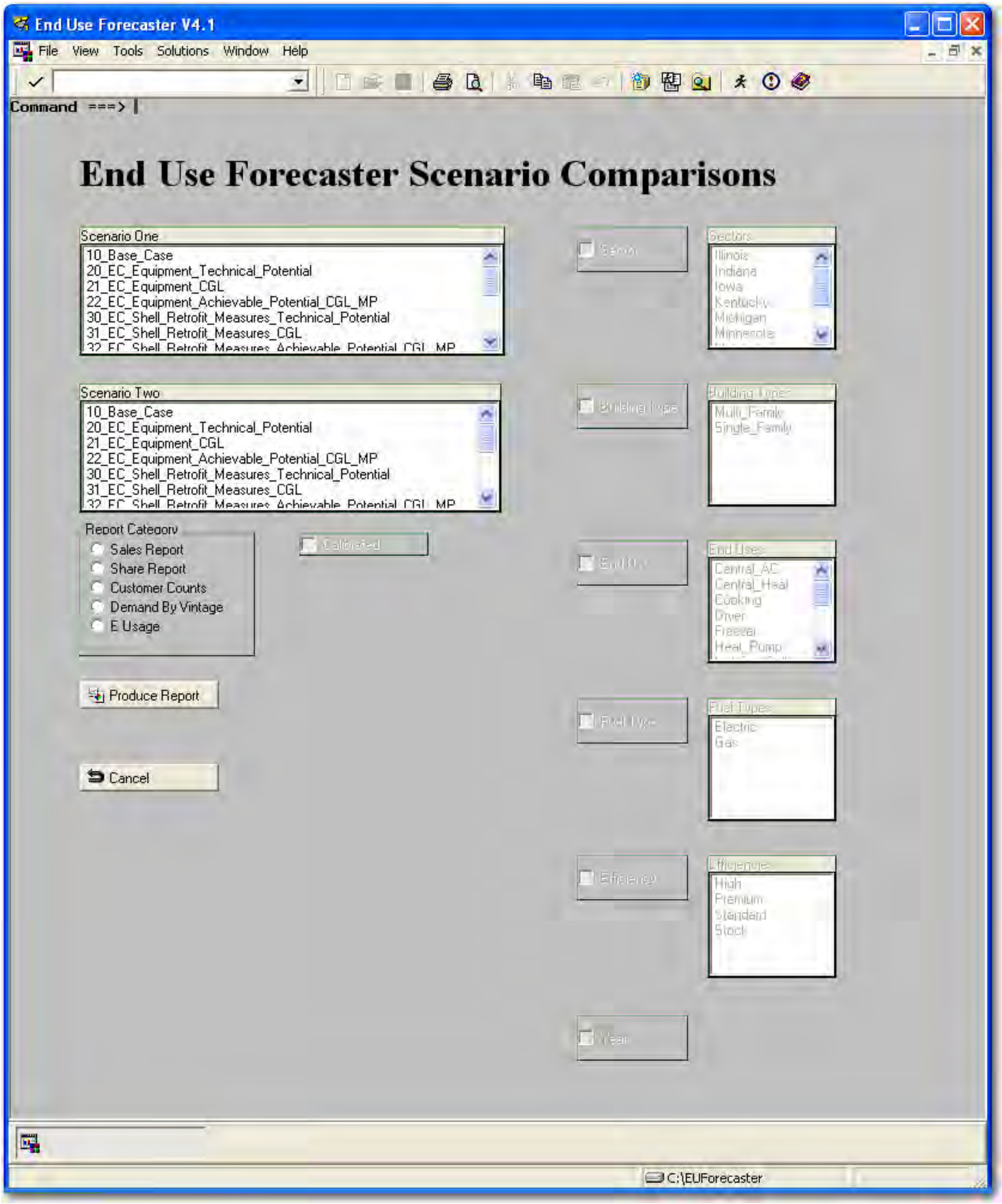
The Forecast Module incorporates all the information compiled from the other modules – Usage, Choice, and Intervention Strategies – related to the overall economic growth of the market segment and equipment lifetime (decay) functions to create the final forecast for a given scenario.

This module produces sales and market share reports that provide quick access to all forecast details. The reports produce forecast outputs in a “flat” matrix format, providing the ability to review the data for reasonability before pronouncing the forecast final.

Reporting: Getting the Projections Out to Decision-Makers

End Use Forecaster also produces reports that can be customized based upon the user’s choice of segmentation combinations to analyze. These reports summarize and/or compare forecasts for two forecast scenarios specified by the user in the Scenario Comparison interface, as shown in Figure 4.

Figure 4. Report Customization



The user specifies the Report Category (sales, market share, customer counts or demand by vintage) and, based on the category selected, the user is given the option of selecting different combinations of segments to summarize and/or compare. Additionally, the user is given the option of summarizing the forecast data across all years within the forecast horizon or generating results on a year-by-year basis.

In addition to the SAS-based reports, End Use Forecaster offers the user the opportunity to export the Sales Report data into empty Excel workbooks for ad hoc analyses by the user.

II. Application Structure

A solid understanding of how End Use Forecaster is organized will help users to understand the logic of the model and greatly improve the efficiency with which they use the application. The latest revisions to End Use Forecaster focused almost exclusively on consolidating libraries and datasets to make the model easier to use; the model's logic, repeatedly validated over its history, was left intact. Underlying the updates was an emphasis on consistency in the naming and organization of datasets and variables so as to maximize the intuitiveness of the model. This Chapter describes the model's organization with the intent of helping the user be a more effective modeler.

Hardware and Software

End Use Forecaster is a Windows application developed in PC-SAS. The code and datasets can easily be migrated to other platforms (UNIX, etc.), should the user desire, but the interfaces will not provide the same functionality on other systems. If a user desires a non-PC hardware/software solution, Quantec will work with the SAS Institute to ensure compatibility and develop a customized solution.

Hardware

The minimum recommended hardware configuration slightly exceeds SAS Institute requirements to ensure that forecast simulations can be performed in a timely manner. The vast majority of PCs purchased since 2000 exceed these recommendations:

- Pentium 866 MHZ CPU
- 512 MB RAM
- SVGA compatible color monitor
- 10 GB hard disk drive of free space
- CD-ROM drive (for installation purposed only)

End Use Forecaster's performance (i.e., speed) increases significantly if the system is equipped with more advanced processors (e.g., Pentium III or better), additional RAM (1 GB RAM or more), and additional disk space (for storage).

Software

End Use Forecaster is designed for the Microsoft Windows operating system (compatible with Windows 95 and 98, Windows NT Workstation 4.0, Windows XP, and Windows 2000 Professional). It is currently configured for SAS version 9.1 and version 8.2. Seven SAS software products are required:

- Base SAS

- Full Screen Product (SAS/FSP)
- Econometrics and Time Series (SAS/ETS)
- Statistics (SAS/STAT)
- High-Resolution Graphics (SAS/GRAPH)
- Interactive Data Analysis (SAS/INSIGHT)
- Direct Database Access (SAS/ACCESS)

An additional module, Applications Facility (SAS/AF), is used in developing End Use Forecaster’s graphical user interface. These modules are based on a special SAS code subset called SAS Control Language (SCL). This portion of End Use Forecaster is stored (compiled) within the model and does not require user modification.

If any of the required SAS products are missing from the site license, the software can be added for little additional cost. For organizations that do not yet have SAS, Quantec will be happy to work with the SAS Institute to ensure that you obtain a solution that will allow End Use Forecaster to run smoothly and cost effectively.

Installation of End Use Forecaster is site-specific because it is dependent on the location of SAS on your PCs. However, there is minimal customization. For each user we only need to modify two files in the End Use Forecaster\Config directory: autoexec.sas and EUForecaster.cfg. These files ‘point’ End Use Forecaster to your SAS installation and take advantage of the hard drive on your computer with the most disk space. These customized files are developed during installation, consistent with the installation of SAS on individual workstations.

Conventions

The majority of the nomenclature in this documentation comes directly from the SAS application in which End Use Forecaster was developed. The various components of SAS and the conventions used in referring to them throughout the documentation are:

- ***SAS libraries***, the logical names that refer to the physical locations where SAS datasets are stored, are referred to using all uppercase letters (CONFIG, MODELCODE, etc.).
- ***SAS code***, which contain the routines for End Use Forecaster’s modules, are referred to in normal text using the ‘camelBack’ syntax with the .sas suffix appended, such as choiceBatch.sas.
- ***SAS datasets*** are referred to using bold-face type using the ‘camelBack’ syntax, such as **equipmentAge_10**.
- ***SAS variables*** are referred to in italic type using the ‘camelBack’ syntax, such as *usageEquationStatus*.

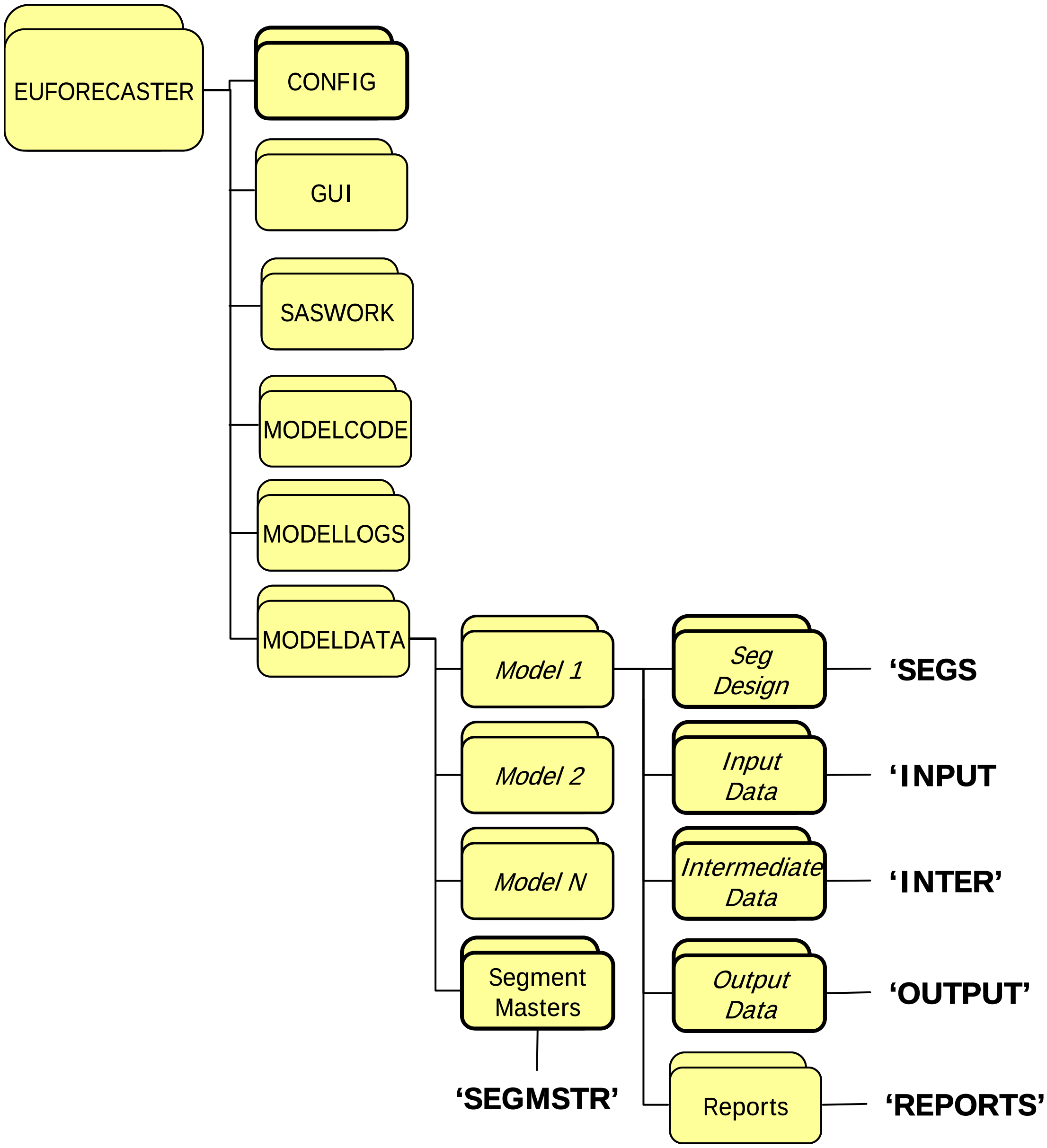
End Use Forecaster’s modules run user-specified scenarios. To differentiate among these scenarios, scenario-specific datasets have a numeric suffix, such as **priceForecast_10**. In general cases, where the documentation does not refer to a specific scenario, datasets are referred to with an **"_xx"** suffix, such as **saturations_xx**.

Model Organization

The logic and theory underlying End Use Forecaster are separated from the data, which vary by individual segmentation design (model). This differentiation drives the structural organization of the model as well, and these two components are stored in different physical locations. The initial organization takes place in the underlying Windows folder structure, which serves as the basis for the SAS libraries that hold both the datasets and catalogs that dictate the model logic and data structure, as well as those datasets specific to individual segmentation designs.

As shown in Figure 5, the folder hierarchy begins with the folder 'EUFORECASTER.' With the exception of the SAS application itself, the entire model – all code, interfaces, and datasets – resides within this folder. Folders with bold outlines represent the physical locations of SAS libraries, the names of which are designated in single quotes. The folders with names in italics – note that they are all within the data folder – represent those libraries that will vary by individual model. The 'MODELDATA' folder will contain individual folders for every model created by a user. Each of these individual model folders will also contain the same set of subfolders as those shown within 'Model 1.' Because these folder serve as SAS libraries, the group of folders that will serve as 'Segs,' 'Input,' etc., will depend on which model the operator happens to be working with in a given session. The data for individual models will not be available at the same time.

Figure 5. End Use Forecaster Folder Structure



This organization can have implications for the user. For example, if a user has a data source that applies to more than one model, the 'MODELCODE' library can serve as a good place to store the raw data to avoid keeping copies in each of the model-specific libraries. Detailed descriptions of these folders and their contents are provided in Table 2.

Table 2. End Use Forecaster Folders

Folder	Full Path	SAS Library	Description
EUFORECASTER	EUFORECASTER	N/A	Root application folder.
GUI	EUFORECASTER\ GUI	App	Folder containing all the underlying application catalogs and GUIs.
MODELLOGS	EUFORECASTER\ MODELLOGS	N/A	Directory where logs of model operations are stored.
MODELCODE	EUFORECASTER\ MODELCODE	N/A	Contains all the SAS code underlying the different End Use Forecaster modules.
CONFIG	EUFORECASTER\ CONFIG	N/A	Contains SAS configuration files in which site-specific modifications are established.
MODELDATA	EUFORECASTER\ MODELDATA	N/A	Contains data for all of the user-created segmentation designs.
“Model_Name”	EUFORECASTER\ MODELDATA \ “Model_Name”	N/A	A folder with all data for a model based on a user-defined name.
SegDesign	EUFORECASTER\ MODELDATA \ “Model_Name” \ segDesign	SEGS	For each model, contains the SAS datasets that establish the specific segmentation design.
InputData	EUFORECASTER \MODELDATA\ “Model_Name”\ inputData	INPUT	For each model, contains all of the user-populated datasets that are necessary to run the different modules.
IntermediateData	EUFORECASTER\ MODELDATA \ “Model_Name”\ intermediateData	INTER	For each model, contains all of the intermediate, model-generated outputs from the usage and choice modules that are necessary to run other modules.
OutputData	EUFORECASTER\ MODELDATA \ “Model_Name”\ outputData	OUTPUT	For each model, contains the various final output sets generated by the forecast module.
Reports	EUFORECASTER\ MODELDATA \ “Model_Name”\ Reports	N/A	Contains the reports and excel files created by End Use Forecaster’s Reporting Engine.
SegmentMasters	EUFORECASTER\ MODELDATA \ segmentMasters	SEGMSTR	Contains datasets with all of the necessary variables and structure for every model dataset. A SAS program combines these datasets with a specific segmentation design to generate all the datasets (unpopulated) necessary for a given model.

III. Market Segmentation and Data Entry Modules

End Use Forecaster's Market Segmentation module governs two distinct tasks: 1) the development of customized market segmentation designs; and 2) the population of the model with the necessary data. While the first consists of formal, specific steps, the nature of the second depends on a number of factors, including the complexity of the segmentation design, the format of the various data sources, as even as the technical skills of the operator. This chapter provides extensive detail on the first followed by a brief discussion of issues surrounding the second.

Development of Market Segmentation Design

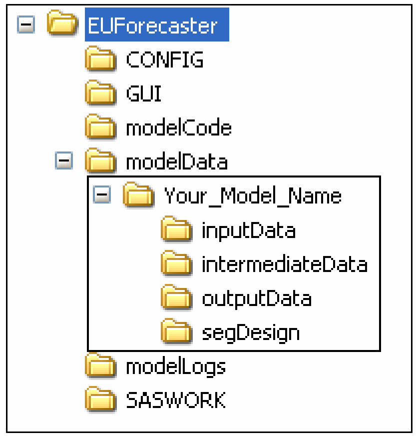
The execution of the first task – creation of a customized market segmentation design – is based on four steps, listed briefly below and then described in greater detail.

1) ***Creation of Model Data Folders*** **–** Creation of a specific directory structure for each model is necessary to perform subsequent steps.
2) ***Population of the Excel workbook*** **Seg_Design_Template.xls** **–** A step to define the various segments and their relationship with one another.
3) ***Creation of the Segs Library Datasets*** **–** This takes the Excel workbook and populates the "segs" library with the necessary segmentation design data sets.
4) ***Expansion of the Segmentation Design*** **–** This takes the segmentation design data sets in the "segs" library and merges them with the data set templates in the "segmstr" library, expanding them to create all the necessary – but still unpopulated! – data sets to run the basecase ("10") scenario in End Use Forecaster.

Creation of Model Data Folders

A prerequisite to setting up a new model is the creation of the necessary folders to contain the model-specific segmentation design and data. This means that within the c:\EUForecaster\modelData directory, you must have a folder with your model's name and within that folder you must have four folders called "inputData," "intermediateData," "outputData," and "segDesign," as shown in the interior boxed portion of Figure 6 below.

Figure 6. Data Folder Structure



There are multiple ways to create these folders. First, the user can manually create them in Windows Explorer. Alternately, one can copy the folder for an existing model and rename the root data folder to the preferred name, in which case subsequent steps will overwrite the existing datasets for the from model that was copied. Finally, the interface has an option in the Markets Module called "Create Directories for New Model." Selection of this option will prompt the user to enter the name for the new model and End Use Forecaster will create the desired folders.

Population of Seg_Design_Template.xls

The file ***Seg_Design_Template.xls***, a read-only file located in the root directory for End Use Forecaster (generally C:\EUForecaster) is the starting point for creating a custom segmentation design. It is here where you define the levels for the five primary dimensions that must exist in every segmentation design. While the experienced user will be very familiar with these dimensions, they deserve detailed discussion here. Starting at the top of the hierarchy, Dimensions 1 through 3 identify unique market segments. Dimensions 4 and 5 refer to the available product/service suppliers competing in the marketplace and product/service options, respectively. Although the actual use of these dimensions can vary, in and energy model the general use is as follows:

- Dimension 1: geographic region or sector
- Dimension 2: customer segment (home type, business type, or SIC)
- Dimension 3: end use
- Dimension 4: fuel type
- Dimension 5: efficiency level

In all designs, the first three dimensions define the basic market segmentation structure.

Dimension 1 always refers to geography, customer size, customer behavior, customer class, and/or any other features that separate groups of customers. Note that all of the aforementioned factors can be used within Dimension 1 (e.g., north-residential, north-commercial, south-residential, south-commercial, etc.).

Dimension 2 is reserved for factors that affect a particular group of customers in a similar manner, such as an exogenous rate of economic growth, building lives, or contract lives. In an end-use model, for example, this dimension might include various types of residential (single family, duplexes, multifamily, etc.) and commercial (office buildings, restaurants, hospitals, etc.) customers.

Dimension 3 refers to the products and services being marketed to each customer type, such as heating, cooling, or water heating. In a telecom model, this dimension would refer to basic service, Internet service, custom calling features, etc. As with the second dimension, each third dimension level has an associated physical or contract life. In an end-use energy model, each equipment type has a life span.

Dimensions 4 and 5 describe the product/competitive options within the major market categories that are defined by Dimensions 1 – 3. In an end-use model, fuel types are typically represented as Dimension 4 and various efficiency levels are represented by Dimension 5. In a competitive energy market, the fifth dimension could be used to represent various levels of retail services such as power quality or equipment maintenance offered by a provider.

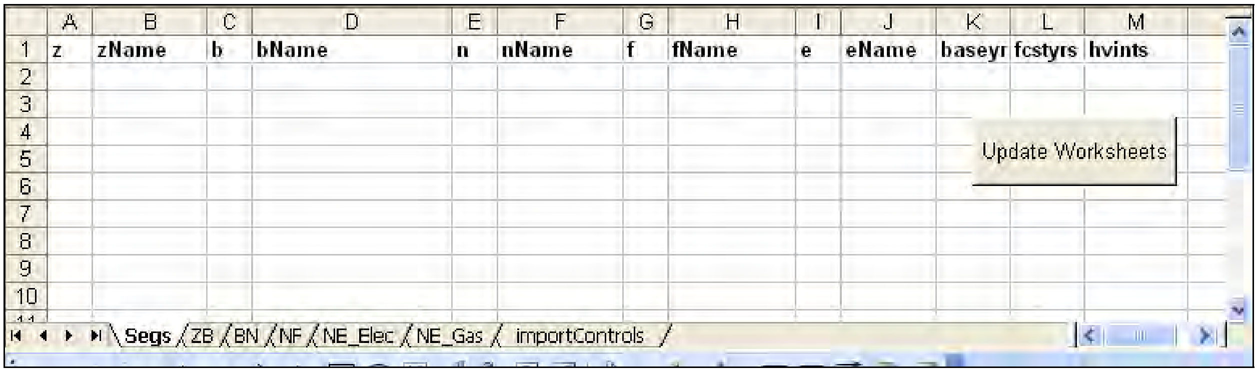
Table 3 summarizes the intended use of each of these dimensions. Note that while the model must include all five dimension, you are not required to use all of them. For example, suppose you want a design with alternative providers at Dimension 4 and do not wish to complicate the model with product/service options. In this case, you would assign only one alternative to Dimension 5, which effectively eliminates this dimension from the analysis. You could assign the same name to the single Dimension 5 alternative as that of the Dimension 4 to signify that in the design, this dimension has essentially been eliminated.

Table 3. End Use Forecaster Dimension Use Summary

Dimension	End Use Forecaster Dimension Name	End Use Forecaster Descriptive Name	End Use Forecaster Function	Special Features	No. Segment Levels in End Use Forecaster
One	z	zName	Factors that separate groups of customers		999
Two	b	bName	Additional factors that separate groups of customers	Building or contract life can be used to allow existing customers to decay over time	999
Three	n	nName	Equipment, products, services potentially purchased by Dimensions 1 – 2	Equipment or contract life can be used to allow existing equipment to decay over time	999
Four	f	fName	Providers of Dimension 3	Provider Choice module forecasts market shares	4
Five	e	eName	Service Options within Dimension 4	Provider Choice module forecasts product option shares	4

Open ***Seg_Design_Template.xls***. Excel will prompt you to either enable or disable macros and ***you will want to enable the macros***. Of the workbooks seven tabs, the first of interest is called "Segs," which is used for the definition of the different dimensions (z, b, n, f, and e) as well as the base year and years in the forecast horizon. That sheet should look like the image below, with no values for any of the dimensions:

Figure 7. Empty "Segs" Tab in Seg_Design_Template.xls



On this tab, first establish the base year of the forecast, the number of forecast years, and the number of historical vintages in columns K, L, and M below the headers baseyr, fcstyrs, and hvints, respectively. Next, the recommended first step is to fill in the columns for zName, bName, nName, fName, and eName with whatever zones, segments, end uses, fuels, and efficiency levels (or however you want to define the dimensions) that you want to include in the segmentation design. Once you have filled in the desired descriptive names, they then need to have their corresponding model values. ***These format for these is critical***. For z, b, and n the format is three-character numeric values. That is, they are a numeric values from 1 to 999 with leading zeros for all values below 100. In Excel, it is necessary to type an apostrophe (" ' ") prior to entering the value or else Excel will convert the cell to a numeric value and you will lose the leading zeros. For f and e, these are one-character numeric values. That is, they will have value of 1, 2, 3, or 4, but they must be in a character format. Again, a leading apostrophe will tell Excel to make these character. Figure 8 shows a fully populated "Segs" tab.

A Note on Naming Conventions – It is best to restrict the names of the different levels in each dimension used in the segmentation design to valid SAS variable names. According to SAS documentation, these names "can be up to 32 characters long. The first character must be a letter (A, B, C, . . . , Z) or underscore (_). Other characters can be letters, numbers (0, 1, . . . , 9), or underscores. Blanks cannot appear in SAS names, and special characters (for example, $, @, #), except underscores, are not allowed." While it is not an explicit requirement, using these names will greatly facilitate the process of model population because it will allow for the import and manipulation of data using names that need no modification to be applied directly to the model.

Figure 8. Example of Populated "Segs" Tab in Seg_Design_Template.xls

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	z	zName	b	bName	n	nName	f	fName	e	eName	baseyr	fcstyrs	hvints
2	001	Residential	001	Single_Family	001	Space_Heat	1	Natural_Gas	1	Stock	2003	22	3
3			002	MF2_2_TO_4_Un	002	Water_Heat	2	Electric	2	Standard			
4			003	MF3_GE_5_Units	003	Cooking			3	High			
5			004	MM_Master_Met	004	Drying			4	Premium			
6			005	SM_Sub_Meter	005	Pool							
7					006	Spa							
8					007	Fireplace							
9					008	Barbecue							
10					009	Other							
11													
12													

Update Worksheets

Segs / ZB / BN / NF / NE_Elec / NE_Gas / importControls

Once you have completed the "Segs" tab, selecting the Update Worksheets button will then populate the tabs "ZB," "BN," "NF," "NE_Elec," and "NE_Gas" with the desired segments in the correct format for the user to then fill out. For example, Figure 9 shows the "BN" tab as it will appear after activation of the Update Worksheets button.

Figure 9. Example of Unpopulated "BN" Tab in Seg_Design_Template.xls

Seg_Design_Template.xls [Read-Only]

	A	B	C	D	E	F
1	nName	Single_Family	MF2_2_TO_4_Units	MF3_GE_5_Units	MM_Master_Meter	SM_Sub_Meter
2	Space_Heat					
3	Water_Heat					
4	Cooking					
5	Drying					
6	Pool					
7	Spa					
8	Fireplace					
9	Barbecue					
10	Other					
11						

Segs / ZB / BN / NF / NE_Elec / NE_Gas / importControls

Again, the segmentation is hierarchical. The purpose of the newly-populated tabs ("ZB," "BN," "NF," "NE_Elec," and "NE_Gas") is to allow the specification of which dimensions belong together – starting at the top of the hierarchy and moving down – in the segmentation design. For example, with the ZB tab, the purpose might be to define which building belong in each geographic area. The key here is that the design need not be symmetrical. You might have Z represent two geographic areas, one extremely urban that would not have manufactured housing and rural that would need this home type.

The population of these tabs is based on filling the relevant cells with "TRUE" or "FALSE," with the former indicating where the dimensional relationship should exist in the segmentation design. The relationships defined in these tabs is as follows:

- **ZB –** Define which levels of the second (b) dimension belong in each level of the first (z) dimension.
- **BN –** Define which levels of the third (n) dimension belong in each level of the second (b) dimension.
- **NF –** Define which levels of the fourth (f) dimension belong in each level of the third (n) dimension.
- **NE_Elec –** Define which levels of the fifth (e) dimension belong in each level of the third (n) dimension for the electric fuel type.
- **NE_Gas –** Define which levels of the fifth (e) dimension belong in each level of the third (n) dimension for the gas fuel type.

Figure 10 presents a fully-populated “NE_Elec” tab. Note the pattern of “TRUE” and “FALSE” indicating which of the efficiency levels apply to the different end uses.

Figure 10. Example of Populated “NE_Elec” Tab in Seg_Design_Template.xls

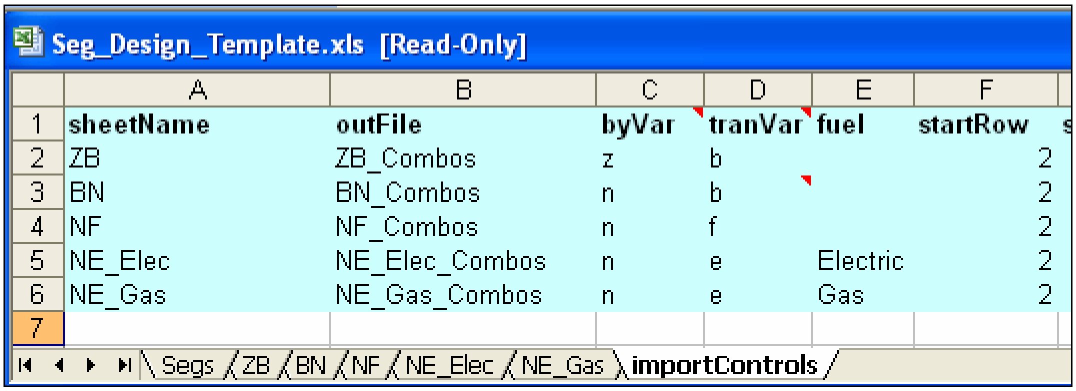
nName	Stock	Standard	High	Premium
Space_Heat	TRUE	FALSE	FALSE	FALSE
Water_Heat	TRUE	TRUE	TRUE	TRUE
Cooking	TRUE	TRUE	FALSE	FALSE
Drying	TRUE	TRUE	FALSE	FALSE
Pool	TRUE	FALSE	FALSE	FALSE
Spa	TRUE	FALSE	FALSE	FALSE
Fireplace	TRUE	FALSE	FALSE	FALSE
Barbecue	TRUE	FALSE	FALSE	FALSE
Other	TRUE	FALSE	FALSE	FALSE

Note that in filling in all of these sheets, make every effort to keep the data “clean.” That is, there can be no data in adjoining rows or columns that is extraneous to the segmentation design. If there has been any work done in cells, it might be best to delete all the rows to the right of the last relevant column and all the rows below the last relevant row.

Finally, the last tab - importControls – tells SAS in the next step how to bring in the data contained on various tabs in the segmentation design workbook. Other than two cells, this entire workbook will populated itself dynamically based on the other tabs. Those two cells are E5 and

E6 – shown in Figure 11 with the values "Electric" and "Gas," respectively – and the values the contain must be identical to whatever you have specified on the original "Segs" tab. That is, if you've called your fuels "Electricity" and "Natural Gas," the values in those cells must be identical.

Figure 11. A portion of the importControls Tab in Seg_Design_Template.xls


Seg_Design_Template.xls [Read-Only]

	A	B	C	D	E	F
1	sheetName	outFile	byVar	tranVar	fuel	startRow
2	ZB	ZB_Combos	z	b		2
3	BN	BN_Combos	n	b		2
4	NF	NF_Combos	n	f		2
5	NE_Elec	NE_Elec_Combos	n	e	Electric	2
6	NE_Gas	NE_Gas_Combos	n	e	Gas	2
7						

Segs / ZB / BN / NF / NE_Elec / NE_Gas / importControls

Once you are done populating Seg_Design_Template.xls, you will have to save the workbook with a very specific name in the data folder for the model under creation (C:\EUForecaster\modelData*yourModelname*). That name must be whatever your model name is with "_Segments" appended at the end. For example, if you've created the a model for small commercial customers for a utililty's end-use model, you might call the model "Small_Com." Accordingly, you'd save the workbook as "Small_Com_Segments.xls." Again, the file is read-only, so it will prompt you to save it under another name should you try to save it normally.

Creation of the Segs Library Datasets

After completing the Seg_Design_Template.xls and workbook and saving it under another name, the next step is convert this information into the various Segs library datasets. To do this, under the Market Module on the main dashboard, select the "Create 'Segs' Datasets from Excel" option. The interface will prompt you to say 'OK' or to cancel. If you are confident in your segmentation design, select 'OK." To check that this code has run correctly, you should see the all of the segmentation design datasets in the "Segs" library, as shown in Figure 12, and they should all have a modified date reflecting the time when the code was submitted.

Figure 12. Contents of Segs Library

Contents of 'Segs'

Name	Size	Type	D.	Modified
B_dim	5.0KB (2 Cols X 14 Rows…	Table		10Jan06:10:19:30
E_dim	5.0KB (2 Cols X 4 Rows) …	Table		10Jan06:10:19:32
F_dim	5.0KB (2 Cols X 2 Rows) …	Table		10Jan06:10:19:32
Initparm	5.0KB (2 Cols X 1 Rows) …	Table		10Jan06:10:19:28
N_dim	5.0KB (2 Cols X 11 Rows…	Table		10Jan06:10:19:31
Z	5.0KB (3 Cols X 1 Rows) …	Table		10Jan06:10:19:40
Zb	5.0KB (6 Cols X 14 Rows…	Table		13Jan06:10:43:41
Zbn	9.0KB (8 Cols X 87 Rows…	Table		13Jan06:10:43:41
Zbnf	17.0KB (10 Cols X 160 R…	Table		11Jan06:16:49:08
Zbnfe	33.0KB (11 Cols X 376 R…	Table		10Jan06:10:19:39
Z_dim	5.0KB (2 Cols X 1 Rows) …	Table		10Jan06:10:19:29

Expansion on the Segmentation Design

Once the Segs library is populated with the desired segmentation design, the next step is to expand the Segs library datasets to create all of datasets necessary to run the model. Select "Expand 'Segs' Datasets" under the Markets Module on the main dashboard and say 'OK." Once this code has run, you should be able to look in the "Input" library and see datasets it has created, as shown in Figure 13.

Figure 13. Contents of the Input Library

Contents of 'Input'

Name	Size	Type	Modified
Accountdecay_10	17.0KB (10 Cols X 115 R...	Table	08Feb06:13:44:38
Calibrationzb_10	9.0KB (7 Cols X 105 Row...	Table	08Feb06:13:44:40
Calibrationz_10	5.0KB (5 Cols X 21 Rows...	Table	08Feb06:13:44:40
Choicebatchcontrol	9.0KB (10 Cols X 1 Rows...	Table	08Feb06:13:44:39
Choicedrivers_10	301.0KB (15 Cols X 2646...	Table	08Feb06:13:44:38
Choiceparameters_10	65.0KB (21 Cols X 282 R...	Table	08Feb06:13:44:38
Customercountsactual_10	9.0KB (9 Cols X 15 Rows...	Table	08Feb06:13:44:39
Customercountsforecast_10	17.0KB (9 Cols X 100 Ro...	Table	08Feb06:13:44:39
Dsmechoice_10	49.0KB (17 Cols X 183 R...	Table	08Feb06:13:44:38
Dsmfchoice_10	33.0KB (14 Cols X 99 Ro...	Table	08Feb06:13:44:38
Dsmretrofit_10	33.0KB (20 Cols X 122 R...	Table	08Feb06:13:44:38
Echoicestatus_10	9.0KB (10 Cols X 61 Row...	Table	08Feb06:13:44:39
Equipmentage_10	17.0KB (9 Cols X 99 Row...	Table	08Feb06:13:44:39
Equipmentdecay_10	25.0KB (14 Cols X 122 R...	Table	08Feb06:13:44:38
Esharesinitial_10	25.0KB (15 Cols X 126 R...	Table	08Feb06:13:44:39
Fchoicestatus_10	9.0KB (8 Cols X 33 Rows...	Table	08Feb06:13:44:39
Forecastbatchcontrol	9.0KB (11 Cols X 1 Rows...	Table	08Feb06:13:44:39
Fsharesinitial_10	9.0KB (12 Cols X 61 Row...	Table	08Feb06:13:44:39
Intro	5.0KB (2 Cols X 1 Rows) ...	Table	08Feb06:13:44:39
Priceforecast_10	105.0KB (10 Cols X 1281...	Table	08Feb06:13:44:38
Saturations_10	641.0KB (9 Cols X 9009 ...	Table	08Feb06:13:44:38
Usagebatchcontrol	5.0KB (4 Cols X 1 Rows) ...	Table	08Feb06:13:44:39
Usagedrivers_10	7.9MB (33 Cols X 31752 ...	Table	08Feb06:13:44:39
Usageparameters_10	769.0KB (34 Cols X 2898...	Table	08Feb06:13:44:39

Note that this step will often be used more than once, as it also serves as a means of “refreshing” the model. Throughout the process of populating the model, any number of operator error-based issues can corrupt the structure of these input data sets, which will lead to questionable results during operation of the model. For example, necessary rows might be lost during an incorrect merge or a typo will lead to an incorrect variable name. When this happens, the easiest to way to recover is to perform this step, which will re-create all the datasets in the required structure.

Model Population

Once the starting datasets in the Input library have been created, you must enter data into the SAS datasets that were automatically created by building the segment master. Table 4 shows all the datasets that are created in the INPUT library and the module with which they are associated. The table also provides a brief outline of the information to be entered in each dataset with more detailed information provided in subsequent chapters.

Table 4. Starting Datasets in INPUT Library

Module	Dataset	Contents
Usage	usageBatchControl	See Batch Control Usage below
Usage	usageDrivers_10	Equipment usage equation forecast drivers
Usage	usageParameters_10	Coefficients describing how usage varies by weather, customer characteristics, prices, and other variables
Choice	choiceBatchControl	See Batch Control Usage below
Choice	choiceDrivers_10	Choice forecast drivers, including capital costs for equipment in existing, conversion, and new construction buildings, plus future availability of each equipment type
Choice	choiceParameters_10	Provider Choice function initialization parameters for Dimension 4 and 5 purchase choices
Choice	eChoiceStatus_10	A status variable that tells the Choice Module how to model shares for Dimension 5. Set this variable to “1” to hold the initial market shares constant over the forecast horizon.
Choice	eSharesInitial_10	Average and marginal market shares for existing, conversion, and new customers for Dimension 5
Choice	fChoiceStatus_10	A status variable that tells the Choice Module how to model shares for Dimension 4. Set this variable to “1” to hold the initial market shares constant over the forecast horizon.
Choice	fSharesInitial_10	Average and marginal market shares for existing, conversion, and new customers for Dimension 4
Choice	priceForecast_10	Fuel, product, or service price forecasts in native units (e.g., therms, kWh, gallons, cubic meters)
Forecast	ForecastBatchControl	See Batch Control Usage below
Forecast	accountDecay_10	Decay functional form indicator and parameters for existing, conversion, and new accounts
Forecast	customerCountsActual_10	Number of existing accounts, non-accounts on main, and non-accounts off main
Forecast	customerCountsForecast_10	Forecast of new construction (economic activity driving demand), capture rates, units per account, and number of units (i.e., units are a scale of measurement consistent with results of the usage forecast, such as buildings, square footage, apartments, etc.)
Forecast	equipmentAge_10	Mean age of end uses by historical vintage in the baseline (i.e., 0th) year of the forecast, used to initialize the age dimension in the turnover/vintage module
Forecast	equipmentDecay_10	Decay functional form indicator and parameters for equipment (end-uses) in existing, conversion, and new buildings
Forecast	saturations_10	Saturation (percentage of accounts that have the equipment) independent of fourth dimension market shares
N/A	calibrationZ_10	Total actual sales in base year for Dimension 1
N/A	calibrationZB_10	Total actual sales in base year for Dimension 2
Intervention Strategies	dsmEChoice_10	Exogenous parameters that change Dimension 5 market shares for existing, conversion, and/or new customers through ‘what if’ intervention strategies
Intervention Strategies	dsmFChoice_10	Exogenous parameters that change Dimension 4 market shares for existing, conversion, and/or new customers through ‘what if’’ intervention strategies
Intervention Strategies	dsmRetrofit_10	Exogenous parameters that adjust product usage through ‘what if’ convention strategies

The method for populating these datasets, however, depends on the interaction of several factors. If the operators SAS skills are limited and the overall segmentation design is simple enough that that datasets do not exceed Excel's row limits, the data can be exported, populated manually, and then re-imported. If the data that will go into the model already exist in an electronic format and the operator has SAS skills that cover basic merges and data manipulation, the datasets can be populated via SAS code. Another option is to create data entry templates that conform to the format of the various data sources that will then be imported into SAS, manipulated to take on the correct format for the model, and then used to populate the datasets via SAS code. The final and best solution will often be a combination of multiple methods.

Batch Control Usage

The INPUT library includes three "batch processing" datasets that describe how various datasets (input scenarios, or the "**_xx**" suffix) are jointly processed within End Use Forecaster forecast output scenarios. These datasets are:

- **usageBatchControl**: selects input scenarios for each set of input files for forecasting equipment purchase choices
- **choiceBatchControl**: "packages" sets of expected market shares as a result of customer service programs with those segments that are unaffected by these activities into one cohesive group
- **forecastBatchControl**: combines chosen product usage equations, usage drivers, and historical vintage adjustment scenarios

End Use Forecaster automatically creates the base case scenario, denoted by "_10," for each of these datasets. Additional scenarios can be designated in each batch dataset by:

- Adding a new row worksheet in each dataset through SAS/FSP and changing the relevant scenario indicators
- Writing SAS code to create the datasets with the desired scenario inputs
- Managing the batch controls in an Excel workbook and importing them via SAS

Batch processing datasets allow the user to specify all the input datasets for a given scenario. The strength of this approach is that it allows the analyst to mix and match datasets from different scenarios, which avoids having to keep identical datasets for different scenarios. Figure 14 presents a hypothetical **choiceBatchControl** dataset. In the example, the user has set up three different scenarios (10, 20, and 30), which pull mostly the same datasets, with a couple of exceptions. First, Scenario 20 pulls an alternate price forecast, ostensibly one with high gas prices. Second, Scenario 30 utilizes the price forecast produced for Scenario 20 and also pulls in an alternate usage forecast.

Figure 14. Example choiceBatchControl Dataset

scenario	choiceDrivers	priceForecast	choiceParameters	usageAnnual	eSharesInitial	fSharesInitial	eChoiceStatus	fChoiceStatus	scenarioName
10	10	10	10	10	10	10	10	10	Base Case
20	10	20	10	10	10	10	10	10	High Gas Price Forecast
30	10	20	10	30	10	10	10	10	Low Usage

Scenario 20 pulls a different price scenario.

Scenario 30 pulls different usage and price forecasts, but utilizes the same dataset used for Scenario20.

IV. Product Usage Module

End Use Forecaster tracks consumption of resources (natural gas, electricity, etc.) through the Product Usage module. The module provides a forecast of the predicted consumption by combining (1) a monthly forecast of consumption factors or drivers (i.e., independent or exogenous variables), stored in the SAS dataset **usageDrivers_xx**, and (2) a set of coefficients associated with each exogenous variable, stored in **usageParameters_xx**.

The Product Usage module merges the **usageParameters_xx** dataset with the usage forecast drivers (**usageDrivers_xx**) and sums the results over all variables in order to obtain usage forecasts at the unit level (e.g., per customer, per square foot). The results then become inputs into the Provider Choice and Forecast modules.

If the *usageEquationStatus* variable in **usageParameters_xx** equals 1, usage is a linear combination of the coefficients and forecast drivers:

(1) $$usageMonthly\_xx_m = \Sigma_c\ usageParameters\_xx_c * usageDrivers\_xx_{cm}$$

where:

- **usageParameters_xx** $_c$ = usage coefficients c, where the default has 21 slots (B0 through B20)
- **usageDrivers_xx** $_{cm}$ is the monthly forecast (m) of each forecast driver (independent variable) associated with coefficient c (X0 through X20)

If *usageEquationStatus* is set equal to 2, then the Product Usage Module assigns a log-log function:

(2) $$usageMonthly\_xx_m = exp(\Sigma_c\ usageParameters\_xx_c * log(usageDrivers\_xx_{cm}))$$

The default structure is a linear model with *usageEquationStatus* equal to 1.[2]

The final step in this module is to aggregate usage to an annual figure (usageAnnual_xx). Both monthly and annual forecasts for a given scenario are stored in the INTER library.

The **usageBatchControl** dataset in the INPUT library has the following variables that define the input datasets associated with each output scenario:

- *scenario*: The Product Usage module output scenario
- *usageParameters*: The input scenario associated with the product usage equations (**usageParameters_xx**)

[2] As discussed further below under Calibration, End Use Forecaster's automatic sales calibration routine is designed to work with the linear model where *usageEquationStatus* is set equal to 1. Calibration routines for more complex usage equation structures defined by the log-log or other status indicators (3, 4, etc.) can be developed by Quantec on request.

- *usageDrivers*: The input scenario associated with the product usage drivers (**usageDrivers_xx**)

Figure 15 shows the program flow, including input and output datasets. Table 5 describes the data sets and their key attributes in more detail.

Figure 15. Product Usage Module Program Flow for "usageBatch.sas"

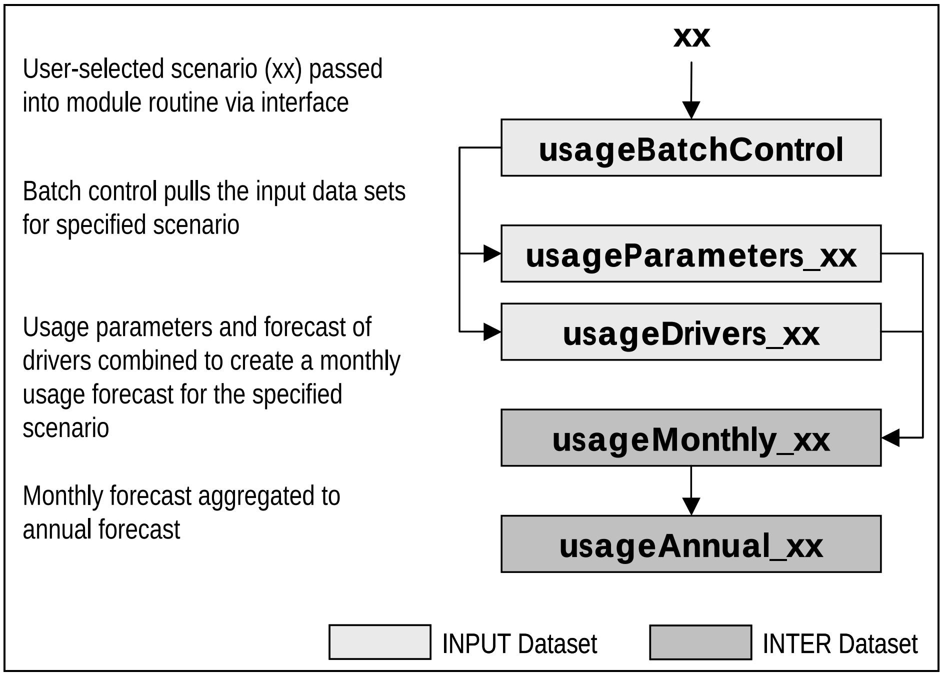


Table 5. Product Usage Module Data Library

Library	Dataset	Description	File/Record Dimensions	Variables/Attributes
INPUT	usageBatchControls	Usage forecast input scenarios	1 record per Output scenario	Usage equation input scenario, forecast driver input scenario, vintage adjustment input scenario, output scenario
INPUT	UsageParameters_xx	Usage forecast equation parameters	Dimensions 1, 2, 3, 4, 5, and vintage	Usage equation parameters B0 through B0 for input scenario Sxx
INPUT	usageDrivers_xx	Usage forecast drivers	Dimensions 1, 2, 3, 4, and 5, year, month	Usage forecast drivers X0 through X0 for input scenario Sxx

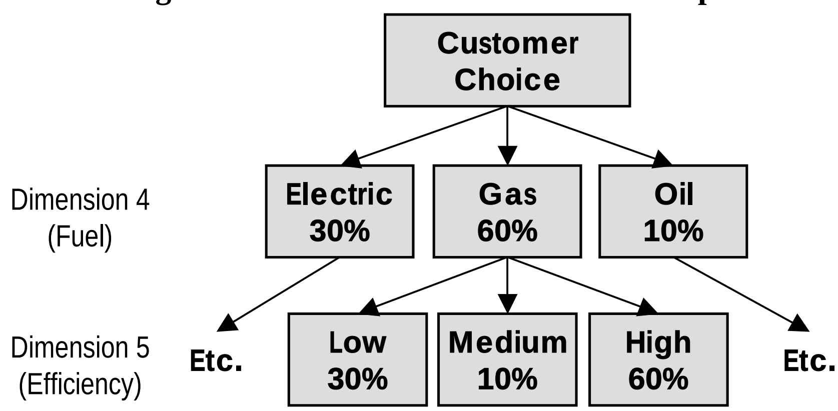
V. Provider Choice Module

The Provider Choice module analyzes customer choice decisions among competitors and product options. For example, customers choose their end-use equipment from various fuel types and efficiency levels. Purchase decisions are represented by a nested structure of provider (fuel) and product (efficiency) option choices.

The nested structure of the Provider Choice module is illustrated in Figure 16 below. This figure represents fourth and fifth dimension choices. The customer in this example faces a choice of gas vs. electricity vs. oil at the fourth dimension, and low vs. medium vs. high efficiency at the fifth dimension. Analysts often think of this problem as "efficiency choice conditional on fuel choice," hence the downward arrows in the figure. But customer choice theory and the Provider Choice Module actually work in the opposite direction, with the fourth dimension conditional upon fifth dimension choices. In reality, the customer makes a simultaneous choice across these dimensions, and the model structure shown in Figure 16 is just a convenient way of modeling this behavior.

The Provider Choice module first estimates the fifth dimension (efficiency) parameters and forecasts its market shares. The model then calculates the weighted average operating and capital costs for each fourth dimension (fuel) alternative, estimates the choice equation coefficients, and then produces a forecast for the fourth dimension.

Figure 16. Provider Choice Module Example



Note that the structure of the tree need not be symmetric. For example, single fuel energy companies and water utilities may want to focus on multiple efficiency levels for customers using their products. A single efficiency level can be specified for the remaining fuels.

The application of choice coefficients and forecast drivers form a discrete choice-type model that is applied to individual customer data. These models are analogous to regression models for equipment usage. The estimated discrete choice model parameters describe how equipment costs, operating costs, equipment characteristics, and customer characteristics affect equipment choices. For each choice level there are capital and operating cost parameters (called betas) and alternative-specific intercepts (called alphas).

The alphas and betas are developed through one or more of the available Provider Choice algorithms in End Use Forecaster:

1. Using individual customer level survey and equipment usage data, discrete choice models consistent with the segmentation design are estimated. Note that like usage equation modeling, this estimation is conducted outside of End Use Forecaster, but may be conducted using the same SAS procedures as those used by End Use Forecaster.
2. If individual customer data are not available for discrete choice modeling, End Use Forecaster can use aggregate market data to simulate a simple choice model from equipment capital costs and operating costs.
3. If individual customer data are not available for discrete choice modeling, End Use Forecaster can calculated use apply approximate, solutions calculated using Mathematica. [Note: this feature is not currently available, but will be added by May 2006]

These alternatives are summarized in Table 6.

Table 6. Provider Choice Equation Status Variable Definitions

Status Variable	Description	Beta Parameters	Alpha (Intercept) Parameters	Potential Applicability to Choice Model
1	Exogenous Market Shares Specified	N/A	N/A	Yes
2	Logit: estimated	Estimated Outside End Use Forecaster	Estimated Outside End Use Forecaster	Yes
3	Logit: estimated	Estimated	Starting values: to be calibrated	Yes
4	Logit: simulated	Starting values: to be estimated & calibrated	Starting values: to be estimated & calibrated	Yes
5	Logit: calculated	Calculated	Calculated	Yes

Model Parameterization

Estimation Mode (Status 2 and 3)

Customer choice parameters can be estimated when sufficient micro-level customer choice data are available to estimate regression coefficients for actual consumer decisions. Quantec customizes and estimates choice equations for companies who request this approach or uses choice model parameters from previous research conduct by the company.

The choice equation status variables are set equal to 2 or 3 if this approach is used. If status equals 2, all parameters have been estimated outside the model, and no further calibration is necessary. If status equals 3, a logit functional form has been used to estimate operating and capital cost parameters and the model is being calibrated to base year market shares by adjusting the intercept terms.

Simulation Mode (Status 4)

The simulation of consumer choice is useful when customer-level data are not available. Most users of End Use Forecaster find themselves in this position before they can conduct primary market research. In simulation mode, this module estimates parameters of the choice function based on available data for:

- Operating and capital costs
- Marginal (most recent) equipment market shares
- Customer discount rates
- An estimate of the proportion of customer preferences or "utility" that is related to non-price factors

Provider Choice module coefficients are developed by solving a system of equations within the SAS Model procedure.

Exogenous Mode (Status 1)

If neither micro-level customer choice data nor aggregate data are available, or if poor data quality prevents choice equations from being estimated (simulated), the status variable can be set equal to 1 in order to bypass the Provider Choice Module. In such a cases, market shares are set equal to the values in **fSharesInitial_xx** and **eSharesInitial_xx**.

Forecasting

The Provider Choice model produces forecasts over the planning horizon by applying a forecast of equipment capital costs, equipment energy consumption (from the Product Usage module), and fuel price forecasts to the estimated (simulated) choice parameters.

If modes 2 through 4 are used, these variables will affect market shares over the forecast horizon. If the exogenous mode (status 1) is used, market shares are held constant at their base year values over the forecasting horizon. Exogenous forecasts can also be modified via alternative market share forecast scenarios that are specified in the Intervention Strategies module (see Chapter VI).

Market Availability

End Use Forecaster can adjust forecasted efficiency market shares to reflect changes in regulations by removing the market availability of specified alternatives in the future. In this adjustment procedure, End Use Forecaster shifts any market shares designated for efficiency alternatives to be removed from the market to the remaining alternatives, proportional to their *a priori* market shares. This approach to market availability can also be adapted to situations where an efficiency level has become obsolescent in the market, such as the market availability of alternatives of superior consumer value at lower cost.

End Use Forecaster includes a variable called *available* that is entered in the **choiceDrivers_xx** dataset. *Available* is equal to 1 when the configuration is available on the market and zero when it is no longer available. When the choice model finds an unavailable configuration, it will reassign that configuration's shares (at the efficiency level) to the remaining configurations.

Provider Choice Module Analysis and Data Flow

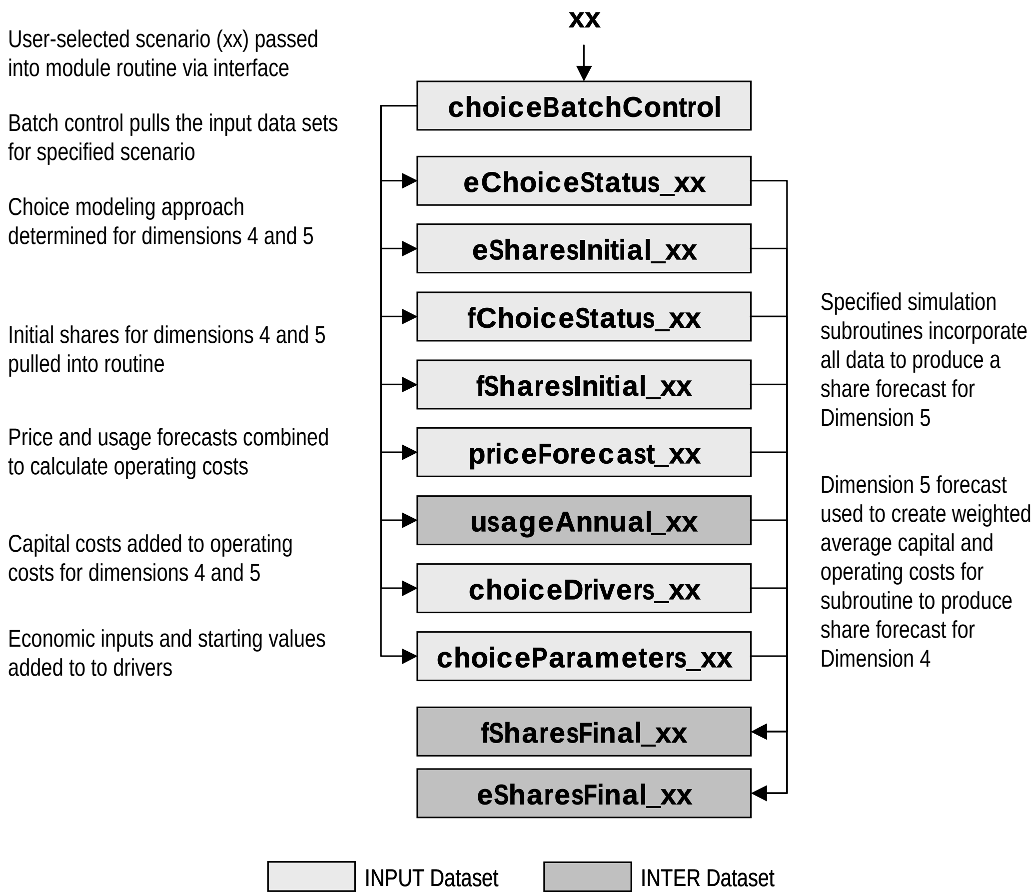
Figure 17 shows the data and analysis flow through the Provider Choice Module.

The dataset **choiceBatchControl** in the input library describes any scenario in terms of the following:

- Equipment capital costs and future availability (**choiceDrivers_xx**)
- Initial simulation (or estimation) parameters (**choiceParameters_xx**)
- Forecasted energy prices (**priceForecast_xx**)
- Product Usage output forecast scenario (**usageAnnual_xx**)
- Initial base-year efficiency (dimension 5) shares (**eSharesInitial_xx**)
- Initial base-year fuel (dimension 4) shares (**fSharesInitial_xx**)
- Indicator for efficiency (dimension 5) choice simulation (**eChoiceStatus_xx**)
- Indicator for fuel (dimension 4) choice simulation (**fChoiceStatus_xx**)

The simulation subroutines in choiceBatch.sas calibrate Provider Choice module coefficients to the baseline market shares in **fSharesInitial_xx** and **eSharesInitial_xx**. The program derives a simultaneous solution for all the qualitative choice coefficients using PROC MODEL from SAS/ETS. The first step in this subroutine is to integrate usage module information (consumption per configuration) with forecasted prices per unit of use to generate forecasted operating costs. Along with forecasted capital costs and other variables used in the qualitative choice models, this information serves as the forecast dataset for choice for each market segment. End Use Forecaster's default choice structure considers up to four alternatives at each level of the nest. Quantec can customize and modify the code if more than four alternatives are needed.

Figure 17. Provider Choice Module Program Flow for "choiceBatch.sas"



Initial Values

The initial value datasets from **choiceParameters_xx** are merged with the other datasets described above. Initial values and other parameters include:

- Equipment life
- Customer discount rate
- Share of customer preferences ("utility") associated with non-price attributes
- Initial values for alternative-specific constants and model coefficients

In some cases, the subroutine can be sensitive to the initial values, particularly for capital and operating cost coefficients. This problem can generally be mitigated by using initial values that are very small numbers, such as $1E^{-8}$.

Single-Alternative Choices

Choice estimation is not required for one-alternative situations; the choice forecasting routine assigns a 100% market share to these single alternative situations in the choice nest.

Confirming Calibration Results (Status 3 or 4)

A final step in the choice calibration process is to confirm that all equation coefficients have been solved correctly and that the coefficient values are reasonable. The nature of "solving" each choice equation for the appropriate coefficients requires an iterative process, where PROC MODEL begins with user-specified starting values of each coefficient and iterates toward a solution based on the input assumptions.

If the coefficient starting values are inappropriate, the calibration process may not reach a solution or it may reach one that is not in an economically feasible region. For example, starting values of coefficients need to be sufficiently low, such that, when they are multiplied by the independent variables, the result is not "out of the ballpark." Additionally, if the relative comparison of operating costs and capital costs are contrary to the user-specified discount rate, the calibration routine may find a solution where one of the coefficients may be positive (i.e., indicating that as costs rise, so do purchases, which is a clearly non-economic decision).

To check calibration results:

- Check the output files shown in the lower panel of Figure zzz. (Not sure which figure this is)Missing values in these forecasted market shares indicate a calibration problem.
- Look for the problem segment(s) in the EUFORECASTER\MODELLOGS directory. The choiceBatch.log file will let you know whether the model was ever "in the ballpark" by noting at what point in the solution-seeking process the SAS/ETS MODEL procedure failed.
- If there is a problem with the scale of a variable, the model will fail at iteration zero and the "hill climbing" optimization never begins.
- If the model fails during subsequent iterations, a systematic change in the initial parameters in **choiceDrivers_xx** is recommended until convergence is achieved. Using the final parameter values from another, similar, segment can help in the calibration process.

Table 7 module summarizes the data files used in this module.

Table 7. Provider Choice Module Data Libraries and Files

Library	Dataset	Description
INPUT	choiceBatchControl	Choice parameter input scenario, choice forecast driver input scenario, fuel price input scenario, output scenario
INPUT	choiceDrivers_xx	Capital cost equipment replacement, capital cost equipment conversion, capital cost new construction equipment, availability
INPUT	priceForecast_xx	Price forecast
INPUT	choiceParameters_xx	Description, NumAlternatives, Lifetime, Discount Rate, PriceShare, Alpha, A1-A4, B1-B2
INTER	usageAnnual_xx	Usage forecast
INPUT	eSharesInitial_xx	Dimension 5 base year average stock share, base year marginal share existing/replacement, base year marginal share conversion, base year marginal share new construction
INPUT	fSharesInitial_xx	Dimension 4 base year average stock share, base year marginal share existing/replacement, base year marginal share conversion, base year marginal share new construction
INPUT	fChoiceStatus_xx	Indicator for method of estimation/simulation for dimension 4 (fuel).
INPUT	eChoiceStatus_xx	Indicator for method of estimation/simulation for dimension 5 (efficiency)
INTER	fSharesFinal_xx	Shares forecast for dimension 4 (fuel) for existing, conversion, and new customers
INTER	eSharesFinal_xx	Shares forecast for dimension 5 (efficiency) for existing, conversion, and new customers

VI. Intervention Strategies Module

The Intervention Strategies module is intended to capture the impacts of a customer rebate or marketing program. These strategies are modeled as “what-if” scenarios. Depending upon the design of the service or program, these impacts combine specified market acceptance patterns with equipment characteristics to estimate impacts on forecasted choices and per-unit usage.

Substitution Programs

Provider (fuel) substitution strategies encourage consumers to purchase equipment from one provider over other providers. For existing equipment, this change can be done either immediately (early replacement) or at the point of existing equipment retirement (normal replacement). The **dsmFChoice_xx** dataset in the input directory controls how a market intervention will affect shares for a given scenario. The inputs in this dataset, summarized in Table 8, vary by the first, second, and third dimensions and can apply differently to existing, conversion, and new customers.

Table 8. Provider (Fuel) Substitution Program Drivers

Variable	Description	Minimum Value	Maximum Value
yearIntroduced	Year of program introduction activity	1	Last year of forecast horizon
programLife	Duration of program (years)	1	Years in forecast horizon
adoptionPath	Years to Full Adoption	1	7
applicability	Percent of customers to which the program applies	0*	1
marketShare	Percent of market share (%)	0*	1
earlyReplacement	Binary flag for whether early adoption applies to program	0	1
description	Program Description	{text}	{text}

* A zero value implies that the program will have no market impact, so the smallest practical value is 0.01 (1%).

** Early adoption applies to existing buildings only. A value of 1 implies that all applicable consumers (applicability * market share * adoption path %) switch immediately, whether or not the equipment fails. A zero implies that all adoption follows the normal equipment and/or building retirement schedule.

Equipment Efficiency Programs

Product (efficiency) option strategies encourage consumers to purchase a particular option (e.g., equipment with a certain efficiency rating). Either early or normal replacement may apply to existing equipment. Table 9 presents the drivers of purchasing programs and their usage.

Table 9. Product (Efficiency) Program Drivers

Variable	Description	Minimum Value	Maximum Value
yearIntroduced	Year of program introduction activity	1	Last year of forecast horizon
programLife	Duration of program (years)	1	Years in forecast horizon
adoptionPath	Years to Full Adoption	1	7
applicability	Percent of customers to which the program applies	0*	1
eLevel	Efficiency level to which program applies	1	4
marketShare	Percent of market share (%)	0*	1
earlyReplacement	Binary flag for whether early adoption applies to program	0	1
description	Program Description	{text}	{text}

* A zero value implies that the program will have no market impact, so the smallest practical value is 0.01 (1%).

** This represents the maximum efficiency level affected by the program for each end use, and is a supplementary type of applicability factor. The variable EL should be specified to be less than or equal to the maximum number of efficiency levels available for that market sector.

*** This represents the maximum vintage level affected by the program for each end use, and is a supplementary type of applicability factor. The variable V should be specified to be less than or equal to the maximum number of vintages for that market sector. Usually it is set equal to zero to denote an existing building or equipment retrofit strategy.

Equipment Retrofit and Operating & Maintenance (O&M) Service Programs

Usage retrofit strategies encourage consumers to change their product usage given the equipment they already have (e.g., improve the efficiency of existing equipment by installing measures such as weatherization or water heater retrofit kits). Table 10 presents the drivers of these programs.

Table 10. Equipment Efficiency Retrofit and O&M Program Drivers

Variable Name	Description	Minimum Value	Maximum Value
yearIntroduced	Year of program introduction activity	1	Last year of forecast horizon
programLife	Duration of program (years)	1	Years in forecast horizon
adoptionPath	Years to full adoption	1	7
applicability	Percent of customers to which the program applies	0*	1
eLevel	Lowest efficiency level to which program applies	1	4
marketShare	Percent of market share (%)	0*	1
eImprovement	Efficiency improvement (%)	0*	1
MeasureLife	Measure life (years)	1	Years in forecast horizon
vintageApplicability	Applicable vintages***	Lowest vintage	Years (vintages) in forecast horizon
description	Program Description	{text}	{text}

* A zero value implies that the program will have no market impact, so the smallest practical value is 0.01 (1%).

** This represents the maximum efficiency level affected by the program for each end use, and is a supplementary type of applicability factor. The variable EL should be specified to be less than or equal to the maximum number of efficiency levels available for that market sector.

*** This represents the maximum vintage level affected by the program for each end use, and is a supplementary type of applicability factor. The variable V should be specified to be less than or equal to the maximum number of vintages for that market sector. Usually it is set equal to zero to denote an existing building or equipment retrofit strategy.

Intervention Strategies Module Operations

You can create many types of Intervention Strategies programs for all market sectors sequentially and automatically, rather than creating each one manually. This batch processing is done via the following datasets, where the scenario indicator “yy” denotes a scenario that differs from “xx.”

- **dsmFChoice_yy** – Dimension 4 (fuel) choice substitution for existing, conversion, and/or new customers, based on user specifications
- **dsmEChoice_yy** – Dimension 5 (efficiency) choice substitution for existing, conversion, and/or new customers, based on user specifications
- **dsmRetrofit_yy –** Equipment retrofit or O&M programs

Each of these files contains a row for each Dimension 1 – 3 combination and data inputs associated with Table 24 (**dsmFChoice_xx**), Table 23 (**dsmEChoice_xx**), or Table 25 (**dsmRetrofit_xx**).

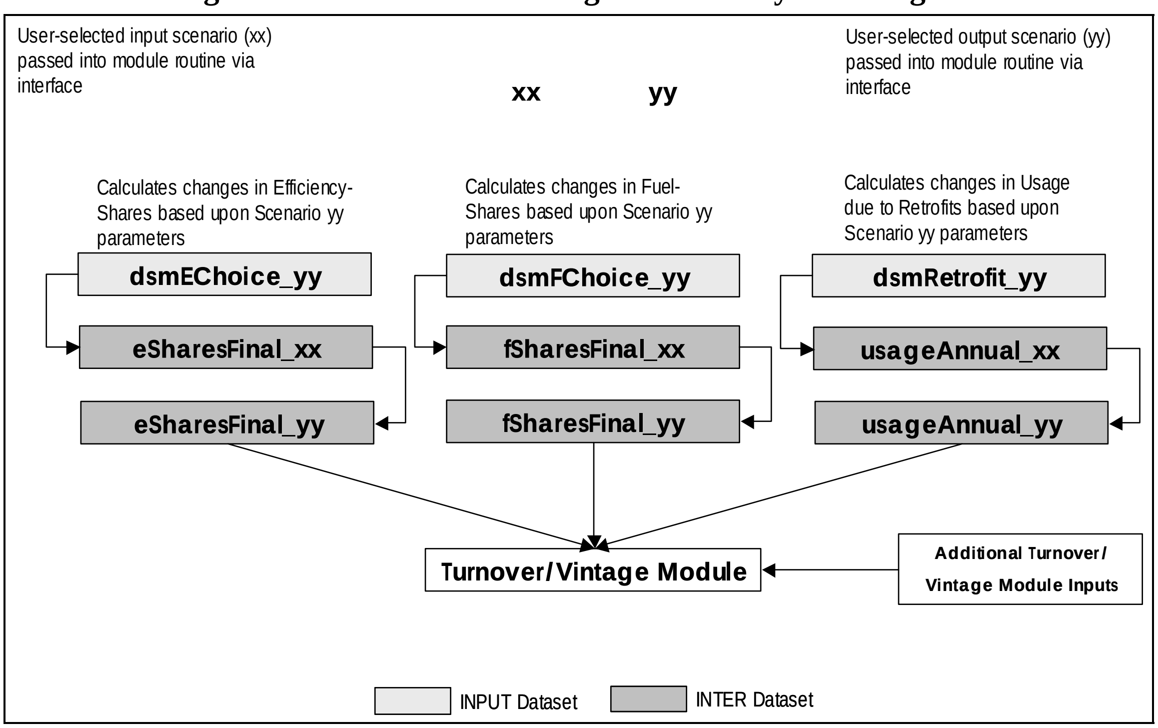
The Market Segmentation module creates base case files ("_10" files) where there is no intervention for each of these program categories. These files serve as templates that allow the user to create different scenarios of interest. To create strategies, you must copy these files to another scenario number and then make changes consistent with the desired intervention strategy over the forecast horizon. It is recommended that these designs be completed by individuals with marketing or demand-side management experience. Alternatively, Quantec can assist with the development of the first set of intervention strategies.

Figure 18 illustrates how the Intervention Strategies module modifies the Product Usage and/or Provider Choice output files and how these outputs are then used to develop an alternative forecast. Table 11 summarizes the data files used by this module.

Table 11. Intervention Strategies Module Data Library and Files

Directory	File Name	Description	File/Record Dimensions	Variables/Attributes
INPUT	dsmEChoice_xx	Existing/New Dimension 5 (efficiency) program parameters	Dimensions 1-4	Year introduced, program life, applicability, market share, adoption path, early adoption
INPUT	dsmFChoice_xx	Existing/New Dimension 4 (fuel choice) program parameters	Dimensions 1-4	Year introduced, program life, applicability, market share, adoption path, early adoption
INPUT	dsmRetrofit_xx	Product Usage retrofit parameters	Dimensions 1-4	Year introduced, program life, applicability, market share, adoption path, measure life, efficiency improvement, efficiency levels affected, vintages affected

Figure 18. Intervention Strategies Module System Diagram



VII. Forecast Module

The Forecast module serves several analytical and system functions, including forecasts of new construction and conversion accounts, decay or turnover of buildings and equipment, integration of Product Usage, Provider Choice and Intervention Strategies module results, and "internal" forecast reports for use by the End Use Forecaster analyst. Other reports from End Use Forecaster are described in Chapter 8.

The analytical portion of this module uses information on equipment saturation, average and marginal market shares, building and equipment decay, building account stocks and decay, customer conversions, and new construction to determine changes in the usage mix over time. The final forecast is equal to the number of units [indexed by year, building vintage, equipment age, fuel (provider), and efficiency (product)] multiplied by the consumption per the indexed equipment configuration.

Forecast Inputs

There are several sets of inputs in each Turnover/Vintage module forecast, which are described in Table 12 below. Alternative forecast scenarios using new estimates (scenarios) for new construction, account conversion, usage, choice, account decay, building decay, and any combinations of these can be conducted using the Turnover/Vintage module.

Table 12. Turnover/Vintage Forecast Inputs

Input Type	Dataset
Account Decay Parameters	accountDecay_xx
Equipment Decay Parameters	equipmentDecay_xx
Existing Equipment Age	equipmentAge_xx
Dimension 3 (End Use) Saturation	saturations_xx
Historical Accounts	customerCountsActual_xx
Account Forecast	customerCountsForecast_xx
Product Usage Forecast	usageAnnual_xx
Dimension 4 (Fuel) Shares Forecast	fSharesFinal_xx
Dimension 5 (Efficiency) Shares Forecast	eSharesFinal_xx

Historical and New Construction Building Stocks

Historical accounts are segmented into the number of total accounts in the base year and their distribution among the historical vintages as determined by the user in the segmentation design. Accounts are defined in terms of both buildings and building units (i.e., accounts, apartments, square feet, etc.). Building units are the level of measurement at which the Product Usage module estimates are rendered.

The total building stock in any forecast year is not the simple difference between the total building stock in the current year and the previous year because some buildings will have been destroyed, completely gutted, or removed from the system in the course of a year. The number of existing buildings replaced each year is dependent on the stock of vintages and the overall decay rate.

Forecasting Equipment Stocks

Dimension 3 (i.e., end use) equipment stocks are forecasted through similar methods as buildings. Initial base year equipment stock levels are estimated utilizing equipment saturation estimates for existing and new construction building vintages in the **saturations_xx** dataset. Market shares of new equipment over the forecast horizon are generated in the Provider Choice or Intervention Strategies module and passed to the Turnover/Vintage module via the series of market share forecasts in the **eSharesInitial_xx** and **fSharesInitial_xx** datasets. You may provide the average age of equipment in existing buildings in the base year in order to initialize the equipment age dimension (**equipmentAge_xx**). Generally, this average age is specified as the mean technical lifetime of the equipment.

The forecast simulation then estimates equipment stocks for Dimensions 3-5 (i.e., end use, fuel, and efficiency level) for each Dimension 1-2 combination. The new equipment stock installed each year is dependent on the growth and decay of building stocks, the natural replacement cycle of the equipment, the saturation rates of the end use in new construction, and the market shares of technology types.

End Use Forecaster contains a vintage hierarchy where Dimension 2 (buildings) dominates Dimension 3 (end uses). For example, an older dwelling may have a relatively new furnace and water heater, but these end uses effectively “disappear” if the building is demolished or undergoes a major renovation.

Building and Equipment Decay Functions

The user may specify decay rates of existing stocks of buildings and equipment, as well as new stock constructed or installed in subsequent years. Decay functions and parameters can differ for the existing and new stocks. Some analysts specify different decay functions for existing and new building stocks as the existing base year building stock is an amalgam of unknown vintages and new building stock is tracked as discreet homogenous annual blocks.

There are two datasets with decay rate data for each market segmentation design (**accountDecay_xx** and **equipmentDecay_xx**). In each of these decay data files, there are two sets of information to be entered: decay functions and decay parameters.

A numeric indicator ranging from 1 to 3 indicates the selected function. Available functions include exponential (1), logistic (2), and Weibull (3). Exponential functions have one parameter, logistic functions have four, and Weibull functions have two.[3] The logistic and exponential functions tend to be the most popular and are described in more detail below. The

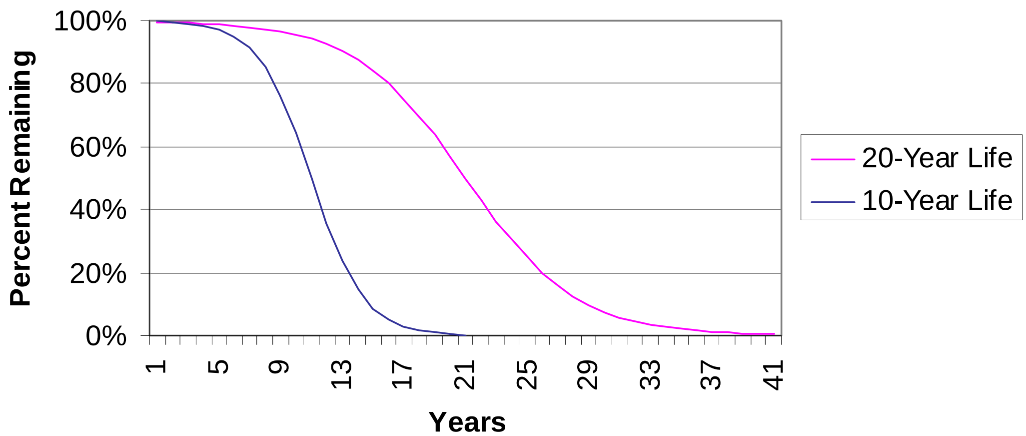
[3] These are discrete analogs to the continuous time distributions.

equipmentAge_xx dataset describes the average age of existing equipment in existing facilities. It tells the model where to start the equipment decay function.

Logistic Decay Function

End Use Forecaster uses the logistic function as the recommended decay mechanism for equipment decay construction, as shown in Figure 19. The logistic function is an S-shaped curve that results in a small decay rate for the first years, then increases over time before tapering off.

Figure 19. End Use Forecaster End Use Decay Functions



You may specify the periods and percentages of stock remaining for any two years in the appropriate SAS dataset. For example, to specify that 99% of the building stock remains 20 years after construction and that, 100 years after construction, only 50% of the buildings remain:

- In the SAS dataset, set the functional form indicator to 2
- Set the first parameter to the percent remaining after year X (0.99)
- Set the second parameter to year X (20)
- Set the third parameter to the percent remaining after year Y (0.50)
- Set the fourth parameter to year Y (100)

Exponential Decay Function

An exponential decay function can be used to represent a constant percentage decline for customers, buildings, or equipment. For example, a decay rate of 0.05 would cause 5% of the remaining stock to be removed each year. Since the base becomes progressively smaller, so does the absolute level of decay. If you choose an exponential decay rate:

- Set the functional form indicator equal to 1
- Set the first parameter equal to the specified decay rate
- Set the remaining three parameters equal to zero

Zero Decay

In some cases, decay rates may not be relevant information. This can occur in non end-use End Use Forecaster representations or in certain markets such as “miscellaneous consumption.” In these instances, choose the exponential function and set all parameters to zero.

Early Replacement

In some instances, you may specify the “early replacement” of existing equipment within an Intervention Strategies scenario. In these situations, the variable *earadop*, contained in **eChoiceFinal_xx** dataset, will effectively override the equipment decay functions if it is set equal to 1. The default value for *earadop* is zero (no early adoption).

Forecast Operations

The heart of this module is a SAS program called forecastBatch.sas, which completes the following tasks:

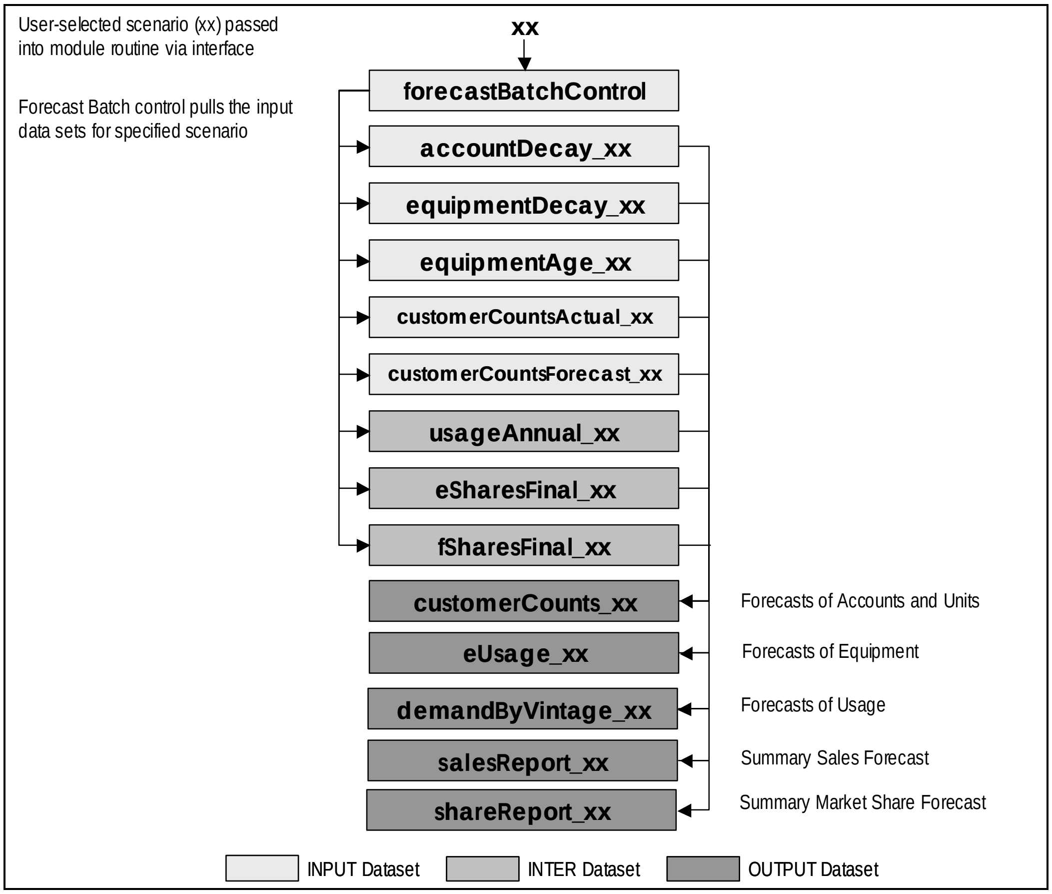
1. Merges all input data across Dimensions 1-3, including:
    - Existing accounts, plus a distribution of accounts across historical building vintages
    - New construction forecast, plus capture rates for new and conversion buildings
    - Dimension 3 saturation, equal to the number of Dimension 2 customers with Dimension 3 divided by total Dimension 2 customers
    - Decay rates for buildings (indexed by year and building vintage) and equipment (indexed by Dimension 4 and equipment age)
    - Product usage forecast (potentially modified by an intervention strategies scenario)
    - Provider choice forecast (potentially modified by an intervention strategies scenario)
2. Solves for output arrays that contain information on number of market segments units per year, indexed by the specified dimensions (e.g., building vintage, equipment age, fuel, and efficiency)
3. Stores the results in datasets of varying dimensions
4. Multiplies the number of units by the respective consumption estimate per unit, again indexed by the appropriate dimension.
5. Summarizes these results in standard report formats

Figure 20 illustrates how the operation of the Turnover module. Table 13 summarizes the programs developed for the Turnover/Vintage module, and Table 13 summarizes the data files used in this module.

Table 13. Forecast Module Data Library and Files

Library	Dataset Name	Description	Record Dimensions	Attributes/Variables
INPUT	ForecastBatchControl	Forecast module input control	One record per output scenario	Account history, distribution and new construction scenarios; decay scenarios; usage scenario, saturation scenarios, and equipment mean age scenario.
INPUT	accountDecay_xx	Decay parameters for Dimension 2	Dimensions 1 and 2, forecast vintages	Decay Function, Decay Parameters 1-4
INPUT	equipmentDecay_xx	New construction Dimension 3 (end use) decay	Dimensions 1, 2, 3 and 4	Decay Function, Decay Parameters 1-4
INPUT	saturations_xx	Existing Dimension 3 (end use) saturation	Dimensions 1, 2, and 3 Year, historical vintages	Saturation
INPUT	customerCountsActual_xx	Base year accounts and non-accounts (potential customers)	Dimensions 1 and 2	Accounts, non accounts
INPUT	equipmentAge_xx	Dimension 3 (end use) mean age in base year	Dimensions 1, 2, and 3, historical vintage	Dimension 3 (end use) mean age in base year
INPUT	customerCountsForecast_xx	New construction / economic driver forecast	Dimensions 1 and 2, Year	Forecasted new construction, capture rate, conversion rate, units per account,
INTER	usageAnnual_xx	Product Usage module output	Dimensions 1, 2, 3, 4 and 5, year, vintage	Annual usage
INTER	eSharesFinal_xx	Provider Choice module output – existing Dimension 5 market share forecast	Dimensions 1, 2, 3, 4 and 5, year	Market share for replacement, early replacement indicator
INTER	fSharesFinal_xx	Provider Choice module output – existing Dimension 4 market share forecast	Dimensions 1, 2, 3 and 4, year	Market share for replacement, early replacement indicator
OUTPUT	customerCounts_xx	Forecast of accounts and units (square footage)	Dimensions 1 and 2, year, vintage	(E/C/N) Accounts, (E/C/N) units, units per account, remaining nonconversion potential
OUTPUT	eUsage__xx	Forecast of equipment (end-uses)	Dimensions 1, 2, 3, 4 and 5, year, vintage	Total number of Dimension 3 (end uses)
OUTPUT	demandByVintage_xx	Forecast of usage (e.g., kWh, therms)	Dimensions 1, 2, 3, 4 and 5, year, vintage	(E/C/N) Accounts, (E/C/N) units, units per account, remaining nonconversion potential; Total number of Dimension 3 (end uses); Break out of dimension 3 by replacement, conversion, and new construction.
OUTPUT	salesReport_xx	Summary Sales Forecast	Dimensions 1, 2, 3 and 4, year	Total usage and equipment sales by Dimension 5
OUTPUT	shareReport_xx	Summary Market Share Forecast	Dimensions 1, 2, 3 and 4, year	Market shares for Dimensions 4 and 5, by existing, conversion, and new construction

Figure 20. Turnover (Vintage) Module System Diagram



VIII. End Use Forecaster Utilities

The main End Use Forecaster analysis modules – Product Usage, Provider Choice, Intervention Strategies, and Forecast – are typically run separately during the calibration and testing phase of any market segmentation and forecasting process. Once this process is complete, however, you can run these modules jointly and generate all relevant analyses with a single click of the mouse (after data are prepared, of course).

This chapter describes the various utilties available in End Use Forecaster: Super Batch, Calibration, Analysis of Data Files, and Reporting.

Super Batch Processing

Some forecasting scenarios lend themselves to super batch processing. When the Product Usage, Provider Choice, and Forecast modules all have the same scenario indicator value, the that scenario can be run across all modules by selecting it in the Super Batch frame.

Calibration

End Use Forecaster can be calibrated to base year energy usage data for the "primary" fuel of interest in the model (f='1'). Calibration may proceed at the Z-Level, or at the Z-B-Level. Base year sales data must be available in the \INPUT**calibrationZ_xx or calibrationZB_xx** datasets. To calibrate the model apply the following procedure:

- Select the level at which the forecasts will be calibrated (the Z-Level vs. the Z-B-Level) from the Calibration Utility
- Select the scenario to be calibrated and the percent of usage to be assigned to the miscellaneous usage category.

The calibration routine works as follows:

1. Residual energy is attributed to the miscellaneous end use. This value should be greater than or equal to zero but generally does not exceed 10% of forecasted energy sales. In fact, the upper limit available through the model interface is 10%. Errors larger than this generally indicate a more fundamental data problem where an investigation of data inputs is required rather than this automated calibration process
2. When non-calibrated total usage is on the high side (miscellaneous would then be negative), the next step is to reduce the per-unit energy usage (i.e., customer or square foot) for each market segment, end use, and efficiency combination. Note that the *relative* energy usage across efficiency levels is unchanged. Conversely, when non-calibrated total usage is on the low side, simply let miscellaneous equal zero (the default value). All other end uses will be adjusted proportionately. Again, we recommend avoiding this procedure if the adjustment is larger than 10%.

The relative size of the calibration adjustment which is ultimately applied to the \INPUT**usageParameters_xx** datasetc can be found in \INTER**initialCalibrationRatio**.[4] The variable (*Zfratio* (*ZBfratio*) shows the percent error results, and how much End Use Forecaster had to change parameters through the calibration routine to match base year sales.

If additional calibration is needed beyond the base year to, for example, match an external econometric forecast over the duration of the forecast horizon, a post-processing adjustment using either SAS or Excel can be applied.[5]

After running the calibration routine, it is necessary to run the Usage, Choice, and Forecast modules (or Super Batch) and produce a new forecast. One can then click on the appropriate "Calibration: Calibration Check" routine to make sure the calibration worked as intended.

Analysis of Data Files

All SAS datasets in across End Use Forecaster libraries can be accessed directly from End Use Forecaster for further analysis in real time by following these steps:

- Click on "File: Analyze" to access SAS/INSIGHT
- Select the library and dataset of interest and perform desired analysis

  OR
- SAS/FSP software tools can also be used to browse the SAS datasets via the pull-down menu item "File: Library Map"

Reporting

Five default SAS output dataset reports are created in the OUTPUT directory by the Forecast module:

- A summary sales report (**salesReport_xx**)
- A summary market share report (**shareReport_xx**)
- Detailed account stock forecast (**customerCounts_xx**)
- Detailed market segment/end use equipment sales forecast (**eUsage_xx**)
- Detailed sales projections (**demandByVintage_xx**)

These reports can be browsed directly as described above, or exported to Excel. To accomplish the latter simply click on "Reports: Export Basic Reports to Excel" and select the Forecast module scenario to export.

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4 Notice that there is no scenario indicator on the **initialCalibrationRatio** dataset. This is because only one scenario per Model should be calibrated; all other scenarios within that model can then be developed from the calibrated **usageParameters_xx** or successor datasets.

5 Please contact Quantec for more information or to obtain a customized calibration routine

End Use Forecaster also produces reports that can be customized based upon the user's choice of segmentation combinations to analyze. These reports summarize and/or compare forecasts for two forecast scenarios specified by clicking on "Reports: Scenario Comparison Reports." The user specifies the Report Category (sales, market share, customer counts or demand by vintage) and, based on the category selection, is given the option of selecting different combinations of segments to summarize and/or compare.

Appendix: Variable Glossary

This glossary provides definitions for each End Use Forecaster SAS variable, and is organized by the model's libraries and datasets as defined in Chapter III.

Table 14. INPUT\accountDecay_xx

Variable Name	Description
z	The indicator for Dimension 1
b	The indicator for Dimension 2
vintage	Building vintage
accountDecayIndicator	Account decay indicator
accountDecayParm1	Account decay parameter 1
accountDecayParm2	Account decay parameter 2
accountDecayParm3	Account decay parameter 3
accountDecayParm4	Account decay parameter 4

Table 15. INPUT\calibrationZ

Variable Name	Description
z	The indicator for Dimension 1
year	Year of forecast (0 to rorecast horizon)
actualSales	Actual sales in base year

Table 16. INPUT\calibrationZB

Variable Name	Description
z	The indicator for Dimension 1
b	The indicator for Dimension 2
year	Year
actualSales	Actual sales in base year

Table 17. INPUT\choiceBatchControl

Variable Name	Description
scenarioName	Descriptive name of the scenario
scenario	Output scenario number
choiceDrivers	Scenario to select for the choiceDrivers_xx dataset
priceForecast	Scenario to select for the priceForecast_xx dataset
choiceParameters	Scenario to select for the choiceParameters_xx dataset
usageAnnual	Scenario to select for the usageAnnual_xx dataset
eSharesInitial	Scenario to select for the eSharesInitial_xx dataset
fSharesInitial	Scenario to select for the fSharesInitial_xx dataset
eChoiceStatus	Scenario to select for the eChoiceStatus_xx dataset
fChoiceStatus	Scenario to select for the fChoiceStatus_xx dataset

Table 18. INPUT\choiceDrivers_xx

Variable Name	Description
z	The indicator for Dimension 1
b	The indicator for Dimension 2
n	The indicator for Dimension 3
f	The indicator for Dimension 4
e	The indicator for Dimension 5
year	Year
available	Binary switch to indicate availability of the alternative in any given year of the forecast
capitalCostExisting	Capitial cost for equipment in existing (replacement) construction
capitalCostConversion	Capital cost for equipment for conversion customers
capitalCostNew	Capital costs for equipment for new construction

Table 19. INPUT\choiceParameters_xx

Variable Name	Description
Z	The indicator for Dimension 1
B	The indicator for Dimension 2
N	The indicator for Dimension 3
f	The indicator for Dimension 4
eIndicator	Binary switch for choice modeling to indicate the dimension modeled (0 = Dimension 4 and 1 = Dimension 5)
conType	Type of construction or customer (new, existing, or conversion)
lifetime	Equipment or measure lifetime (years)
alpha	Constant
description	Description of Choice
discountRate	Implicit discount rate
priceShare	Price share of customer utility function
a1	Intercept for alternative 1
a2	Intercept for alternative 2
a3	Intercept for alternative 3
a4	Intercept for alternative 4
b1	Operating cost coefficient
b2	Capital cost coefficient

Table 20. INPUT\customerAccountsActual_xx

Variable Name	Description
Z	The indicator for Dimension 1
B	The indicator for Dimension 2
vintage	Building vintage
unitsPerAccount	Units per Dimension 1-2 and vintage combination (square footage, number of apartments, etc.). This should be set to 1 if the unit is the customer
accounts	Number of accounts.
onMainAccounts	Number of accounts on main.
offMainAccounts	Number of accounts off main.

Table 21. INPUT\customerAccountsForecast_xx

Variable Name	Description
z	The indicator for Dimension 1
b	The indicator for Dimension 2
year	Year
unitsPerAccount	Units per Dimension 1-2 and vintage combination (square footage, number of apartments, etc.). This should be set to 1 if the unit is the customer
newConstructionAccounts	New Construction accounts.
newConstructionCaptureRate	The “capture” rate of NEWCONST = the share of new buildings that are customers
conversionCaptureRate	The share (%) of existing non-customers converting or becoming a customer each year

Table 22. INPUT\dimens

Variable Name	Description
DIM	Dimension
DIMNAME	Dimension Name
DIMNUM	Starting Levels

Table 23. INPUT\dsmEChoice_xx

Variable Name	Description
z	The indicator for Dimension 1
b	The indicator for Dimension 2
n	The indicator for Dimension 3
f	The indicator for Dimension 4
conType	Type of construction or customer (new, existing, or conversion)
yearIntroduced	Year of Program Introduction
programLife	Duration of Program (Years)
adoptionPath	Years to Full Adoption
applicability	Percent of Customers Applicable
eLevel	e Level to Which Program Applies
marketShare	Market Share Percent
earlyReplacement	Early Replacement (binary)
description	Program Description

Table 24. INPUT\dsmFChoice_xx

Variable Name	Description
z	The indicator for Dimension 1
b	The indicator for Dimension 2
n	The indicator for Dimension 3
conType	Type of construction or customer (new, existing, or conversion)
yearIntroduced	Year of Program Introduction
programLife	Duration of Program (Years)
adoptionPath	Years to Full Adoption
applicability	Percent of Customers Applicable
marketShare	Market Share Percent
earlyReplacement	Early Replacement (binary)
description	Program Description

Table 25. INPUT\dsmRetrofit_xx

Variable Name	Description
z	The indicator for Dimension 1
b	The indicator for Dimension 2
n	The indicator for Dimension 3
f	The indicator for Dimension 4
yearIntroduced	Year of Program Introduction
programLife	Duration of Program (Years)
measureLife	The average life of Dimension 3 equipment
eImprovement	The efficiency improvement (%) as reflected by the reduction in equipment energy usage.
adoptionPath	Years to Full Adoption
vintageApplicability	Vintages to Which Programs Apply
applicability	Percent of Customers Applicable
marketShare	Market Share Percent
earlyReplacement	Early Replacement (binary)
eLevel	Lowest e Level to Which Program Applies
description	Program Description

Table 26. INPUT\eChoiceStatus_xx

Variable Name	Description
z	The indicator for Dimension 1
b	The indicator for Dimension 2
n	The indicator for Dimension 3
f	The indicator for Dimension 4
eChoiceStatus	This is a “status” variable for Dimension 5. It tells the Provider Choice module which of several possible equation/modeling processing should be followed.
eAlternatives	The number of choice alternatives for Dimension 5, which ranges from 1-4

Table 27. INPUT\eSharesInitial_xx

Variable Name	Description
z	The indicator for Dimension 1
b	The indicator for Dimension 2
n	The indicator for Dimension 3
f	The indicator for Dimension 4
e	The indicator for Dimension 5
baseAvgEShare	The average market share in the historical stock at Dimension 5
baseMargEShareExisting	The marginal (i.e., most recent) market share associated with the replacement of the product or service option by existing customers
baseMargEShareConversion	The marginal market share associated with conversion customers
baseMargEShareNew	The marginal market share associated with the new construction customers
peakDayLoadFactor	The peak demand or peak day load factor associated with annual usage for each Dimension 1-5 combination.

Table 28. INPUT\equipmentAge_xx

Variable Name	Description
z	The indicator for Dimension 1
b	The indicator for Dimension 2
n	The indicator for Dimension 3
equipmentMaxAge	The maximum age of existing equipment for each Dimension 1-3 combination regardless of the historical vintage
equipmentMeanAge	The average age of existing equipment for each Dimension 1-3 combination and each historical vintage
vintage	Building vintage

Table 29. INPUT\equipmentDecay_xx

Variable Name	Description
z	The indicator for Dimension 1
b	The indicator for Dimension 2
n	The indicator for Dimension 3
f	The indicator for Dimension 4
conType	Type of construction or customer (new, existing, or conversion)
equipmentDecayIndicator	Equipment decay indicator
equipmentDecayParm1	Equipment decay paramater 1
equipmentDecayParm2	Equipment decay paramater 2
equipmentDecayParm3	Equipment decay paramater 3
equipmentDecayParm4	Equipment decay paramater 4

Table 30. INPUT\fChoiceStatus_xx

Variable Name	Description
z	The indicator for Dimension 1
b	The indicator for Dimension 2
n	The indicator for Dimension 3
fChoiceStatus	This is a “status” variable for Dimension 4. It tells the Provider Choice module which of several possible equation/modeling processing should be followed.
fAlternatives	The number of choice alternatives for Dimension 4, which ranges from 1-4

Table 31. INPUT\forecastBatchControl

Variable Name	Description
scenarioName	Descriptive name of the output scenario
scenario	Output scenario number
accountDecay	Scenario to select for the accountDecay_xx dataset
equipmentDecay	Scenario to select for the equipmentDecay_xx dataset
equipmentAge	Scenario to select for the equipmentAge_xx dataset
saturations	Scenario to select for the saturations_xx dataset
customerCountsActual	Scenario to select for the customerCountsActual_xx dataset
customerCountsForecast	Scenario to select for the customerCountsForecast_xx dataset
usageAnnual	Scenario to select for the usageAnnual_xx dataset
eSharesFinal	Scenario to select for the eSharesFinal_xx dataset
fSharesFinal	Scenario to select for the fSharesFinal_xx dataset

Table 32. INPUT\fsharesInitial_xx

Variable Name	Description
z	The indicator for Dimension 1
b	The indicator for Dimension 2
n	The indicator for Dimension 3
f	The indicator for Dimension 4
baseAvgFShare	The average market share in the historical stock at Dimension 4.
baseMargFShareExisting	The marginal (i.e., most recent) market share associated with the replacement of the product or service by existing customers
baseMargFShareConversion	The marginal market share associated with the conversion customers
baseMargFShareNew	The marginal market share associated with the new construction customers

Table 33. INPUT\initParm

Variable Name	Description
BASEYR	Base Year
FCSTYRS	Forecast Years

Table 34. INPUT\priceForecast_xx

Variable Name	Description
z	The indicator for Dimension 1
b	The indicator for Dimension 2
n	The indicator for Dimension 3
f	The indicator for Dimension 4
year	Year
price	Price (Native Units)

Table 35. INPUT\saturations_xx

Variable Name	Description
z	The indicator for Dimension 1
b	The indicator for Dimension 2
n	The indicator for Dimension 3
year	Year
vintage	Building vintage
saturation	Presence of End Use (Percent)

Table 36. INPUT\scenarioDescriptions

Variable Name	Description
scenario	Output scenario number
scenarioName	Descriptive name of the scenario

Table 37INPUT\usageBatchControl

Variable Name	Description
scenarioName	Descriptive name of the scenario
scenario	Output scenario number
usageParameters	Scenario to select for the usageParameters_xx dataset
usageDrivers	Scenario to select for the usageDrivers_xx dataset

Table 38. INPUT\usageDrivers_xx

Variable Name	Description
z	The indicator for Dimension 1
b	The indicator for Dimension 2
n	The indicator for Dimension 3
f	The indicator for Dimension 4
e	The indicator for Dimension 5
year	Year
month	Month
X0 - X20	Product Usage module forecast drivers

Table 39. INPUT\usageParameters_xx

Variable Name	Description
Z	The indicator for Dimension 1
B	The indicator for Dimension 2
N	The indicator for Dimension 3
F	The indicator for Dimension 4
E	The indicator for Dimension 5
Vintage	Building vintage
B0 - B20	Product Usage module coefficients
usageEquationStatus	This is a “status” variable for the Product Usage module.

Table 40. INTER\eSharesFinal_xx

Variable Name	Description
z	The indicator for Dimension 1
b	The indicator for Dimension 2
n	The indicator for Dimension 3
f	The indicator for Dimension 4
e	The indicator for Dimension 5
year	Year
eshare	Share for Dimension 5
earadop	A 0/1 binary variable where a value of 1 indicates that the marginal market shares apply to all existing customers, not just those who need to replace retired equipment. The default value is 0; a one will be used if specified in the Intervention Strategies CSFUELE\Sxx dataset.
conType	Type of construction or customer (new, existing, or conversion)

Table 41. INTER\fSharesFinal_xx

Variable Name	Description
z	The indicator for Dimension 1
b	The indicator for Dimension 2
n	The indicator for Dimension 3
f	The indicator for Dimension 4
year	Year
fshare	Fuel Share
earadop	A 0/1 binary variable where a value of 1 indicates that the marginal market shares apply to all existing customers, not just those who need to replace retired equipment. The default value is 0; a one will be used if specified in the Intervention Strategies CSFUELE\Sxx dataset.
conType	Type of construction or customer (new, existing, or conversion)

Table 42. INTER\usageAnnual_xx

Variable Name	Description
z	The indicator for Dimension 1
b	The indicator for Dimension 2
n	The indicator for Dimension 3
year	Year
vintage	Building vintage
f	The indicator for Dimension 4
e	The indicator for Dimension 5
use	Annual usage from the usage module for each Dimension 1-5 combination by year and vintage

Table 43. INTER\usageMonthly_xx

Variable Name	Description
vintage	Building vintage
z	The indicator for Dimension 1
b	The indicator for Dimension 2
n	The indicator for Dimension 3
f	The indicator for Dimension 4
e	The indicator for Dimension 5
year	Year
month	Month
use	Monthly usage from the usage module for each Dimension 1-5 combination by year and vintage

Table 44. OUTPUT\customerCounts_xx

Variable Name	Description
z	The indicator for Dimension 1
b	The indicator for Dimension 2
year	Year
unitsPerAccount	Units per Dimension 1-2 and vintage combination (square footage, number of apartments, etc.). This should be set to 1 if the unit is the customer
vintage	Building vintage
remain	All customers and non-customers remaining for each vintage
totalAccounts	The sum of existing, conversion, and new construction customers
cAccounts	Conversion customers
nAccounts	New construction customers
totalUnits	totalAccounts * units per account
cUnits	cAccounts * units per account
nUnits	nAccounts * units per account

Table 45. OUTPUT\demandByVintage_xx

Variable Name	Description
z	The indicator for Dimension 1
b	The indicator for Dimension 2
vintage	Building vintage
year	Year
n	The indicator for Dimension 3
f	The indicator for Dimension 4
e	The indicator for Dimension 5
fuelSpecificUnits	The energy usage associated with a single unit at the full dimension 1 through 5 (zbnfe) level.
unitsPerAccount	Units per Dimension 1-2 and vintage combination (square footage, number of apartments, etc.). This should be set to 1 if the unit is the customer
use	Annual usage from the usage module for each Dimension 1-5 combination by year and vintage
peakDayLoadFactor	The peak demand or peak day load factor associated with annual usage for each Dimension 1-5 combination.
ereplcs	The total number of new Dimension 3 equipment sales from existing customers (who are replacing retired equipment) by year and vintage for each Dimension 1-5 combination
ceus	The total number of new Dimension 3 equipment sales from conversion customers by year and vintage for each Dimension 1-5 combination
neus	The total number of new Dimension 3 equipment sales from new construction customers by year and vintage for each Dimension 1-5 combination
totalUsage	Annual usage from the usage module for each Dimension 1-5 combination by year and vintage
cUsage	The total number of new Dimension 3 equipment sales from conversion customers by year and vintage for each Dimension 1-5 combination
nUsage	The total number of new Dimension 3 equipment sales from new construction customers by year and vintage for each Dimension 1-5 combination
usagePerUnit	Total usage per unit (e.g., square foot, customer, apartment, etc.) for each Dimension 1-5 combination by year and vintage = USE * EEUS
cuseunit	Total conversion usage per unit (e.g., square foot, customer, apartment, etc.) for each Dimension 1-5 combination by year and vintage = USE * CEUS
nuseunit	Total new construction usage per unit (e.g., square foot, customer, apartment, etc.) for each Dimension 1-5 combination by year and vintage = USE * NEUS

Table 46. OUTPUT\eUsage_xx

Variable Name	Description
z	The indicator for Dimension 1
b	The indicator for Dimension 2
vintage	Building vintage
year	Year
n	The indicator for Dimension 3
f	The indicator for Dimension 4
e	The indicator for Dimension 5
fuelSpecificUnits	The energy usage associated with a single unit at the full dimension 1 through 5 (zbnfe) level.

Table 47. OUTPUT\salesReport_xx

Variable Name	Description
z	The indicator for Dimension 1
b	The indicator for Dimension 2
n	The indicator for Dimension 3
f	The indicator for Dimension 4
year	Year
totalAccounts	The sum of existing, conversion, and new construction customers
totalUnits	totalAccounts * units per account
fuelSpecificUnits	The energy usage associated with a single unit at the full dimension 1 through 5 (zbnfe) level.
totalUsage	Annual usage from the usage module for each Dimension 1-5 combination by year and vintage
peakUsage	Annual peak usage from the usage module for each Dimension 1-5 combination by year and vintage
effeeus1 - effeeus4	This is the average number of fuel specific end-uses (FEUS) across the possible Dimension 5 (efficiency) levels, and is identical to AVGEU(1-4) in VNTFMKSH\Sxx
effuec1 - effuec4	The annual usage for each Dimension 5 level associated with each Dimension 1-4 combination. These estimates come directly from USE is USEANN\Sxx
effuse1 - effuse4	The total usage for each Dimension 1-5 combination by year and vintage. These estimates come directly from EUSE in VNTFDEMD\\Sxx
unitsPerAccount	Units per Dimension 1-2 and vintage combination (square footage, number of apartments, etc.). This should be set to 1 if the unit is the customer
uec	Sales per End Use Unit
fuelSpecificUnitsPerAccount	Fuel-Specific End-Use Units per Account
totalUsagePerAccount	Sales per Account

Table 48. OUTPUT\shareReport_xx

Variable Name	Description
z	The indicator for Dimension 1
b	The indicator for Dimension 2
n	The indicator for Dimension 3
f	The indicator for Dimension 4
year	Year
totalAccounts	The sum of existing, conversion, and new construction customers
totalUnits	totalAccounts * units per account
fuelSpecificUnits	The energy usage associated with a single unit at the full dimension 1 through 5 (zbnfe) level.
effeeus1 - effeeus4	This is the average number of fuel specific end-uses (FEUS) across the possible Dimension 5 (efficiency) levels, and is identical to AVGEU(1-4) in VNTFMKSH\Sxx
averageShareEff1 - averageShareEff4	The average stock share of Dimension 5 for each Dimension 1-4 combination
fshareExisting	The fourth dimension (fuel) market share for existing (replacement equipment) customers
fshareNew	The fourth dimension (fuel) market share for new construction customers
fshareConversion	The fourth dimension (fuel) market share for conversion customers
marginalShareExisting1 - marginalShareExisting4	The marginal (existing equipment) share of Dimension 5 for each Dimension 1-4 combination
marginalShareNew1 - marginalShareNew4	The marginal (new equipment) share of Dimension 5 for each Dimension 1-4 combination
marginalShareConversion1 - marginalShareConversion4	The marginal (conversion equipment) share of Dimension 5 for each Dimension 1-4 combination

The End Use Forecaster's data requirements are extensive and diverse; in practically every case, the set of sources necessary to fulfill them are equally varied. For the five Gas Company models, the data sources fell into four categories.

- Company-specific primary research – Studies conducted by or for the Gas Company help to characterize the market for different segments.
- Company databases – The Gas Company's MAS, for example, and other internal data sources have indispensable historical data on the customer counts and consumption patterns.
- Secondary data sources – Recent state projects by CALMAC, for example, have information on baseline end-use consumption and equipment costs.
- Assumptions – Professional judgment or assumptions based on previous model inputs are necessary to fill in those areas where other data sources are insufficient.

For nearly every input, more than one source was considered during the process of populating the model. The principal criterion for selection of the final source was the "reasonableness" of the results. In cases where alternative source produced similar results, preference was given to more recent and company-specific data. In some cases, multiple sources were used where one complemented another. The specific sources for each individual input are documented in Excel workbooks used during data development or in the SAS code used to populate the model. The final values used in the model are available in the SAS data sets for the various modules.

Residential Model

The residential model had the most consistent and robust set of sources. An analysis of raw data from the Gas Company's most recent RASS provided customized inputs for many of the customer characteristics. Data from CALMAC were available for unit energy consumption and equipment costs for the primary end uses. Gas Company data on customer counts, consumption, and meter forecasts were easily produced in a format consistent with the chosen segmentation design.

Usage Module - Residential

Data Set	Variable	Source	Notes
Input.UsageParameters_10	B0 (UEC)	CALMAC California Statewide Residential Sector Energy Efficiency Potential Study, Volume II: Appendices	Stock or standard efficiency UECs taken from "Base Tech UEC" inputs. UECs for higher efficiencies based on "Energy Savings" inputs.
	B1 (Price Elasticity)	SoCal Gas econometric model outputs	
Input.UsageDrivers_10	X0 (UEC)	Default values.	Forecast drivers
	X1 (Price)	SoCal Gas price forecasts	Marginal price forecast applied in usage module.
Input.UsageParameters_10	ADJUST	SoCal Gas historical customer data	Adjustment to UECs by vintage based on SoCal Gas historical use per customer.

Choice Module - Residential

Data Set	Variable	Source	Notes
Input.ChoiceParameters_10	Lifetime	SoCal Gas RASS	
	DiscountRate	Default	
	PriceShare	Default	
	A1, A2, A3, B1, B2	Default Starting Values	Some initial parameters changed during operation of choice module to allow calibration.
Input.ChoiceDrivers_10	CapitalCostExisting, CapitalCostNew, CapitalCostConversion	CALMAC California Statewide Residential Sector Energy Efficiency Potential Study, Volume II: Appendices	Where costs were not available from CALMAC, values from previous SoCal Gas residential model were adapted to accommodate additional efficiency level in current version
	Available	Assumptions	Stock efficiency level assumed unavailable after base year.
Input.FSharesInitial_10	BaseAvgFShare, BaseMargFShareExisting, BaseMargFShareConversion, BaseMargFShareNew	SoCal Gas RASS	
Input.ESharesInitial_10	BaseAvgEShare, BaseMargEShareExisting, BaseMargEShareConversion, BaseMargEShareNew	Assumptions, previous residential model, and CALMAC *California Statewide Residential Sector Energy Efficiency Potential Study, Volume II: Appendices*	

Forecast Module - Residential

Data Set	Variable	Source	Notes
Input.CustomerCountsActual_10	ACCTSY0	SoCal Gas historical customer data	
Input.CustomerCountsForecast_10	NEWCONST	SoCal Gas residential meter forecasts	
	UPA	Default	Units Per Account: set to one for single- and multi-family dwellings. Master- and sub-metered adjusted to account for customer counts per meter.
Input.AccountDecay_10	AccountDecayIndicator, AccountDecayParm1-4	SoCal Gas	No decay applied to new construction.
Input.EquipmentDecay_10	EquipmentDecayIndicator, EquipmentDecayParm1-4	Assumptions	Exponential decay function applied based on measure life assumptions. Logistic decay function applied based on measure life assumptions.
Input.EquipmentAge_10	EquipmentMeanAge, EquipmentMaxAge	SoCal Gas RASS	
Input.Saturations_10	SAT	SoCal Gas RASS	

Commercial Core and Non-Core Models

The Core and Non-Core Commercial models share the same sources for data. For most of the inputs, these sources provide identical values for both models. That is the sources for data do not show any distinction in the end use intensity (EUI) values, end-use saturations, and fuel and efficiency shares for the two models. The fundamental difference in the models is the Gas Company's customer counts for the different building types. Less significantly, price forecasts, which have an influence on both usage and choice modules, are also different for the two models.

Usage Module – Commercial Core and Noncore

End Use Forecaster's Library and Data Set	End Use Forecaster Variable(s)	Source	Notes
Input.UsageParameters_10	B0 (EUI)	SDG&E 2000 Commercial EUI Study, CALMAC *California Statewide Commercial Sector Natural Gas Energy Efficiency Potential Study, Volume II: Appendices*	Stock efficiency EUIs taken from SDG&E study. EUIs for higher efficiencies based on "Energy Savings" inputs from CALMAC.
	B1 (Price Elasticity)	SoCal Gas econometric model outputs	
Input.UsageDrivers_10	X0 (EUI)	Default values	Forecast drivers
	X1 (Price)	SoCal Gas price forecasts	Marginal price forecast applied in usage module.

Choice Module – Commercial Core and Noncore

Data Set	Variable	Source	Notes
Input. ChoiceParameters_10	Lifetime	So Cal Gas MAS, Assumptions	
	DiscountRate	Default Assumptions – 25%	The 25% customer discount rate stems from the implicit discount rate literature.
	PriceShare	Default Assumptions – 50%	The 50% price share assumption on previous Quantec research on how customers trade off price vs. non price attributes
	A1, A2, A3, B1, B2	Default Starting Values	Some initial parameters changed during operation of choice module to allow calibration.
Input. ChoiceDrivers_10	CapitalCostExisting, CapitalCostConversion, CapitalCostNew	So Cal Gas Average Price Forecast, Assumptions	Operating costs based on equipment usage data and SoCal Gas price forecast, with capital costs calculated based on assumed ratios of operating to capital costs.
	Available	Assumptions	Stock efficiency level assumed unavailable after base year.
Input. FSharesInitial_10	BaseAvgFShare, BaseMargFShareExisting, BaseMargFShareConversion, BaseMargFShareNew	SDG&E 2000 Commercial EUI Study, 1996 SoCal Gas Commercial & Industrial Energy Equipment Market Share Study	
Input. ESharesInitial_10	BaseAvgEShare, BaseMargEShareExisting, BaseMargEShareConversion, BaseMargEShareNew	Assumptions	10% high efficiency share(s) based on professional judgment and DSM free ridership literature.

Forecast Module – Commercial Core and Noncore

Data Set	Variable	Source	Notes
Input.CustomerCountsActual_10	ACCTSY0	SoCal Gas historical customer data	Base year accounts data.
Input.CustomerCountsForecast_10	NEWCONST	SoCal Gas historical customer data, SoCal Gas employment forecasts, and SoCal Gas employment elasticity from econometric model	New Construction.
	UPA	MAS	Units Per Account.
Input.AccountDecay_10	AccountDecayIndicator, AccountDecayParm1-4	Assumptions	No decay applied to existing accounts. No decay applied to new construction.
Input.EquipmentDecay_10	EquipmentDecayIndicator, EquipmentDecayParm1-4	Assumptions	Exponential decay function applied based on measure life assumptions. Logistic decay function applied based on measure life assumptions
Input.EquipmentAge_10	EquipmentMaxAge, EquipmentMeanAge	SoCal Gas MAS	
Input.Saturations_10	SAT	SDG&E 2000 Commercial EUI Study	

Industrial Core and Non-Core Models

The Core and Non-Core Industrial models also share the same data sources. Unlike the sources for the commercial models, the data from the Gas Company's MAS – one of the primary inputs into to calculation of the UECs – are different for core and non-core sectors. Consequently, the final UEC for a given building's end use can vary significantly between the models. As with the commercial models, the Gas Company's historical customer counts also drive differences in the forecasts.

Usage Module – Industrial Core and Noncore

Data Set	Variable	Source	Notes
Input.UsageParameters_10	B0 (EUI)	SoCal Gas MAS, SoCal Gas Commercial & Industrial Energy Equipment Market Share Study	UECs based on a top-down calculation based on historical use per customer, end-use saturations, and fuel shares.
	B1 (Price Elasticity)	SoCal Gas econometric model outputs	
Input.UsageDrivers_10	X0 (EUI)	Default values.	Forecast drivers
	X1 (Price)	SoCal Gas price forecasts	Marginal price forecast applied in usage module.

Choice Module – Industrial Core and Noncore

Data Set	Variable	Source	Notes
Input.ChoiceParameters_10	Lifetime	So Cal Gas MAS, Assumptions	
	DiscountRate	Default	
	PriceShare	Default	
	A1, A2, A3, B1, B2	Default Starting Values	Some initial parameters changed during operation of choice module to allow calibration.
Input.ChoiceDrivers_10	CapitalCostExisting, CapitalCostNew, CapitalCostConversion	So Cal Gas Average Price Forecast, Assumptions	Operating costs based on equipment usage data and SoCal Gas price forecast, with capital costs calculated based on assumed ratios of operating to capital costs.
	Available	Assumptions	Stock efficiency level assumed unavailable after base year.
Input.FSharesInitial_10	BaseAvgFShare, BaseMargFShareExisting, BaseMargFShareConversion, BaseMargFShareNew	SoCal Gas Commercial & Industrial Energy Equipment Market Share Study	
Input.ESharesInitial_10	BaseAvgEShare, BaseMargEShareExisting, BaseMargEShareConversion, BaseMargEShareNew	Assumptions.	

Forecast Module – Industrial Core and Noncore

Data Set	Variable	Source	Notes
Input.CustomerCountsActual_10	ACCTSY0	SoCal Gas historical customer data	
Input.CustomerCountsForecast_10	NEWCONST	SoCal Gas historical customer data, SoCal Gas employment forecasts, and SoCal Gas employment elasticity from econometric model	
	UPA	MAS	Units Per Account
Input.AccountDecay_10	AccountDecayIndicator, AccountDecayParm1-4	Assumptions	No decay applied to existing accounts.
Input.EquipmentDecay_10	EquipmentDecayIndicator, EquipmentDecayParm1-4	Assumptions	Exponential decay function applied based on measure life assumptions. Logistic decay function applied based on measure life assumptions.
Input.EquipmentAge_10	EquipmentMaxAge, EquipmentMeanAge	SoCal Gas MAS	
Input.Saturations_10	SAT	SoCalGas RASS	

2009 BCAP

SoCalGas Residential Demand Forecast
February 2008

Core Residential End-Use Model
2009 BCAP

Introduction:

SoCalGas used the End Use Forecaster model to generate annual gas demand forecasts for the residential market from 2007 through 2025. The software's market segmentation and end-use modeling framework analyzes the impacts of competitive strategies (gas vs. electricity) and market scenarios on gas demand and market shares.

The model separates the residential market into five building types (B-level). These groups are identified by the premise code classification found in the company billing files. The five residential groups are:

- Single-Family(SF);
- Multi-Family <= 4 units (MF2);
- Multi-Family > 4 units (MF3);
- Master Metered (MM); and
- Sub-Metered (SM).

The residential model identifies eight end-uses (N-level) that are the primary drivers of natural gas demand:

- Space heating;
- Water heating;
- Cooking;
- Drying;
- Pool heating;
- Spa heating;
- Fireplace; and
- Barbeque.

The model assumes two fuel choices (F-level) for end-uses:

- Natural gas; and
- Electricity.

The model assumes up to four efficiency levels (E-level) for the various end-uses. In general, the efficiency levels are:

- Stock;
- Standard;
- High efficiency; and
- Premium efficiency.

See Figure 1 for a classification of the number of efficiency levels for each end use by customer segment type.

A set of post-model adjustments were applied to the model's annual demand forecast. The first adjustment calibrates to the recorded 2006 weather-adjusted demand. Next, the annual forecast was parceled out to a series of monthly forecasts by a process which involves two steps. These two steps consist of (1) using the fitted equation[1] for customer demand to generate a forecast of use per customer that varies with the number of calendar days and heating degree days in a given month and (2) calculating a series of weights based on the customer's predicted monthly usage share in total annual consumption. The shares obtained from the latter step were then applied to annual totals to derive the stream of monthly forecasts which are conditional on the particular weather design specification for the entire year. A final adjustment to the forecast offsets the throughput by the energy efficiency savings. See Figure 2 for the annual demand forecast. Figures 3-6 illustrate the monthly forecasts for each weather scenario.

Data Sources:

The information used to perform the modeling and to generate the forecast includes historical 2006 consumption and customer counts; meter counts, growth, and decay; use per customer by vintage and unit energy consumption (UEC) values; fuel costs and price elasticity; equipment capital costs and availability; building and equipment lives and decay. The historical data were extracted from the billing tables housed within the Customer Information System (CIS). See Figure 7 for the 2006 historical data.

Meter Counts, Growth and Decay:

Regression equations were developed for each of the 5 building types. The meter count forecast is a company-specific forecast based on actual meter counts within the SoCalGas service territory. Data on meter decay rates were obtained from the Energy Information Administration (EIA). See Figure 8 for the meter count forecast.

Use Per Customer by Vintage and UEC:

Use per customer and Unit Energy Consumption (UEC) data were based on company marketing data and the California Measurement Advisory Council. See Figure 9 for the appliance UEC's.

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[1] SCG Monthly Use Per Customer = (0.74) * Calendar Days + (0.17) * Heating Degree Days

<u>Fuel Costs and Price Elasticity</u>:

Average and marginal gas prices ($/therm) were calculated from forecasts of the residential rate components. Residential rates have two consumption tiers. We used the simple average of the second tiers' projected monthly prices for each forecast year as the marginal rate. The marginal rate was used for each housing segment type.

For a given housing segment type, the average gas commodity rate was calculated using a pair of weights for the two consumption tiers applied to the simple average of each tier's monthly rate. The average commodity rate in each forecast year was developed using the same consumption tier weights, but with the forecasts of rates for each residential rate tier. The average gas price each year was then calculated by including the non-volumetric customer charges with the year's average gas commodity price. Figure 10 illustrates the gas price forecasts.

<u>Electric Price Data</u>:

Both average prices (cents/KWh) and marginal prices (cents/KWh) were developed as electricity price inputs. Forecasts for the SCE residential customer class were developed from the CEC's July 2007 Report, CEC-200-2007-013-SD, Appendix B: Utility-Specific Retail Price Forecast Tables at page 3 for SCE. The resulting price projections were set equal to the CEC's projections for the residential class. Prices were developed through year 2025.

To impute average electricity prices to each residential housing type, we simply calculated the ratio of the housing type's average gas price to the overall residential gas price for each housing type, then multiplied by the overall average electricity price.

The marginal prices for each residential housing type were calculated by multiplying each year's respective average price by a ratio. These ratios were 1.513 for the SF, MF2 and MF3 housing types; 1.034 for the MM housing type; and 1.125 for the SM housing type. These various ratios were estimated from analysis of SCE Schedule D Rate Schedule for housing types SF, MF2 and MF3; SCE Schedule DM for housing type MM; and SCE Schedule D as applied to sub-metered buildings for housing type SM. Copies of these rate structures were obtained from the SCE website as of March 2006. The electric price forecast is shown in Figure 11.

Price elasticities for each building type were based on the SoCalGas Residential Econometric Demand Forecasting Model. See Figure 7 for price elasticities.

Equipment Capital Costs and Availability:

Data on equipment capital costs and availability were from EIA, the Residential Appliance Saturation Survey (RASS), Energy Star (EPA & DOE), and SoCalGas company data. See Figures 12 and 13 for gas and electric appliance equipment cost.

Building and Equipment Lives and Decay:

Building decay rates are based on the building shell lifetimes, where the lifetime is defined as the length of time it takes for either a demolition or a major renovation to occur. For single-family residential buildings, an exponential rate of decay of 0.3% per year was assumed. See Figure 14 for the building decay rates.

Data on equipment lives and decay rates are based on EIA, RASS, Energy Star, and SoCalGas company data. See Figure 15 for the average lifetimes of gas appliances.

Saturations, Fuel and Efficiency Shares:

Saturation values, fuel shares, and efficiency shares were extracted from SoCalGas company data files and the most recent 2004 RASS Update. Please see Figures 16-19 for saturations, fuel, and efficiency shares.

Southern California Gas Company
2009 BCAP
Figure 1: Number of Efficiency Levels by End Use by Customer Segment

	Space Heating		Water Heating		Cooking		Drying		Pool		Spa		Fireplace		BBQ	
	Gas	Electric	Gas	Electric	Gas	Electric	Gas	Electric	Gas	Electric	Gas	Electric	Gas	Electric	Gas	Electric
Single Family	4	1	4	4	2	2	2	4	2	0	2	0	1	0	1	1
Multi-Family <= 4 Units	4	1	4	4	2	2	2	4	0	0	0	0	0	0	1	1
Multi-Family > 4 Units	4	1	4	4	2	2	2	4	0	0	0	0	0	0	1	1
Master Meter	4	1	4	4	2	2	2	4	0	0	0	0	0	0	1	1
Sub-Meter	4	1	4	4	2	2	2	4	0	0	0	0	0	0	1	1

Southern California Gas Company
2009 BCAP
Figure 2: Annual Demand Forecast (Mdth)

Year	Total	Single Family	Multi-Family 2 - 4 Units	Multi-Family > 4 Units	Master Meter	Sub Meter
2006	250,616	179,809	17,764	32,700	14,760	5,583
2007	249,478	179,569	17,537	32,285	14,594	5,494
2008	247,857	178,894	17,293	31,865	14,410	5,394
2009	248,618	179,986	17,259	31,713	14,313	5,346
2010	250,378	181,805	17,317	31,684	14,252	5,320
2011	252,158	183,601	17,392	31,686	14,188	5,292
2012	253,642	185,155	17,447	31,671	14,112	5,257
2013	254,883	186,518	17,483	31,641	14,025	5,216
2014	256,185	187,901	17,533	31,635	13,939	5,176
2015	257,564	189,316	17,600	31,660	13,853	5,135
2016	259,075	190,811	17,686	31,715	13,768	5,096
2017	259,972	191,811	17,730	31,727	13,661	5,044
2018	261,190	193,039	17,805	31,783	13,564	4,998
2019	262,732	194,500	17,913	31,883	13,477	4,959
2020	263,921	195,668	17,999	31,962	13,379	4,912
2021	265,286	196,961	18,103	32,067	13,286	4,869
2022	266,457	198,089	18,195	32,162	13,187	4,823
2023	267,593	199,180	18,288	32,261	13,087	4,777
2024	268,754	200,278	18,387	32,370	12,988	4,731
2025	270,129	201,529	18,507	32,508	12,895	4,690

Southern California Gas Company
2009 BCAP
Figure 3: Average-Temperature Year Demand Forecast

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2006	35,809	29,741	27,466	20,832	15,643	12,295	11,556	11,522	11,366	14,283	23,526	36,578	250,616
2007	35,590	29,558	27,297	20,704	15,547	12,219	11,485	11,451	11,296	14,196	23,382	36,353	249,079
2008	35,291	29,311	27,069	20,531	15,417	12,117	11,389	11,355	11,201	14,077	23,186	36,049	246,992
2009	35,322	29,336	27,092	20,549	15,430	12,127	11,399	11,365	11,211	14,089	23,206	36,080	247,209
2010	35,493	29,478	27,223	20,648	15,505	12,186	11,454	11,420	11,265	14,157	23,318	36,255	248,403
2011	35,662	29,618	27,353	20,746	15,579	12,244	11,508	11,475	11,319	14,225	23,429	36,427	249,585
2012	35,782	29,718	27,445	20,816	15,631	12,285	11,547	11,513	11,357	14,273	23,508	36,549	250,423
2013	35,857	29,780	27,502	20,860	15,664	12,311	11,571	11,537	11,381	14,302	23,557	36,626	250,949
2014	35,940	29,850	27,566	20,908	15,700	12,340	11,598	11,564	11,407	14,336	23,612	36,712	251,535
2015	36,035	29,928	27,639	20,964	15,742	12,372	11,629	11,595	11,437	14,374	23,674	36,808	252,197
2016	36,149	30,023	27,726	21,030	15,791	12,411	11,665	11,631	11,473	14,419	23,749	36,925	252,993
2017	36,175	30,044	27,746	21,045	15,803	12,420	11,674	11,640	11,482	14,429	23,766	36,951	253,175
2018	36,246	30,104	27,801	21,087	15,834	12,445	11,697	11,663	11,504	14,458	23,813	37,024	253,677
2019	36,364	30,202	27,892	21,155	15,886	12,485	11,735	11,701	11,542	14,505	23,891	37,145	254,503
2020	36,522	30,333	28,013	21,247	15,955	12,539	11,786	11,752	11,592	14,568	23,995	37,306	255,609
2021	36,642	30,432	28,104	21,317	16,007	12,580	11,825	11,790	11,630	14,616	24,073	37,428	256,444
2022	36,764	30,534	28,198	21,388	16,060	12,622	11,864	11,829	11,669	14,664	24,153	37,553	257,299
2023	36,891	30,639	28,295	21,461	16,116	12,666	11,905	11,870	11,709	14,715	24,236	37,682	258,185
2024	37,032	30,756	28,404	21,544	16,177	12,714	11,950	11,916	11,754	14,771	24,329	37,827	259,174
2025	37,207	30,902	28,538	21,645	16,254	12,774	12,007	11,972	11,809	14,841	24,444	38,005	260,399

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Figure 4: Cold-Temperature Year Demand Forecast

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2006	40,867	33,777	30,801	22,859	16,530	12,556	11,598	11,547	11,442	14,883	26,119	41,796	274,776
2007	40,617	33,570	30,613	22,719	16,428	12,479	11,527	11,477	11,371	14,792	25,958	41,540	273,092
2008	40,276	33,289	30,356	22,528	16,291	12,375	11,430	11,380	11,276	14,668	25,741	41,192	270,803
2009	40,312	33,318	30,383	22,548	16,305	12,386	11,440	11,390	11,286	14,681	25,763	41,228	271,041
2010	40,507	33,479	30,529	22,657	16,384	12,445	11,496	11,445	11,341	14,752	25,888	41,427	272,350
2011	40,699	33,638	30,675	22,765	16,462	12,505	11,550	11,500	11,395	14,822	26,011	41,624	273,646
2012	40,836	33,751	30,778	22,841	16,517	12,547	11,589	11,539	11,433	14,872	26,098	41,764	274,565
2013	40,922	33,822	30,842	22,889	16,552	12,573	11,613	11,563	11,457	14,903	26,153	41,852	275,141
2014	41,017	33,901	30,914	22,943	16,590	12,602	11,641	11,590	11,484	14,938	26,214	41,950	275,783
2015	41,125	33,991	30,996	23,003	16,634	12,636	11,671	11,620	11,514	14,977	26,283	42,060	276,510
2016	41,255	34,098	31,094	23,076	16,687	12,675	11,708	11,657	11,550	15,024	26,366	42,193	277,383
2017	41,285	34,122	31,116	23,092	16,699	12,685	11,716	11,665	11,558	15,035	26,385	42,223	277,582
2018	41,367	34,190	31,178	23,138	16,732	12,710	11,740	11,688	11,581	15,065	26,437	42,307	278,132
2019	41,501	34,301	31,279	23,213	16,786	12,751	11,778	11,726	11,619	15,114	26,524	42,445	279,038
2020	41,682	34,450	31,415	23,314	16,859	12,806	11,829	11,777	11,670	15,180	26,639	42,629	280,250
2021	41,818	34,563	31,518	23,390	16,914	12,848	11,868	11,816	11,708	15,229	26,726	42,768	281,167
2022	41,957	34,678	31,623	23,468	16,971	12,891	11,907	11,855	11,747	15,280	26,815	42,911	282,104
2023	42,102	34,797	31,732	23,549	17,029	12,936	11,948	11,896	11,787	15,333	26,907	43,059	283,075
2024	42,263	34,931	31,853	23,639	17,094	12,985	11,994	11,942	11,832	15,391	27,010	43,224	284,159
2025	42,463	35,096	32,004	23,751	17,175	13,046	12,051	11,998	11,888	15,464	27,138	43,428	285,503

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Figure 5: Hot-Temperature Year Demand Forecast

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2006	30,742	25,713	24,130	18,797	14,765	12,033	11,522	11,497	11,298	13,684	20,933	31,350	226,464
2007	30,554	25,555	23,982	18,682	14,674	11,959	11,451	11,426	11,229	13,600	20,805	31,158	225,076
2008	30,298	25,341	23,781	18,525	14,551	11,859	11,355	11,330	11,135	13,486	20,631	30,897	223,189
2009	30,324	25,363	23,802	18,541	14,564	11,869	11,365	11,340	11,144	13,498	20,649	30,924	223,385
2010	30,471	25,486	23,917	18,631	14,634	11,926	11,420	11,395	11,198	13,563	20,749	31,073	224,464
2011	30,616	25,607	24,031	18,720	14,704	11,983	11,475	11,449	11,252	13,628	20,847	31,221	225,533
2012	30,719	25,693	24,111	18,782	14,753	12,023	11,513	11,488	11,289	13,673	20,917	31,326	226,290
2013	30,783	25,747	24,162	18,822	14,784	12,049	11,537	11,512	11,313	13,702	20,961	31,392	226,765
2014	30,855	25,807	24,218	18,866	14,819	12,077	11,564	11,539	11,339	13,734	21,010	31,465	227,294
2015	30,936	25,875	24,282	18,916	14,858	12,109	11,595	11,569	11,369	13,770	21,066	31,548	227,893
2016	31,034	25,957	24,359	18,975	14,905	12,147	11,631	11,606	11,405	13,814	21,132	31,648	228,612
2017	31,056	25,975	24,376	18,989	14,916	12,156	11,640	11,614	11,413	13,824	21,147	31,670	228,776
2018	31,118	26,027	24,425	19,027	14,945	12,180	11,663	11,637	11,436	13,851	21,189	31,733	229,230
2019	31,219	26,111	24,504	19,088	14,994	12,219	11,701	11,675	11,473	13,896	21,258	31,836	229,976
2020	31,355	26,225	24,611	19,171	15,059	12,272	11,752	11,726	11,523	13,957	21,351	31,975	230,976
2021	31,457	26,311	24,691	19,234	15,108	12,313	11,790	11,764	11,561	14,002	21,420	32,079	231,731
2022	31,562	26,398	24,773	19,298	15,159	12,354	11,829	11,803	11,599	14,049	21,492	32,186	232,503
2023	31,671	26,489	24,859	19,365	15,211	12,396	11,870	11,844	11,639	14,097	21,566	32,297	233,303
2024	31,792	26,591	24,954	19,439	15,269	12,444	11,916	11,889	11,684	14,151	21,648	32,421	234,197
2025	31,942	26,716	25,072	19,531	15,341	12,502	11,972	11,946	11,739	14,218	21,751	32,574	235,304

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Figure 6: Base-Temperature Year Demand Forecast

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2006	11,558	10,443	9,907	9,374	10,458	12,597	12,670	11,612	11,356	12,030	10,849	11,373	134,227
2007	11,338	10,262	9,749	9,257	10,367	12,511	12,591	11,539	11,284	11,939	10,704	11,148	132,690
2008	11,039	10,016	9,533	9,100	10,243	12,395	12,484	11,441	11,186	11,817	10,506	10,842	130,602
2009	11,070	10,042	9,556	9,116	10,255	12,407	12,495	11,452	11,196	11,830	10,527	10,873	130,819
2010	11,241	10,182	9,679	9,206	10,326	12,474	12,557	11,508	11,252	11,900	10,640	11,048	132,013
2011	11,411	10,321	9,801	9,296	10,397	12,540	12,617	11,563	11,308	11,969	10,752	11,222	133,196
2012	11,531	10,420	9,887	9,359	10,447	12,586	12,660	11,603	11,347	12,018	10,831	11,344	134,034
2013	11,606	10,482	9,942	9,399	10,478	12,615	12,687	11,627	11,372	12,049	10,881	11,422	134,560
2014	11,690	10,551	10,002	9,443	10,513	12,648	12,717	11,655	11,400	12,084	10,936	11,507	135,145
2015	11,785	10,629	10,071	9,493	10,552	12,685	12,751	11,686	11,431	12,123	10,999	11,605	135,808
2016	11,899	10,723	10,153	9,553	10,600	12,729	12,792	11,723	11,468	12,169	11,074	11,721	136,604
2017	11,925	10,744	10,171	9,567	10,610	12,739	12,801	11,732	11,477	12,180	11,091	11,748	136,785
2018	11,997	10,803	10,223	9,605	10,640	12,767	12,827	11,756	11,500	12,209	11,139	11,821	137,287
2019	12,115	10,900	10,308	9,667	10,689	12,813	12,869	11,794	11,539	12,258	11,217	11,942	138,113
2020	12,274	11,030	10,423	9,751	10,755	12,875	12,926	11,846	11,591	12,323	11,321	12,105	139,219
2021	12,394	11,129	10,509	9,814	10,805	12,921	12,968	11,886	11,630	12,372	11,400	12,227	140,055
2022	12,516	11,229	10,597	9,879	10,856	12,969	13,012	11,926	11,670	12,422	11,481	12,352	140,910
2023	12,643	11,334	10,688	9,946	10,908	13,018	13,058	11,967	11,712	12,474	11,565	12,482	141,795
2024	12,785	11,450	10,790	10,021	10,967	13,073	13,108	12,014	11,759	12,532	11,658	12,627	142,785
2025	12,960	11,594	10,917	10,113	11,040	13,141	13,171	12,072	11,816	12,604	11,774	12,807	144,010

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Figure 7: 2006 Historical Data

	Single Family	Multi-Family 2 - 4 Units	Multi-Family > 4 Units	Master Meter	Sub Meter
Total Therm Sales	1,798,089,544	177,635,316	326,998,488	147,603,407	55,831,954
Meter Count					
Pre-1979 Customers	2,424,395	414,892	712,298	34,494	1,702
1979 - 2001 Customers	1,071,831	108,507	376,157	3,212	107
2004-2005 Customers	56,168	5,424	11,748	40	1
TOTAL	3,552,394	528,823	1,100,203	37,746	1,809
Use Per Customer (UPC, therms)					
Pre-1979 Customers	529	353	322	3,731	30,850
1979 - 2001 Customers	455	280	256	5,816	31,080
2004-2006 Customers	474	146	122	5,853	-
Price Elasticity	-0.105	-0.112	-0.071	-0.069	-0.105

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Figure 8: Meter Count Forecast

Year	Total	Single Family	Multi-Family 2 - 4 Units	Multi-Family > 4 Units	Master Meter	Sub Meter
2006	5,220,398	3,552,280	528,135	1,098,788	39,381	1,814
2007	5,286,456	3,605,233	532,401	1,107,627	39,381	1,814
2008	5,355,306	3,657,952	537,652	1,118,507	39,381	1,814
2009	5,425,622	3,710,099	543,567	1,130,761	39,381	1,814
2010	5,497,916	3,761,912	550,234	1,144,575	39,381	1,814
2011	5,570,301	3,813,304	557,068	1,158,735	39,381	1,814
2012	5,642,909	3,864,800	563,940	1,172,974	39,381	1,814
2013	5,716,901	3,916,240	571,281	1,188,185	39,381	1,814
2014	5,793,615	3,968,271	579,316	1,204,833	39,381	1,814
2015	5,872,539	4,020,894	587,877	1,222,572	39,381	1,814
2016	5,952,544	4,073,561	596,777	1,241,011	39,381	1,814
2017	6,033,056	4,125,880	605,954	1,260,027	39,381	1,814
2018	6,113,913	4,177,737	615,395	1,279,587	39,381	1,814
2019	6,195,317	4,229,368	625,086	1,299,668	39,381	1,814
2020	6,277,051	4,280,816	634,945	1,320,095	39,381	1,814
2021	6,358,985	4,332,020	644,948	1,340,822	39,381	1,814
2022	6,440,896	4,382,919	655,044	1,361,738	39,381	1,814
2023	6,523,008	4,433,590	665,279	1,382,945	39,381	1,814
2024	6,605,486	4,484,039	675,705	1,404,548	39,381	1,814
2025	6,688,673	4,534,536	686,346	1,426,596	39,381	1,814

Note: The master meter and sub meter groups are expected to decline.
A decay rate was built into the model specification.

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Figure 9: Appliance Unit Energy Consumption (Gas in therms, Electric in Kwh)

		Single Family		Multi-Family 2 - 4 Units		Multi-Family > 4 Units		Master Meter		Sub Meter	
End-Use	Vintage	Gas	Electric	Gas	Electric	Gas	Electric	Gas	Electric	Gas	Electric
Space Heat	Stock	370	4,110	200	730	200	730	200	730	330	1,340
	Standard	330	3,730	180	670	180	-	180	-	300	-
	High	310	3,450	170	620	170	-	170	-	280	-
	Premium	280	3,170	150	570	150	-	150	-	260	-
Water Heat	Stock	260	2,440	230	2,440	230	2,440	230	2,440	210	2,010
	Standard	240	2,220	210	2,220	210	2,220	210	2,220	190	1,830
	High	230	2,110	200	2,110	200	2,110	200	2,110	180	1,740
	Premium	220	2,050	190	2,050	190	2,050	190	2,050	180	1,690
Cooking	Stock	50	574	34	465	34	465	34	465	45	514
	Standard	42.5	487.9	28.9	395	29	395	29	395	38	437
Drying	Stock	45.1	1442.1	24.2	1442.1	24	1,442	24	1,442	26	873
	Standard	42.8	1369.9	23.0	1370.0	23	1,370	23	1,370	25	830
Pool	Stock	177	3,431	177	3,431	177	3,431	177	3,431	177	3,431
Spa	Stock	146	430	146	430	146	430	146	430	146	430
Fireplace	Stock	21	-	21	-	21	-	21	-	21	-
BBQ	Stock	28	-	28	-	28	-	28	-	28	-

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Figure 10: Average and Marginal Gas Price Forecast (Nominal $ / therm)

		Average Price					Marginal Price				
Year	Price Deflator	Single Family	Multi-Family 2 - 4 Units	Multi-Family > 4 Units	Master Meter	Sub Meter	Single Family	Multi-Family 2 - 4 Units	Multi-Family > 4 Units	Master Meter	Sub Meter
2006	100.00	1.0249	0.9957	0.9985	0.9777	0.9881	1.1349	1.1349	1.1349	1.1349	1.1349
2007	102.13	1.1156	1.0863	1.0892	1.0683	1.0787	1.2261	1.2261	1.2261	1.2261	1.2261
2008	104.19	1.2334	1.2041	1.2070	1.1861	1.1965	1.3439	1.3439	1.3439	1.3439	1.3439
2009	106.41	1.2384	1.2062	1.2094	1.1864	1.1979	1.3597	1.3597	1.3597	1.3597	1.3597
2010	108.52	1.2082	1.1760	1.1792	1.1562	1.1677	1.3296	1.3296	1.3296	1.3296	1.3296
2011	110.74	1.1811	1.1489	1.1521	1.1291	1.1406	1.3025	1.3025	1.3025	1.3025	1.3025
2012	113.37	1.1714	1.1384	1.1417	1.1182	1.1299	1.2955	1.2955	1.2955	1.2955	1.2955
2013	116.23	1.1777	1.1439	1.1473	1.1232	1.1352	1.3049	1.3049	1.3049	1.3049	1.3049
2014	119.10	1.1840	1.1494	1.1528	1.1282	1.1405	1.3143	1.3143	1.3143	1.3143	1.3143
2015	122.01	1.1917	1.1563	1.1598	1.1345	1.1472	1.3251	1.3251	1.3251	1.3251	1.3251
2016	125.15	1.1990	1.1627	1.1663	1.1404	1.1534	1.3358	1.3358	1.3358	1.3358	1.3358
2017	128.51	1.2443	1.2071	1.2107	1.1842	1.1975	1.3846	1.3846	1.3846	1.3846	1.3846
2018	131.98	1.2754	1.2372	1.2410	1.2137	1.2274	1.4195	1.4195	1.4195	1.4195	1.4195
2019	135.56	1.2911	1.2519	1.2557	1.2278	1.2418	1.4389	1.4389	1.4389	1.4389	1.4389
2020	139.20	1.3288	1.2886	1.2926	1.2639	1.2782	1.4805	1.4805	1.4805	1.4805	1.4805
2021	142.93	1.3589	1.3176	1.3217	1.2923	1.3070	1.5146	1.5146	1.5146	1.5146	1.5146
2022	146.76	1.4028	1.3604	1.3645	1.3343	1.3495	1.5625	1.5625	1.5625	1.5625	1.5625
2023	150.69	1.4509	1.4074	1.4117	1.3807	1.3962	1.6148	1.6148	1.6148	1.6148	1.6148
2024	154.73	1.5001	1.4554	1.4598	1.4281	1.4440	1.6683	1.6683	1.6683	1.6683	1.6683
2025	158.85	1.5384	1.4926	1.4971	1.4645	1.4808	1.7109	1.7109	1.7109	1.7109	1.7109

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Figure 11: Average and Marginal Electric Price Forecast (Nominal cents / Kwh)

		Average Price					Marginal Price				
Year	Price Deflator	Single Family	Multi-Family 2 - 4 Units	Multi-Family > 4 Units	Master Meter	Sub Meter	Single Family	Multi-Family 2 - 4 Units	Multi-Family > 4 Units	Master Meter	Sub Meter
2006	100.00	15.43	14.99	15.04	14.72	14.88	23.36	22.69	22.76	15.23	16.75
2007	102.13	15.62	15.21	15.25	14.96	15.10	23.64	23.01	23.08	15.47	17.00
2008	104.19	16.12	15.73	15.77	15.50	15.64	24.39	23.81	23.87	16.03	17.60
2009	106.41	16.95	16.51	16.56	16.24	16.40	25.65	24.99	25.05	16.79	18.45
2010	108.52	16.84	16.39	16.43	16.11	16.27	25.48	24.80	24.86	16.66	18.31
2011	110.74	17.07	16.61	16.65	16.32	16.49	25.83	25.13	25.20	16.88	18.55
2012	113.37	17.37	16.88	16.93	16.58	16.75	26.28	25.54	25.62	17.14	18.85
2013	116.23	17.44	16.94	16.99	16.64	16.81	26.40	25.64	25.71	17.20	18.92
2014	119.10	17.63	17.11	17.16	16.80	16.98	26.67	25.90	25.97	17.37	19.11
2015	122.01	17.81	17.28	17.33	16.95	17.14	26.94	26.14	26.22	17.53	19.29
2016	125.15	17.87	17.33	17.38	17.00	17.19	27.04	26.22	26.30	17.58	19.35
2017	128.51	18.07	17.53	17.58	17.20	17.39	27.34	26.52	26.60	17.78	19.57
2018	131.98	18.13	17.59	17.64	17.26	17.45	27.44	26.62	26.70	17.84	19.64
2019	135.56	18.20	17.65	17.71	17.31	17.51	27.55	26.71	26.79	17.90	19.70
2020	139.20	18.26	17.71	17.77	17.37	17.57	27.64	26.80	26.88	17.96	19.77
2021	142.93	18.33	17.77	17.82	17.43	17.63	27.73	26.89	26.97	18.02	19.84
2022	146.76	18.38	17.83	17.88	17.49	17.69	27.82	26.98	27.06	18.08	19.90
2023	150.69	18.44	17.89	17.94	17.55	17.74	27.90	27.07	27.15	18.14	19.97
2024	154.73	18.50	17.94	18.00	17.61	17.80	27.99	27.15	27.24	18.21	20.03
2025	158.85	18.55	18.00	18.06	17.66	17.86	28.07	27.24	27.32	18.26	20.10

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Figure 12: Gas Appliance Equipment Cost (Nominal $)

End-use	Efficiency Level	Single Family	Multi-Family 2 - 4 Units	Multi-Family > 4 Units	Master Meter	Sub Meter
Space Heat	Stock	4,000	2,000	1,600	1,000	1,600
	Standard	4,600	2,300	1,840	1,150	1,840
	High	4,800	2,400	1,920	1,200	1,920
	Premium	5,000	2,500	1,980	1,250	1,980
Water Heat	Stock	550	330	330	330	330
	Standard	650	390	390	390	390
	High	700	420	420	420	420
	Premium	750	450	450	450	450
Cooking	Stock	500	300	250	250	250
	Standard	1,400	1,400	1,400	1,400	1,400
Drying	Stock	328	328	328	328	328
	Standard	482	482	482	482	482
Pool	Stock	1,200	1,200	1,200	1,200	1,200
Spa	Stock	2,000	2,000	2,000	2,000	2,000
Fireplace	Stock	150	150	150	150	150
BBQ	Stock	1,000	600	600	600	600

Southern California Gas Company
2009 BCAP
Figure 13: Electric Appliance Equipment Cost (Nominal $)

End-use	Efficiency Level	Single Family	Multi-Family 2 - 4 Units	Multi-Family > 4 Units	Master Meter	Sub Meter
Space Heat	Stock	4,100	2,050	1,640	1,025	1,640
Water Heat	Stock	550	330	330	330	330
	Standard	650	390	390	390	390
	High	700	420	420	420	420
	Premium	750	450	450	450	450
Cooking	Stock	500	300	250	250	250
	Standard	1,400	1,400	1,400	1,400	1,400
Drying	Stock	328	328	328	328	328
	Standard	482	482	482	482	482
Pool	Stock	1,200	1,200	1,200	1,200	1,200
Spa	Stock	2,000	2,000	2,000	2,000	2,000
Fireplace	Stock	150	150	150	150	150
BBQ	Stock	1,000	600	600	600	600

Southern California Gas Company
2009 BCAP
Figure 14: Building Lives and Decay Rate

Building Type	Building Decay Rate
Single-Family	0.003
Multi-Family 2 - 4 Units	0.006
Multi-Family > 4 Units	0.006
Master Meter	0.008
Sub Meter	0.008

Southern California Gas Company
2009 BCAP
Figure 15: Gas Appliance Equipment Age (Years)

			Single Family		Multi-Family 2 - 4 Units		Multi-Family > 4 Units		Master Meter		Sub Meter	
End-Use	**Vintage**	**Max**	**Average**	**Max**	**Average**	**Max**	**Average**	**Max**	**Average**	**Max**	**Average**	**Max**
Space Heat	Pre-1979	17	17	17	15	15	15	15	16	16	16	16
	1979 - 2003	17	10	17	12	15	11	15	11	16	11	16
	2005-2006	17	3	17	4	15	4	15	4	16	4	16
Water Heat	Pre-1979	7	7	7	7	8	6	8	6	8	6	8
	1979 - 2003	7	7	7	8	8	8	8	8	8	8	8
	2005-2006	7	3	7	2	8	4	8	4	8	4	8
Cooking	Pre-1979	12	10	12	10	10	10	11	14	14	14	14
	1979 - 2003	12	10	12	9	10	11	11	11	14	11	14
	2005-2006	12	2	12	2	10	4	11	3	14	3	14
Drying	Pre-1979	8	8	8	7	9	6	8	8	8	8	8
	1979 - 2003	8	8	8	9	9	8	8	8	8	8	8
	2005-2006	8	6	8	3	9	3	8	4	8	4	8
Pool	Pre-1979	13	13	13	13	13	13	13	13	13	13	13
	1979 - 2003	13	9	13	9	13	9	13	9	13	9	13
	2005-2006	13	3	13	3	13	3	13	3	13	3	13
Spa	Pre-1979	11	11	11	11	11	11	11	11	11	11	11
	1979 - 2003	11	8	11	8	11	8	11	8	11	8	11
	2005-2006	11	3	11	3	11	3	11	3	11	3	11
Fireplace	Pre-1979	15	15	15	15	15	15	15	15	15	15	15
	1979 - 2003	15	15	15	15	15	15	15	15	15	15	15
	2005-2006	15	15	15	15	15	15	15	15	15	15	15
BBQ	Pre-1979	7	7	7	5	6	5	5	5	9	5	9
	1979 - 2003	7	7	7	6	6	5	5	9	9	9	9
	2005-2006	7	5	7	3	6	5	5	2	9	2	9
Other	Pre-1979	15	15	15	15	15	15	15	15	15	15	15
	1979 - 2003	15	15	15	15	15	15	15	15	15	15	15
	2005-2006	15	15	15	15	15	15	15	15	15	15	15

Southern California Gas Company
2009 BCAP
Figure 16: End-Use Saturations

End-use	Vintage	Single Family	Multi-Family 2 - 4 Units	Multi-Family > 4 Units	Master Meter	Sub Meter
Space Heat	Pre-1979	0.9955	0.9809	0.9655	0.9375	1.0000
	1979 - 2003	0.9990	0.9979	0.9933	0.9600	1.0000
	2005-2006	0.9968	1.0000	0.9491	1.0000	1.0000
Water Heat	Pre-1979	0.9994	1.0000	0.9873	0.9834	1.0000
	1979 - 2003	1.0000	1.0000	0.9892	1.0000	1.0000
	2005-2006	1.0000	1.0000	0.9613	1.0000	1.0000
Cooking	Pre-1979	0.9923	0.9855	0.9855	0.9921	0.9705
	1979 - 2003	0.9953	0.9913	0.9913	1.0000	1.0000
	2005-2006	0.9922	1.0000	1.0000	1.0000	1.0000
Drying	Pre-1979	0.8721	0.8153	0.8153	0.7578	0.8529
	1979 - 2003	0.8973	0.8602	0.8602	0.9600	0.7272
	2005-2006	0.9248	0.7744	0.7744	1.0000	1.0000
Pool	Pre-1979	0.0772	0.0521	0.1045	0.1179	0.1179
	1979 - 2003	0.1611	0.1308	0.1941	0.0053	0.0053
	2005-2006	0.1555	0.1308	0.1941	0.0053	0.0053
Spa	Pre-1979	0.1354	0.0526	0.0668	0.1329	0.1329
	1979 - 2003	0.2339	0.1923	0.2896	0.2012	0.2012
	2005-2006	0.2039	0.1923	0.2896	0.2012	0.2012
Fireplace	Pre-1979	0.5493	0.2634	0.1519	0.1894	0.1894
	1979 - 2003	0.7149	0.6261	0.4775	0.4156	0.4156
	2005-2006	0.7149	0.6261	0.4775	0.4156	0.4156
Barbecue	Pre-1979	0.4595	0.2630	0.1524	0.1875	0.2058
	1979 - 2003	0.5980	0.4739	0.3192	0.3600	0.2727
	2005-2006	0.6581	0.4405	0.1639	0.0000	0.0000

Southern California Gas Company
2009 BCAP
Figure 17: Gas Fuel Shares

End-use	Single Family	Multi-Family 2 - 4 Units	Multi-Family > 4 Units	Master Meter	Sub Meter
Space Heat	0.9573	0.9399	0.8249	0.9610	0.9610
Water Heat	0.9876	0.9803	0.9627	0.9614	0.9614
Cooking	0.8075	0.8183	0.8151	0.8744	0.8744
Drying	0.7924	0.7416	0.7445	0.7190	0.5657
Pool	0.8247	0.8247	0.8247	0.8247	0.8247
Spa	0.5819	0.5819	0.5819	0.5819	0.5819
Fireplace	0.5816	0.5816	0.5816	0.5816	0.5816
Barbecue	0.2759	0.2663	0.2978	0.1251	0.0364

Southern California Gas Company
2009 BCAP
Figure 18: Gas Efficiency Shares

Gas End-use	Efficiency Level	Single Family Existing	Single Family New	Multi-Family 2 - 4 Units Existing	Multi-Family 2 - 4 Units New	Multi-Family > 4 Units Existing	Multi-Family > 4 Units New	Master Meter Existing	Master Meter New	Sub Meter Existing	Sub Meter New
Space Heat	Stock	0.59	0.59	0.70	0.70	0.50	0.50	0.50	0.50	0.59	0.59
	Standard	0.34	0.34	0.28	0.28	0.48	0.48	0.48	0.48	0.34	0.34
	High	0.06	0.06	0.01	0.01	0.01	0.01	0.01	0.01	0.06	0.06
	Premium	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Water Heat	Stock	0.10	0.10	0.22	0.22	0.13	0.13	0.13	0.13	0.10	0.10
	Standard	0.68	0.68	0.61	0.61	0.76	0.76	0.76	0.76	0.68	0.68
	High	0.21	0.21	0.16	0.16	0.10	0.10	0.10	0.10	0.21	0.21
	Premium	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Cooking	Stock	0.90	0.90	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
	Standard	0.10	0.10	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Drying	Stock	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
	Standard	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Pool	Stock	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Spa	Stock	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fireplace	Stock	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Barbecue	Stock	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Southern California Gas Company
2009 BCAP
Figure 19: Electric Efficiency Shares

Electric End-use	Efficiency Level	Single Family Existing	Single Family New	Multi-Family 2 - 4 Units Existing	Multi-Family 2 - 4 Units New	Multi-Family > 4 Units Existing	Multi-Family > 4 Units New	Master Meter Existing	Master Meter New	Sub Meter Existing	Sub Meter New
Space Heat	Stock	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Water Heat	Stock	0.10	0.10	0.22	0.22	0.13	0.13	0.13	0.13	0.10	0.10
	Standard	0.68	0.68	0.61	0.61	0.76	0.76	0.76	0.76	0.68	0.68
	High	0.21	0.21	0.16	0.16	0.10	0.10	0.10	0.10	0.21	0.21
	Premium	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Cooking	Stock	0.90	0.90	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
	Standard	0.10	0.10	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Drying	Stock	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
	Standard	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Pool	Stock	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Space Heat	Stock	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fireplace	Stock	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Barbeque	Stock	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

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SOCALGAS CORE COMMERCIAL & INDUSTRIAL DEMAND FORECAST
FEBRUARY 2008

SoCalGas Commercial and Industrial End Use Model

2009 BCAP

Introduction

The G-10 commercial and Industrial gas demand forecast used the EUForecaster model to generate annual gas demand forecasts for the years 2007 through 2025.

The model segments the G-10 commercial and industrial markets into 14 sectors and 11 sectors, respectively, by type of business activity. Business activity is determined by the NAICS code assigned to the customer and carried on the customer's billing record. A second segmentation within each specific business types involved further disaggregation into end-uses.

The gas demand forecast that results from the EUForecaster model uses the annual design Heating-Degree-Day (HDD) total of 1,379 for an Average Year. The gas demand forecasts under Cold, Hot and Base temperature were then constructed based on Cold Year (HDD = 1665), Hot Year (HDD=1093) and Base Year (HDD=0) annual assumptions.

This *end use* forecasts under the above four temperature scenarios are then adjusted for a set of *post-model* adjustments. These adjustments consist of *reductions* for the Energy Efficiency and Demand-Side Management (EE/DSM) savings provided by the EE/DSM group, and a portion of demand located in the City of Vernon (a separate Wholesale customer). An additional load is associated with existing G-10 commercial and industrial customers who install electric self-generation equipment. This program was established by the State of California through AB970. A fourth adjustment is made to account for an anticipated future migration of 27 newly eligible customers from noncore to core status. The load estimate associated with the migrating customers is split to 64% industrial and 36% commercial, based on 2006 historical usage. A final adjustment adds both the Gas Air Conditioning (AC) and Gas Engine demand forecasts into the commercial G-10 forecast. All of these post-model adjustments are summarized in the tables that follow this narrative.

Data Sources

The key set of information used to perform the modeling and to generate the forecast includes historical year 2006 consumption and customer counts, employment forecasts, gas and electric energy use intensity (EUI) values, end-use saturations, fuel and efficiency shares, gas and electric price forecasts, equipment age, use per meter for existing and new customers, and equipment cost. A description of each component follows.

A. Historical Year 2006 Sales:

The historical data are extracted from the billing tables in the Customer Information System (CIS). The gas consumption by business type was adjusted to our 1379 average year HDD.

B. Employment Data:

The level of employment in each business type is used as a measure of economic activity in the G-10 commercial and industrial demand forecast models. The employment data series matches the NAICS categories used to develop the historical consumption data. The employment data were compiled and totaled for the 12 counties comprising SoCalGas' service territory. The forecast data comes from Global Insight's Spring 2007 Regional forecast released in June 2007 and based on Global Insight's May 2007 US Economic Forecast. The historical 2006 data comes from the California Employment Development Department.

C. Incremental Meter Data:

Regression equations were developed for each of the 14 commercial and 11 industrial customer types, using each sector's employment as the main driver of its customer growth. Recorded annual data from 1980 through 2006 were used to develop the equations. The equations then used forecasted employment to forecast annual sector customers through 2025. The 14 commercial customer forecasts were then scaled equally "across the board" year-by-year, so that their aggregated total each year would match the already-forecasted single-series forecast of active commercial meters in SoCalGas' separate econometric Customer Forecast model. Likewise, the 11 industrial sector forecasts were scaled equally so their aggregate for each year would match the customer model's single-series forecast of active industrial meters.

For each commercial and industrial market and segment listed above, EUForecaster was populated with the number of SoCalGas customer accounts as of December 2006. The forecast of new meters due to new construction was developed in a manner to achieve consistency with our Commercial econometric models. The number of new customers is based entirely on employment growth forecasts and on employment elasticities derived from our econometric demand forecast. The employment elasticities essentially show how changes in employment affect sales growth. The end-use models preserved this relationship by the development of growth indices that were derived by multiplying the employment elasticities. This growth index was then multiplied by the stock of existing customers to provide an estimate of sales growth for EUForecaster.

D. Gas Price Data:

Average and marginal gas prices ($/therm) were calculated from forecasts of the G-10 rate components. We used the underlying detailed consumption data, previously used for our econometric model work on our core industrial G-10 customers, to separate monthly consumption for customers by each business type into the respective G-10 consumption tiers.

For a given business type, we calculated an annual average gas commodity rate for a 12-month period. The average commodity rate in each forecast year was developed using the same monthly consumption pattern, but with the forecasts of rates for each G-10 rate tier. The average gas price each year was then calculated by including the non-volumetric customer charges with the year's average gas commodity rate.

Each respective business type's marginal gas commodity rate (for each month) was calculated by "pricing" the entire month's consumption at the G-10 rate's tier that was the last tier with non-zero consumption -- the marginal consumption tier -- for the customers of the given business type. The marginal gas price was then calculated as the simple average of the 12 monthly marginal commodity rates. The forecasts for each year used the same monthly consumption pattern, but used the projected G-10 price of the marginal consumption tier.

E. Electric Price Data:

Both average prices (cents/KWh) and marginal prices (cents/KWh) were developed as electricity price inputs. Forecasts for SCE commercial and industrial customer classes were developed from the CEC's July 2007 Report, CEC-200-2007-013-SD, Appendix B: Utility-Specific Retail Price Forecast Tables, at page 3 for SCE. The resulting price projections were set equal to the CEC's projections for the commercial and industrial classes. Prices were developed through 2025. These were the average electricity prices for the G-10 core commercial and core industrial markets.

The marginal prices were calculated by multiplying each year's respective average price by a ratio. These ratios, 1.000 for commercial and 0.789 for industrial, were estimated from an analysis of the SCE GS-2 rate schedule posted on their website in March 2006. (These customers were assumed to be large non-self-generation customers who also were on time-of-use rates.)

To impute each year's average and marginal electricity prices to each core commercial and core industrial business type, we simply calculated the ratio of the average (or marginal) gas price to the overall core commercial or core industrial gas price for each business type, then multiplied by the overall average (or marginal) electricity price.

F. Building and Equipment Decay Rates:

Building decay rates are based on buildings' lifetimes, where the lifetime is defined as the length of time it takes for either a demolition or a major renovation in which major systems are replaced. For existing core buildings and facilities, an exponential rate of decay of 1% per year was assumed, consistent with an average remaining life for existing buildings of 100 years. (A building decay rate concept is not relevant to non-core large gas transport customers. In both the commercial and industrial non-core models the existing building decay rate was set equal to zero.)

All new construction decay rates were assumed to be zero over the forecast horizon. This assumption was required because the growth of new buildings and facilities was tied directly to the econometric models.

End-Use lifetimes were derived from a variety of sources.

Commercial:

- Space heat: 25 years
- Water heat: 15 years
- AC/compressor: 20 years
- All other commercial end-uses: 15 years

Industrial:

- Fire-tube boiler: 25 years
- Water-tube boiler: 25 years
- Engine (motors): 25 years
- All other industrial end-uses: 20 years

G. Equipment Saturations, Fuel Shares, and Efficiency Shares:

EUForecaster defines saturation as the percentage of customers in any segment that has a particular end use, independent of fuel shares. EUForecaster adjusted core commercial fuel shares according to a set of fuel-choice equations over the forecast horizon.

End-use saturations in the industrial model were initially set equal to 100%. Industrial end-use gas fuel shares were initially approximated. We then used an iterative procedure to further adjust industrial saturation and fuel shares such that the EUForecaster sales totals matched SoCalGas industrial sales figures, and our estimates of electric usage by SoCalGas customers. Finally, all commercial and industrial fuel shares were held constant over the forecast horizon.

Energy efficiency varied within the major gas end-uses/processes, including all boilers, space heat, and water heat. Four levels of efficiency were assigned to gas equipment: low, medium (standard) high, and premium for core commercial and three levels of efficiency were assigned to gas equipment: low, medium (standard), and high for core industrial market. California and federal standards have effectively eliminated the lowest efficiency alternatives for several gas end-uses from being purchased as new or replacement equipment. The lowest efficiency alternative for these end uses is, therefore, allowed to exist in the base year stock, but the customer must then purchase either medium (e.g., equipment that just meets Government standards), high or premium efficiency equipment as these units decay.

For existing equipment stock, the low efficiency share was set to 50%, whereas the medium efficiency share ranges from 40 to 45%, and the high efficiency share ranges from 5 to 10%.

EUForecaster’s choice module prorates the low share to the medium, high and premium alternatives in proportion to their shares noted above. Therefore, replacement and new construction efficiency shares for medium range from 80% to 90%, and high ranges from 10% to 20%.

H. DSM Forecast:

The end-use gas demand forecast developed with EUForecaster does not capture the effects of SoCalGas’ EE/DSM programs. Energy savings goals from the CPUC’s mandated energy efficiency/energy conservation programs for the core commercial and industrial were provided by SoCalGas’ DSM department. These savings are subtracted from the forecast generated by the core commercial and industrial forecasts generated by EUForecaster.

Gas Air Conditioning and Gas Engines

A special tariff for gas air-conditioning rates went into effect at the end of 1993, while a special tariff for gas engine rates started in early 1995. The forecasts of core gas air conditioning and gas engine demand are based on the latest information provided by customers. Both segments are forecasted based on the expected number of customers in each market times their usage per customer. Usage per customer is based on the annual average use per customer of 2004 – 2006.

2009 BCAP

SoCalGas Core Commercial Tables
February 2008

Southern California Gas Company
2009 BCAP- Commercial G10
The Year the Equipment Was Installed by Business Types

Sector	Space Heater	Water Heater	Cooktop	Griddle	Fryer	Other Cooking Equipment	Kitchen Equipment	AC	Dryer	Engine	Other
Office	1977	1978	1974	1978	1979	1976	1980	1975	1978	1975	1973
Restaurant	1980	1983	1980	1980	1982	1981	1983	1977	1983	1978	1980
Retail	1976	1979	1977	1977	1984	1981	1977	1976	1978	1984	1977
Laundry	1979	1975	1981	1986	1986	1986	1986	1975	1976 .		1975
Warehouse	1977	1977	1975	1981	1979	1979	1939	1975	1983	1981	1978
School	1975	1977	1971	1972	1975	1972	1972	1973	1975	1974	1972
College	1974	1976	1973	1974	1975	1975	1973	1979	1974	1973	1970
Health	1976	1979	1974	1975	1977	1975	1973	1975	1977	1974	1975
Lodging	1974	1981	1975	1979	1983	1979	1984	1975	1980	1975	1981
Misc	1974	1977	1972	1972	1976	1973	1979	1974	1978	1974	1978
Government	1975	1977	1973	1979	1975	1976	1978	1975	1980	1978	1972
TIU	1975	1979	1975	1978	1982	1979	1990	1975	1983	1978	1981
Construction	1977	1977	1972	1974	1975	1974	1953	1973	1980	1975	1976
Agriculture	1982	1980	1973	1979	1980	1979	1970	1976	1971	1987	1985

Southern California Gas Company
2009 BCAP - Commercial G10
Incremental Meter Forecast by Business Types

Year	Office	Restaurant	Retail	Laundry	Warehouse	School	College	Health	Lodging	Misc	Government	TCU	Construction	Agriculture
2006	382	421	-81	-5	-43	21	-19	81	48	-506	27	63	32	200
2007	546	587	105	5	-14	90	31	113	58	-244	35	91	24	70
2008	476	436	-35	-10	-43	27	9	85	44	-301	25	70	6	56
2009	543	414	-73	-10	-58	74	26	80	52	-344	32	83	6	58
2010	456	384	-123	-4	-50	69	24	60	58	-259	38	95	11	54
2011	373	359	-145	-6	-64	72	25	63	56	-255	35	95	13	48
2012	296	362	-143	-6	-76	49	17	75	57	-247	38	98	19	52
2013	382	351	-130	-12	-79	57	20	63	51	-292	35	89	17	52
2014	527	333	-143	-13	-75	58	20	62	51	-302	35	87	19	56
2015	521	322	-136	-15	-78	45	16	59	48	-275	32	79	18	56
2016	518	299	-151	-15	-72	36	12	73	48	-225	31	77	17	59
2017	450	285	-152	-14	-69	31	11	95	46	-150	29	77	14	59
2018	494	292	-129	-15	-67	13	4	100	46	-141	28	74	13	60
2019	531	287	-124	-18	-66	0	0	97	46	-195	27	73	11	59
2020	480	305	-103	-17	-66	27	9	100	48	-177	31	77	14	63
2021	475	277	-120	-18	-74	14	5	109	45	-152	25	73	10	60
2022	513	267	-116	-20	-69	15	5	107	43	-159	26	70	8	61
2023	591	262	-115	-20	-70	19	7	107	43	-160	26	70	8	63
2024	623	250	-120	-21	-70	19	7	102	41	-168	25	68	7	62
2025	659	244	-123	-21	-69	28	10	95	41	-169	26	69	9	64

Southern California Gas Company
2009 BCAP - Commercial G10
Electric Price Forecast (Cent/KWH)

(a) Average Price Forecast

Year	Agriculture	College	Construction	Government	Health	Laundry	Lodging	Misc	Office	Restaurant	Retail	School	TCU	Warehouse
2006	15.66	15.10	15.81	14.16	14.31	14.67	13.32	14.39	14.18	16.02	14.11	14.18	17.04	12.88
2007	14.71	14.26	14.84	13.41	13.46	13.84	12.56	13.58	13.40	15.00	13.30	13.36	15.92	12.15
2008	15.49	15.07	15.62	14.25	14.30	14.66	13.44	14.42	14.24	15.76	14.15	14.21	16.64	13.05
2009	16.10	15.59	16.22	14.81	15.02	15.26	14.20	15.04	14.86	16.43	14.82	14.88	17.26	13.86
2010	15.84	15.33	15.97	14.55	14.75	15.00	13.92	14.78	14.59	16.18	14.56	14.62	17.02	13.58
2011	15.94	15.42	16.07	14.61	14.82	15.08	13.97	14.85	14.66	16.29	14.62	14.68	17.15	13.61
2012	16.35	15.79	16.48	14.94	15.16	15.43	14.26	15.19	14.99	16.72	14.95	15.01	17.63	13.88
2013	16.39	15.82	16.53	14.95	15.18	15.46	14.26	15.21	15.00	16.77	14.97	15.03	17.71	13.88
2014	16.55	15.97	16.70	15.07	15.31	15.59	14.36	15.33	15.12	16.94	15.08	15.15	17.90	13.96
2015	16.84	16.23	16.99	15.31	15.55	15.84	14.57	15.58	15.36	17.24	15.32	15.39	18.24	14.16
2016	16.88	16.26	17.03	15.31	15.56	15.86	14.56	15.59	15.37	17.29	15.33	15.40	18.31	14.14
2017	17.04	16.42	17.19	15.47	15.72	16.02	14.72	15.75	15.53	17.44	15.49	15.56	18.46	14.30
2018	17.06	16.44	17.21	15.49	15.74	16.04	14.74	15.77	15.55	17.47	15.51	15.58	18.49	14.32
2019	17.10	16.47	17.25	15.51	15.76	16.06	14.74	15.79	15.56	17.52	15.52	15.59	18.55	14.32
2020	17.12	16.49	17.27	15.53	15.78	16.08	14.76	15.81	15.58	17.53	15.54	15.61	18.56	14.34
2021	17.14	16.51	17.29	15.54	15.80	16.10	14.77	15.82	15.60	17.56	15.56	15.63	18.59	14.35
2022	17.15	16.52	17.30	15.56	15.82	16.12	14.80	15.84	15.62	17.57	15.58	15.65	18.60	14.38
2023	17.16	16.54	17.31	15.59	15.84	16.14	14.83	15.86	15.64	17.58	15.60	15.67	18.60	14.41
2024	17.17	16.56	17.32	15.61	15.86	16.16	14.85	15.89	15.66	17.58	15.62	15.69	18.60	14.44
2025	17.19	16.57	17.34	15.62	15.87	16.17	14.87	15.90	15.68	17.60	15.64	15.71	18.62	14.45

(b) Marginal Price Forecasat

Year	Agriculture	College	Construction	Government	Health	Laundry	Lodging	Misc	Office	Restaurant	Retail	School	TCU	Warehouse
2006	15.23	15.45	15.34	14.93	14.26	14.75	13.74	14.62	14.51	15.29	14.30	14.44	15.51	13.45
2007	14.35	14.60	14.46	14.09	13.40	13.90	12.91	13.77	13.67	14.38	13.45	13.60	14.60	12.62
2008	15.14	15.38	15.25	14.90	14.25	14.72	13.78	14.60	14.50	15.17	14.30	14.43	15.37	13.51
2009	15.71	15.84	15.79	15.44	14.99	15.33	14.60	15.24	15.15	15.79	15.02	15.11	15.95	14.39
2010	15.45	15.58	15.53	15.18	14.73	15.07	14.33	14.98	14.89	15.53	14.75	14.85	15.69	14.12
2011	15.54	15.67	15.63	15.27	14.79	15.15	14.38	15.05	14.96	15.62	14.82	14.92	15.79	14.16
2012	15.93	16.06	16.02	15.63	15.13	15.51	14.70	15.41	15.31	16.01	15.16	15.26	16.19	14.46
2013	15.97	16.11	16.06	15.66	15.15	15.54	14.71	15.43	15.33	16.05	15.18	15.28	16.24	14.47
2014	16.11	16.26	16.21	15.80	15.27	15.67	14.82	15.57	15.46	16.20	15.30	15.41	16.39	14.57
2015	16.39	16.54	16.48	16.06	15.52	15.93	15.04	15.82	15.71	16.48	15.54	15.66	16.67	14.78
2016	16.42	16.57	16.51	16.09	15.52	15.95	15.04	15.83	15.72	16.51	15.55	15.67	16.71	14.78
2017	16.57	16.73	16.67	16.24	15.68	16.11	15.20	15.99	15.88	16.66	15.71	15.83	16.87	14.94
2018	16.60	16.75	16.69	16.27	15.70	16.13	15.22	16.02	15.91	16.69	15.73	15.85	16.89	14.96
2019	16.63	16.78	16.73	16.29	15.72	16.15	15.23	16.04	15.93	16.72	15.75	15.87	16.93	14.96
2020	16.65	16.80	16.75	16.31	15.74	16.17	15.25	16.06	15.95	16.74	15.77	15.89	16.95	14.98
2021	16.67	16.82	16.77	16.33	15.76	16.19	15.26	16.08	15.96	16.76	15.79	15.91	16.97	14.99
2022	16.68	16.84	16.78	16.35	15.78	16.21	15.29	16.09	15.98	16.78	15.81	15.93	16.98	15.02
2023	16.70	16.85	16.80	16.36	15.80	16.23	15.31	16.11	16.00	16.79	15.83	15.95	16.99	15.05
2024	16.71	16.86	16.81	16.38	15.82	16.24	15.33	16.13	16.02	16.80	15.85	15.97	17.00	15.07
2025	16.73	16.88	16.83	16.40	15.84	16.26	15.35	16.15	16.04	16.82	15.86	15.98	17.02	15.09

Southern California Gas Company
2009 BCAP - Commercial G10
Gas Price Forecast ($/Therm)

(a) Average Price Forecast

Year	Price Deflator	Agriculture	College	Construction	Government	Health	Laundry	Lodging	Misc	Office	Restaurant	Retail	School	TCU	Warehouse
2006	100.00	1.0164	0.9800	1.0259	0.9192	0.9292	0.9521	0.8644	0.9343	0.9204	1.0397	0.9156	0.9202	1.1062	0.8363
2007	102.13	1.1108	1.0770	1.1208	1.0126	1.0165	1.0452	0.9485	1.0256	1.0117	1.1323	1.0045	1.0092	1.2022	0.9174
2008	104.19	1.2286	1.1948	1.2386	1.1303	1.1343	1.1630	1.0663	1.1434	1.1295	1.2501	1.1222	1.1270	1.3200	1.0352
2009	106.41	1.2316	1.1929	1.2411	1.1336	1.1491	1.1679	1.0862	1.1509	1.1369	1.2573	1.1344	1.1387	1.3210	1.0602
2010	108.52	1.2015	1.1627	1.2109	1.1034	1.1190	1.1378	1.0561	1.1207	1.1068	1.2272	1.1042	1.1086	1.2909	1.0300
2011	110.74	1.1744	1.1356	1.1838	1.0763	1.0919	1.1107	1.0290	1.0936	1.0797	1.2001	1.0771	1.0815	1.2638	1.0030
2012	113.37	1.1645	1.1248	1.1741	1.0641	1.0801	1.0993	1.0157	1.0819	1.0676	1.1908	1.0650	1.0694	1.2559	0.9891
2013	116.23	1.1706	1.1300	1.1805	1.0678	1.0841	1.1038	1.0182	1.0860	1.0713	1.1976	1.0687	1.0732	1.2644	0.9909
2014	119.10	1.1768	1.1352	1.1869	1.0715	1.0882	1.1084	1.0207	1.0901	1.0751	1.2044	1.0724	1.0770	1.2728	0.9928
2015	122.01	1.1843	1.1417	1.1947	1.0765	1.0936	1.1143	1.0245	1.0956	1.0802	1.2126	1.0774	1.0822	1.2826	0.9959
2016	125.15	1.1914	1.1478	1.2021	1.0809	1.0985	1.1196	1.0276	1.1004	1.0847	1.2204	1.0818	1.0868	1.2922	0.9983
2017	128.51	1.2365	1.1917	1.2474	1.1231	1.1412	1.1629	1.0684	1.1432	1.1270	1.2662	1.1241	1.1291	1.3399	1.0383
2018	131.98	1.2675	1.2215	1.2787	1.1511	1.1696	1.1919	1.0949	1.1716	1.1551	1.2980	1.1520	1.1572	1.3736	1.0641
2019	135.56	1.2829	1.2357	1.2944	1.1635	1.1824	1.2053	1.1058	1.1846	1.1676	1.3142	1.1644	1.1698	1.3918	1.0741
2020	139.20	1.3205	1.2720	1.3322	1.1979	1.2173	1.2408	1.1387	1.2195	1.2021	1.3526	1.1989	1.2043	1.4322	1.1062
2021	142.93	1.3503	1.3006	1.3624	1.2246	1.2445	1.2686	1.1639	1.2468	1.2289	1.3833	1.2256	1.2312	1.4650	1.1305
2022	146.76	1.3939	1.3429	1.4063	1.2649	1.2854	1.3101	1.2026	1.2877	1.2693	1.4277	1.2659	1.2717	1.5116	1.1683
2023	150.69	1.4418	1.3895	1.4545	1.3094	1.3304	1.3558	1.2455	1.3328	1.3139	1.4765	1.3105	1.3164	1.5625	1.2103
2024	154.73	1.4908	1.4371	1.5039	1.3549	1.3765	1.4025	1.2893	1.3789	1.3596	1.5264	1.3560	1.3621	1.6146	1.2533
2025	158.85	1.53	1.47	1.54	1.3894	1.41	1.44	1.32	1.41	1.39	1.57	1.39	1.40	1.66	1.29

(b) Marginal Price Forecasat

Year	Price Deflator	Agriculture	College	Construction	Government	Health	Laundry	Lodging	Misc	Office	Restaurant	Retail	School	TCU	Warehouse
2006	100.00	0.8937	0.9069	0.9003	0.8761	0.8367	0.8655	0.8065	0.8580	0.8517	0.8971	0.8393	0.8476	0.9100	0.7896
2007	102.13	0.9834	1.0008	0.9912	0.9657	0.9184	0.9524	0.8845	0.9436	0.9369	0.9857	0.9218	0.9318	1.0003	0.8650
2008	104.19	1.1012	1.1186	1.1090	1.0835	1.0362	1.0702	1.0023	1.0614	1.0547	1.1035	1.0396	1.0496	1.1181	0.9828
2009	106.41	1.1115	1.1202	1.1171	1.0926	1.0606	1.0848	1.0328	1.0783	1.0721	1.1167	1.0622	1.0690	1.1283	1.0178
2010	108.52	1.0813	1.0900	1.0870	1.0624	1.0304	1.0546	1.0026	1.0482	1.0419	1.0866	1.0321	1.0388	1.0981	0.9877
2011	110.74	1.0542	1.0630	1.0599	1.0354	1.0033	1.0275	0.9756	1.0211	1.0148	1.0595	1.0050	1.0117	1.0711	0.9606
2012	113.37	1.0416	1.0505	1.0473	1.0222	0.9895	1.0142	0.9610	1.0076	1.0012	1.0469	0.9911	0.9980	1.0587	0.9457
2013	116.23	1.0447	1.0538	1.0506	1.0249	0.9913	1.0167	0.9622	1.0099	1.0033	1.0502	0.9930	1.0001	1.0623	0.9465
2014	119.10	1.0478	1.0572	1.0538	1.0275	0.9931	1.0191	0.9633	1.0122	1.0055	1.0534	0.9949	1.0021	1.0658	0.9473
2015	122.01	1.0523	1.0618	1.0584	1.0315	0.9963	1.0229	0.9658	1.0158	1.0089	1.0580	0.9981	1.0055	1.0707	0.9493
2016	125.15	1.0561	1.0659	1.0624	1.0348	0.9987	1.0259	0.9674	1.0187	1.0116	1.0620	1.0005	1.0081	1.0750	0.9505
2017	128.51	1.0976	1.1077	1.1041	1.0758	1.0388	1.0667	1.0066	1.0593	1.0520	1.1037	1.0407	1.0484	1.1171	0.9893
2018	131.98	1.1249	1.1353	1.1316	1.1025	1.0645	1.0932	1.0315	1.0855	1.0781	1.1311	1.0664	1.0744	1.1448	1.0138
2019	135.56	1.1366	1.1472	1.1434	1.1136	1.0746	1.1040	1.0407	1.0962	1.0885	1.1430	1.0766	1.0848	1.1571	1.0225
2020	139.20	1.1703	1.1812	1.1773	1.1467	1.1067	1.1369	1.0719	1.1288	1.1210	1.1768	1.1087	1.1171	1.1913	1.0532
2021	142.93	1.1962	1.2074	1.2035	1.1720	1.1310	1.1620	1.0953	1.1537	1.1457	1.2030	1.1331	1.1417	1.2178	1.0761
2022	146.76	1.2358	1.2473	1.2432	1.2110	1.1688	1.2006	1.1323	1.1922	1.1839	1.2427	1.1710	1.1798	1.2579	1.1126
2023	150.69	1.2796	1.2914	1.2872	1.2541	1.2108	1.2435	1.1733	1.2348	1.2263	1.2866	1.2131	1.2221	1.3023	1.1531
2024	154.73	1.3243	1.3364	1.3321	1.2982	1.2538	1.2873	1.2153	1.2784	1.2697	1.3316	1.2561	1.2654	1.3476	1.1946
2025	158.85	1.36	1.37	1.37	1.33	1.29	1.32	1.25	1.31	1.30	1.37	1.29	1.30	1.38	1.22

Southern California Gas Company
2009 BCAP - Commercial G10
Historical Throughput and Customer Counts

Segment	2006 Therm Sales	2006 Meter Count adj	2006 Meter Count, Existing/Old customers	2006 Meter Count New Customers	Avg Use Per Meter Existing Customers	Avg Use Per Meter New Customers	Price Elasticity	SQFT_2002	CUSTS_2002	(Avg Sqred Ft)_FINAL SQFT	MAS SQFT ADJ	Decay Rates	Employment Elasticities
Office	67,557,094	40,809	40,225	584	1,631	3,397	-0.072000	373,391,175	32,469	6700	6,700	0	0.5048142
Restaurant	241,655,633	36,275	35,502	773	6,572	10,758	-0.001000	81,675,181	33,075	1900	1,900	0	1.1390094
Retail	52,899,387	28,913	28,538	375	1,799	4,189	-0.032000	336,200,061	23,558	14100	14,100	0.0038	0.6699614
Laundry	68,423,917	4,796	4,723	73	14,127	23,309	-0.026000	7,060,754	2,114	1200	1,200	0.00277	0.4107731
Warehouse	25,639,552	8,411	8,330	81	3,039	3,992	0.000000	141,501,953	6,135	12700	12,700	0.00815	0.5413965
School	37,967,674	6,035	5,964	71	6,252	9,609	-0.103000	298,131,638	5,891	38900	38,900	0	0.0000000
College	21,447,663	2,190	2,156	34	9,806	8,995	-0.090000	85,302,580	1,575	37400	37,400	0	0.7344599
Health	49,923,544	8,284	8,247	37	5,934	26,623	-0.052000	153,986,023	8,045	11500	11,500	0	0.1338678
Lodging	56,189,387	4,793	4,756	37	11,432	49,129	-0.013000	99,381,423	4,611	13200	13,200	0	0.4292959
Misc	75,554,888	35,881	35,477	404	2,066	5,658	-0.030000	183,263,444	21,535	15100	15,100	0.00716	0.0000000
Government	22,605,698	3,496	3,452	44	6,280	21,119	-0.061000	60,432,672	2,972	24900	24,900	0	1.6919191
TCU	33,475,346	7,985	7,885	100	4,075	13,453	-0.062000	227,137,401	11,546	19400	19,400	0	0.7235239
Construction	4,609,145	5,476	5,354	122	810	2,234	-0.179000	44,952,529	3,245	6100	6,100	0	0.1063725
Agriculture	36,137,444	1,708	1,699	9	21,151	22,424	-0.059000	122,046,532	1,540	54400	54,400	0	0.6688191

Southern California Gas Company
2009 BCAP - Commercial G10
Average Use Per Meter **therm**

Sector	Space Heater	Water Heater	Cooktop	Griddle	Fryer	Other Cooking Equipment	Kitchen Equipment	AC	Dryer	Engine	Other	Total Building
Office	578	240	29	10	7	30	6	10	29	8	576	1525
Restaurant	441	853	1424	586	1125	1244	303	18	8	0	280	6280
Retail	389	237	86	14	96	165	102	23	44	3	540	1699
Laundry	38	611	5	1	1	7	0	1	6139	0	5717	12521
Warehouse	466	135	19	5	46	53	68	53	155	46	1500	2548
School	3310	1116	189	14	42	347	35	42	7	45	969	6115
College	4291	2120	207	61	106	255	59	268	65	91	2919	10442
Health	1639	1027	165	32	45	127	72	30	225	17	1733	5109
Lodging	1641	3353	463	113	145	564	277	27	873	1	3789	11246
Misc	735	449	91	18	30	75	24	76	29	6	496	2027
Government	2709	1575	138	68	40	114	62	72	37	400	1062	6277
TCU	884	318	28	7	13	25	17	43	3	1386	1466	4188
Construction	291	91	7	0	1	4	2	9	54	0	429	889
Agriculture	2844	689	117	20	243	541	492	7	717	4703	9496	19869

Southern California Gas Company
2009 BCAP
Use Per Meter for New Customers **therm**

Sector	Space Heater	Water Heater	Cooktop	Griddle	Fryer	Other Cooking Equipment	Kitchen Equipment	AC	Dryer	Engine	Other	Total Building
Office	337	2	44	228	0	91	17	0	0	0	1117	1836
Restaurant	1212	1101	1218	718	850	464	803	16	0	0	1370	7752
Retail	671	548	77	18	109	107	499	0	402	1	0	2432
Laundry	0	31	0	0	0	0	0	0	6996	0	5016	12043
Warehouse	109	164	0	184	0	0	946	0	3207	0	0	4610
School	2565	1069	225	1	0	413	12	0	0	0	5285	9570
College	2336	94	0	0	0	0	0	0	0	3948	0	6378
Health	876	1956	205	0	86	82	94	0	97	0	3244	6640
Lodging	504	2958	0	221	292	596	17	0	712	0	21124	26424
Misc	423	50	0	2	0	0	42	0	22	0	7515	8054
Government	0	0	0	0	0	0	0	0	0	0	0	0
TCU	682	26	0	0	0	0	0	0	0	4476	4749	9934
Construction	0	0	0	0	0	0	0	0	0	0	0	0
Agriculture	592	392	0	0	0	0	0	0	0	6394	12316	19694

Southern California Gas Company
2009 BCAP - Commercial G10
UEC, Equipment Cost and Efficiency Shares

Where Fuel = 1 (gas) and = 2 (electric), and
Efficiency =1 (stock), =2 (standard), =3 (high) and =4 (premium)

Business Types	End Use	Fuel	Efficiency	uec (therm/SqFt)	Equipment Cost	efficiency shares
Office	Space_Heat	1	1	0.3046	4.3149	0.65
Office	Space_Heat	1	2	0.2742	4.7464	0.3
Office	Space_Heat	1	3	0.2495	5.1779	0.04
Office	Space_Heat	1	4	0.2248	5.6094	0.01
Office	Space_Heat	2	1	6.2481	3.4519	1
Office	Space_Heat	2	2	5.6233	3.7971	0
Office	Space_Heat	2	3	5.1172	4.1423	0
Office	Space_Heat	2	4	4.6111	4.4875	0
Office	Water_Heat	1	1	0.0474	0.6712	0.4
Office	Water_Heat	1	2	0.0427	0.7384	0.5
Office	Water_Heat	1	3	0.0373	0.8055	0.08
Office	Water_Heat	1	4	0.032	0.8726	0.02
Office	Water_Heat	2	1	0.972	0.537	0.4
Office	Water_Heat	2	2	0.8748	0.5907	0.5
Office	Water_Heat	2	3	0.7654	0.6444	0.08
Office	Water_Heat	2	4	0.6561	0.6981	0.02
Office	Cooking	1	1	0.0346	0.4899	0.65
Office	Cooking	1	2	0.0311	0.5389	0.35
Office	Cooking	2	1	0.7094	0.3919	0.65
Office	Cooking	2	2	0.6385	0.4311	0.35
Office	AC_Compressor	1	1	0.1043	1.4773	0.65
Office	AC_Compressor	1	2	0.0939	1.6251	0.35
Office	AC_Compressor	2	1	2.1392	1.1819	0.65
Office	AC_Compressor	2	2	1.9253	1.3	0.35
Office	Other	1	1	0	0	1
Office	Other	2	1	0	0	0
Restaurant	Space_Heat	1	1	0.1177	1.5841	0.65
Restaurant	Space_Heat	1	2	0.1059	1.7425	0.3
Restaurant	Space_Heat	1	3	0.0964	1.9009	0.04
Restaurant	Space_Heat	1	4	0.0868	2.0593	0.01
Restaurant	Space_Heat	2	1	2.4134	1.2673	1
Restaurant	Space_Heat	2	2	2.1721	1.394	0
Restaurant	Space_Heat	2	3	1.9766	1.5207	0
Restaurant	Space_Heat	2	4	1.7811	1.6474	0
Restaurant	Water_Heat	1	1	0.8666	11.666	0.4
Restaurant	Water_Heat	1	2	0.7799	12.8326	0.5
Restaurant	Water_Heat	1	3	0.6824	13.9992	0.08
Restaurant	Water_Heat	1	4	0.5849	15.1658	0.02
Restaurant	Water_Heat	2	1	17.7736	9.3328	0.4
Restaurant	Water_Heat	2	2	15.9962	10.2661	0.5
Restaurant	Water_Heat	2	3	13.9967	11.1994	0.08
Restaurant	Water_Heat	2	4	11.9972	12.1327	0.02
Restaurant	Cook_top	1	1	1.1985	16.1343	0.65
Restaurant	Cook_top	1	2	1.0787	17.7477	0.35
Restaurant	Cook_top	2	1	24.5811	12.9074	0.65
Restaurant	Cook_top	2	2	22.123	14.1981	0.35
Restaurant	Fryer	1	1	1.0791	14.5274	0.65
Restaurant	Fryer	1	2	0.9712	15.9802	0.35
Restaurant	Fryer	2	1	22.133	11.622	0.65
Restaurant	Fryer	2	2	19.9197	12.7841	0.35
Restaurant	Griddle	1	1	0.9107	12.2603	0.65
Restaurant	Griddle	1	2	0.8197	13.4863	0.35

Business Types	End Use	Fuel	Efficiency	(therm/SqFt)	Equipment Cost	efficiency shares
Restaurant	Griddle	2	1	18.6789	9.8082	0.65
Restaurant	Griddle	2	2	16.8111	10.789	0.35
Restaurant	Other_Cooking	1	1	0.9712	13.0747	0.65
Restaurant	Other_Cooking	1	2	0.8741	14.3822	0.35
Restaurant	Other_Cooking	2	1	19.9197	10.4598	0.65
Restaurant	Other_Cooking	2	2	17.9278	11.5057	0.35
Restaurant	AC_Compressor	1	1	0.2028	2.7306	0.65
Restaurant	AC_Compressor	1	2	0.1826	3.0036	0.35
Restaurant	AC_Compressor	2	1	4.1601	2.1844	0.65
Restaurant	AC_Compressor	2	2	3.7441	2.4029	0.35
Restaurant	Other	1	1	0	0	1
Restaurant	Other	2	1	0	0	0
Retail	Space_Heat	1	1	0.2455	3.5122	0.65
Retail	Space_Heat	1	2	0.221	3.8634	0.3
Retail	Space_Heat	1	3	0.2011	4.2146	0.04
Retail	Space_Heat	1	4	0.1812	4.5658	0.01
Retail	Space_Heat	2	1	5.0356	2.8097	1
Retail	Space_Heat	2	2	4.532	3.0907	0
Retail	Space_Heat	2	3	4.1241	3.3717	0
Retail	Space_Heat	2	4	3.7163	3.6527	0
Retail	Water_Heat	1	1	0.1093	1.563	0.4
Retail	Water_Heat	1	2	0.0983	1.7193	0.5
Retail	Water_Heat	1	3	0.086	1.8756	0.08
Retail	Water_Heat	1	4	0.0738	2.0319	0.02
Retail	Water_Heat	2	1	2.2409	1.2504	0.4
Retail	Water_Heat	2	2	2.0168	1.3754	0.5
Retail	Water_Heat	2	3	1.7647	1.5004	0.08
Retail	Water_Heat	2	4	1.5126	1.6255	0.02
Retail	Cooking	1	1	0.3079	4.4039	0.65
Retail	Cooking	1	2	0.2771	4.8443	0.35
Retail	Cooking	2	1	6.3142	3.5231	0.65
Retail	Cooking	2	2	5.683	3.875	0.35
Retail	Other	1	1	0	0	1
Retail	Other	2	1	0	0	0
Laundry	Space_Heat	1	1	0.147	1.836	0.65
Laundry	Space_Heat	1	2	0.132	2.02	0.3
Laundry	Space_Heat	1	3	0.12	2.203	0.04
Laundry	Space_Heat	1	4	0.108	2.387	0.01
Laundry	Space_Heat	2	1	3.012	1.469	1
Laundry	Space_Heat	2	2	2.711	1.616	0
Laundry	Space_Heat	2	3	2.467	1.763	0
Laundry	Space_Heat	2	4	2.223	1.909	0
Laundry	Water_Heat	1	1	2.76	34.512	0.4
Laundry	Water_Heat	1	2	2.484	37.963	0.5
Laundry	Water_Heat	1	3	2.174	41.414	0.08
Laundry	Water_Heat	1	4	1.863	44.865	0.02
Laundry	Water_Heat	2	1	56.617	27.609	0.4
Laundry	Water_Heat	2	2	50.955	30.37	0.5
Laundry	Water_Heat	2	3	44.586	33.131	0.08
Laundry	Water_Heat	2	4	38.216	35.892	0.02
Laundry	Drying	1	1	14.937	186.738	0.65
Laundry	Drying	1	2	13.443	205.412	0.35
Laundry	Drying	2	1	306.348	149.39	0.65
Laundry	Drying	2	2	275.713	164.329	0.35
Laundry	Other	1	1	0	0	1
Laundry	Other	2	1	0	0	0
Warehouse	Space_Heat	1	1	0.621	7.909	0.65
Warehouse	Space_Heat	1	2	0.559	8.7	0.3
Warehouse	Space_Heat	1	3	0.509	9.491	0.04
Warehouse	Space_Heat	1	4	0.458	10.282	0.01
Warehouse	Space_Heat	2	1	12.739	6.327	1
Warehouse	Space_Heat	2	2	11.465	6.96	0

Business Types	End Use	Fuel	Efficiency	(therm/SqFt)	Equipment Cost	efficiency shares
Warehouse	Space_Heat	2	3	10.433	7.593	0
Warehouse	Space_Heat	2	4	9.401	8.225	0
Warehouse	Water_Heat	1	1	0.205	2.608	0.4
Warehouse	Water_Heat	1	2	0.184	2.869	0.5
Warehouse	Water_Heat	1	3	0.161	3.13	0.08
Warehouse	Water_Heat	1	4	0.138	3.39	0.02
Warehouse	Water_Heat	2	1	4.2	2.086	0.4
Warehouse	Water_Heat	2	2	3.78	2.295	0.5
Warehouse	Water_Heat	2	3	3.308	2.504	0.08
Warehouse	Water_Heat	2	4	2.835	2.712	0.02
Warehouse	Engine	1	1	8.884	113.127	0.65
Warehouse	Engine	1	2	7.995	124.44	0.35
Warehouse	Engine	2	1	182.207	90.502	0.65
Warehouse	Engine	2	2	163.986	99.552	0.35
Warehouse	Other	1	1	0	0	1
Warehouse	Other	2	1	0	0	0
School	Space_Heat	1	1	0.092	1.225	0.65
School	Space_Heat	1	2	0.083	1.348	0.3
School	Space_Heat	1	3	0.076	1.471	0.04
School	Space_Heat	1	4	0.068	1.593	0.01
School	Space_Heat	2	1	1.895	0.98	1
School	Space_Heat	2	2	1.705	1.078	0
School	Space_Heat	2	3	1.552	1.176	0
School	Space_Heat	2	4	1.398	1.274	0
School	Water_Heat	1	1	0.123	1.635	0.4
School	Water_Heat	1	2	0.111	1.799	0.5
School	Water_Heat	1	3	0.097	1.962	0.08
School	Water_Heat	1	4	0.083	2.126	0.02
School	Water_Heat	2	1	2.528	1.308	0.4
School	Water_Heat	2	2	2.276	1.439	0.5
School	Water_Heat	2	3	1.991	1.57	0.08
School	Water_Heat	2	4	1.707	1.701	0.02
School	Cook_top	1	1	0.046	0.61	0.65
School	Cook_top	1	2	0.041	0.671	0.35
School	Cook_top	2	1	0.943	0.488	0.65
School	Cook_top	2	2	0.849	0.537	0.35
School	Fryer	1	1	0.046	0.612	0.65
School	Fryer	1	2	0.041	0.673	0.35
School	Fryer	2	1	0.946	0.489	0.65
School	Fryer	2	2	0.851	0.538	0.35
School	Griddle	1	1	0.046	0.612	0.65
School	Griddle	1	2	0.041	0.673	0.35
School	Griddle	2	1	0.946	0.489	0.65
School	Griddle	2	2	0.851	0.538	0.35
School	Other_Cooking	1	1	0.046	0.61	0.65
School	Other_Cooking	1	2	0.041	0.671	0.35
School	Other_Cooking	2	1	0.943	0.488	0.65
School	Other_Cooking	2	2	0.849	0.537	0.35
School	AC_Compressor	1	1	0.065	0.866	0.65
School	AC_Compressor	1	2	0.059	0.953	0.35
School	AC_Compressor	2	1	1.339	0.693	0.65
School	AC_Compressor	2	2	1.205	0.762	0.35
School	Other	1	1	0	0	1
School	Other	2	1	0	0	0
College	Space_Heat	1	1	0.26643	3.14441	0.65
College	Space_Heat	1	2	0.23979	3.45885	0.3
College	Space_Heat	1	3	0.21821	3.77329	0.04
College	Space_Heat	1	4	0.19663	4.08773	0.01
College	Space_Heat	2	1	5.46443	2.51553	1
College	Space_Heat	2	2	4.91799	2.76708	0
College	Space_Heat	2	3	4.47537	3.01863	0
College	Space_Heat	2	4	4.03275	3.27018	0

Business Types	End Use	Fuel	Efficiency	(therm/SqFt)	Equipment Cost	efficiency shares
College	Water_Heat	1	1	0.28715	3.38894	0.4
College	Water_Heat	1	2	0.25844	3.72784	0.5
College	Water_Heat	1	3	0.22613	4.06673	0.08
College	Water_Heat	1	4	0.19383	4.40563	0.02
College	Water_Heat	2	1	5.88939	2.71116	0.4
College	Water_Heat	2	2	5.30045	2.98227	0.5
College	Water_Heat	2	3	4.6379	3.25339	0.08
College	Water_Heat	2	4	3.97534	3.5245	0.02
College	Cook_top	1	1	0.0486	0.57358	0.65
College	Cook_top	1	2	0.04374	0.63093	0.35
College	Cook_top	2	1	0.99678	0.45886	0.65
College	Cook_top	2	2	0.8971	0.50475	0.35
College	Fryer	1	1	0.04857	0.57322	0.65
College	Fryer	1	2	0.04371	0.63055	0.35
College	Fryer	2	1	0.99616	0.45858	0.65
College	Fryer	2	2	0.89655	0.50444	0.35
College	Griddle	1	1	0.04857	0.57322	0.65
College	Griddle	1	2	0.04371	0.63055	0.35
College	Griddle	2	1	0.99616	0.45858	0.65
College	Griddle	2	2	0.89655	0.50444	0.35
College	Other_Cooking	1	1	0.0486	0.57358	0.65
College	Other_Cooking	1	2	0.04374	0.63093	0.35
College	Other_Cooking	2	1	0.99678	0.45886	0.65
College	Other_Cooking	2	2	0.8971	0.50475	0.35
College	AC_Compressor	1	1	0.11819	1.3949	0.65
College	AC_Compressor	1	2	0.10637	1.53439	0.35
College	AC_Compressor	2	1	2.4241	1.11592	0.65
College	AC_Compressor	2	2	2.18169	1.22752	0.35
College	Other	1	1	0	0	1
College	Other	2	1	0	0	0
Health	Space_Heat	1	1	0.06894	0.8825	0.65
Health	Space_Heat	1	2	0.06205	0.97075	0.3
Health	Space_Heat	1	3	0.05646	1.059	0.04
Health	Space_Heat	1	4	0.05088	1.14725	0.01
Health	Space_Heat	2	1	1.41395	0.706	1
Health	Space_Heat	2	2	1.27255	0.7766	0
Health	Space_Heat	2	3	1.15802	0.8472	0
Health	Space_Heat	2	4	1.04349	0.9178	0
Health	Water_Heat	1	1	0.41709	5.33917	0.4
Health	Water_Heat	1	2	0.37538	5.87309	0.5
Health	Water_Heat	1	3	0.32846	6.407	0.08
Health	Water_Heat	1	4	0.28154	6.94092	0.02
Health	Water_Heat	2	1	8.55444	4.27134	0.4
Health	Water_Heat	2	2	7.699	4.69847	0.5
Health	Water_Heat	2	3	6.73662	5.1256	0.08
Health	Water_Heat	2	4	5.77425	5.55274	0.02
Health	Cook_top	1	1	0.26358	3.37409	0.65
Health	Cook_top	1	2	0.23722	3.7115	0.35
Health	Cook_top	2	1	5.40598	2.69927	0.65
Health	Cook_top	2	2	4.86538	2.9692	0.35
Health	Fryer	1	1	0.26358	3.37409	0.65
Health	Fryer	1	2	0.23722	3.7115	0.35
Health	Fryer	2	1	5.40598	2.69927	0.65
Health	Fryer	2	2	4.86538	2.9692	0.35
Health	Griddle	1	1	0.26358	3.37409	0.65
Health	Griddle	1	2	0.23722	3.7115	0.35
Health	Griddle	2	1	5.40598	2.69927	0.65
Health	Griddle	2	2	4.86538	2.9692	0.35
Health	Other_Cooking	1	1	0.02636	0.33743	0.65
Health	Other_Cooking	1	2	0.02372	0.37118	0.35
Health	Other_Cooking	2	1	0.54064	0.26995	0.65
Health	Other_Cooking	2	2	0.48657	0.29694	0.35

Business Types	End Use	Fuel	Efficiency	(therm/SqFt)	Equipment Cost	efficiency shares
Health	Drying	1	1	0.14598	1.86871	0.65
Health	Drying	1	2	0.13138	2.05558	0.35
Health	Drying	2	1	2.99405	1.49497	0.65
Health	Drying	2	2	2.69465	1.64446	0.35
Health	AC_Compressor	1	1	0.11386	1.45749	0.65
Health	AC_Compressor	1	2	0.10247	1.60324	0.35
Health	AC_Compressor	2	1	2.3352	1.16599	0.65
Health	AC_Compressor	2	2	2.10168	1.28259	0.35
Health	Other	1	1	0	0	1
Health	Other	2	1	0	0	0
Lodging	Space_Heat	1	1	0.38698	4.85892	0.65
Lodging	Space_Heat	1	2	0.3483	5.3448	0.3
Lodging	Space_Heat	1	3	0.3169	5.8307	0.04
Lodging	Space_Heat	1	4	0.2856	6.3166	0.01
Lodging	Space_Heat	2	1	7.9369	3.8871	1
Lodging	Space_Heat	2	2	7.1432	4.2759	
Lodging	Space_Heat	2	3	6.5003	4.6646	
Lodging	Space_Heat	2	4	5.8574	5.0533	
Lodging	Water_Heat	1	1	0.6901	8.6651	0.4
Lodging	Water_Heat	1	2	0.6211	9.5317	0.5
Lodging	Water_Heat	1	3	0.5435	10.3982	0.08
Lodging	Water_Heat	1	4	0.4658	11.2647	0.02
Lodging	Water_Heat	2	1	14.1542	6.9321	0.4
Lodging	Water_Heat	2	2	12.7388	7.6253	0.5
Lodging	Water_Heat	2	3	11.1465	8.3185	0.08
Lodging	Water_Heat	2	4	9.5541	9.0118	0.02
Lodging	Cook_top	1	1	0.321	4.0305	0.65
Lodging	Cook_top	1	2	0.2889	4.4335	0.35
Lodging	Cook_top	2	1	6.5837	3.2244	0.65
Lodging	Cook_top	2	2	5.9253	3.5468	0.35
Lodging	Fryer	1	1	0.4183	5.2524	0.65
Lodging	Fryer	1	2	0.3765	5.7777	0.35
Lodging	Fryer	2	1	8.5797	4.2019	0.65
Lodging	Fryer	2	2	7.7217	4.6221	0.35
Lodging	Griddle	1	1	0.4183	5.2524	0.65
Lodging	Griddle	1	2	0.3765	5.7777	0.35
Lodging	Griddle	2	1	8.5797	4.2019	0.65
Lodging	Griddle	2	2	7.7217	4.6221	0.35
Lodging	Other_Cooking	1	1	0.041	0.5148	0.65
Lodging	Other_Cooking	1	2	0.0369	0.5663	0.35
Lodging	Other_Cooking	2	1	0.8409	0.4118	0.65
Lodging	Other_Cooking	2	2	0.7568	0.453	0.35
Lodging	Drying	1	1	0.1725	2.1663	0.65
Lodging	Drying	1	2	0.1553	2.3829	0.35
Lodging	Drying	2	1	3.5386	1.733	0.65
Lodging	Drying	2	2	3.1847	1.9063	0.35
Lodging	AC_Compressor	1	1	0.057	0.7157	0.65
Lodging	AC_Compressor	1	2	0.0513	0.7872	0.35
Lodging	AC_Compressor	2	1	1.169	0.5725	0.65
Lodging	AC_Compressor	2	2	1.0521	0.6298	0.35
Lodging	Other	1	1	0	0	1
Lodging	Other	2	1	0	0	0
Misc	Space_Heat	1	1	0.1469	2.1455	0.65
Misc	Space_Heat	1	2	0.1322	2.36	0.3
Misc	Space_Heat	1	3	0.1203	2.5746	0.04
Misc	Space_Heat	1	4	0.1084	2.7891	0.01
Misc	Space_Heat	2	1	3.0121	1.7164	1
Misc	Space_Heat	2	2	2.7109	1.888	0
Misc	Space_Heat	2	3	2.4669	2.0597	0
Misc	Space_Heat	2	4	2.2229	2.2313	0
Misc	Water_Heat	1	1	0.2013	2.9412	0.4
Misc	Water_Heat	1	2	0.1812	3.2354	0.5

Business Types	End Use	Fuel	Efficiency	(therm/SqFt)	Equipment Cost	efficiency shares
Misc	Water_Heat	1	3	0.1585	3.5295	0.08
Misc	Water_Heat	1	4	0.1359	3.8236	0.02
Misc	Water_Heat	2	1	4.1292	2.353	0.4
Misc	Water_Heat	2	2	3.7163	2.5883	0.5
Misc	Water_Heat	2	3	3.2518	2.8236	0.08
Misc	Water_Heat	2	4	2.7872	3.0589	0.02
Misc	Cook_top	1	1	0.043	0.6282	0.65
Misc	Cook_top	1	2	0.0387	0.691	0.35
Misc	Cook_top	2	1	0.8819	0.5025	0.65
Misc	Cook_top	2	2	0.7937	0.5528	0.35
Misc	Fryer	1	1	0.043	0.6285	0.65
Misc	Fryer	1	2	0.0387	0.6913	0.35
Misc	Fryer	2	1	0.8823	0.5028	0.65
Misc	Fryer	2	2	0.7941	0.5531	0.35
Misc	Griddle	1	1	0.043	0.6285	0.65
Misc	Griddle	1	2	0.0387	0.6913	0.35
Misc	Griddle	2	1	0.8823	0.5028	0.65
Misc	Griddle	2	2	0.7941	0.5531	0.35
Misc	Other_Cooking	1	1	0.043	0.6282	0.65
Misc	Other_Cooking	1	2	0.0387	0.691	0.35
Misc	Other_Cooking	2	1	0.8819	0.5025	0.65
Misc	Other_Cooking	2	2	0.7937	0.5528	0.35
Misc	AC_Compressor	1	1	0.1322	1.9306	0.65
Misc	AC_Compressor	1	2	0.1189	2.1237	0.35
Misc	AC_Compressor	2	1	2.7104	1.5445	0.65
Misc	AC_Compressor	2	2	2.4394	1.6989	0.35
Misc	Other	1	1	0	0	1
Misc	Other	2	1	0	0	0
Government	Space_Heat	1	1	0.3046	3.815	0.65
Government	Space_Heat	1	2	0.2742	4.1965	0.3
Government	Space_Heat	1	3	0.2495	4.578	0.04
Government	Space_Heat	1	4	0.2248	4.9595	0.01
Government	Space_Heat	2	1	6.2481	3.052	1
Government	Space_Heat	2	2	5.6233	3.3572	0
Government	Space_Heat	2	3	5.1172	3.6624	0
Government	Space_Heat	2	4	4.6111	3.9676	0
Government	Water_Heat	1	1	0.0474	0.5935	0.4
Government	Water_Heat	1	2	0.0427	0.6528	0.5
Government	Water_Heat	1	3	0.0373	0.7122	0.08
Government	Water_Heat	1	4	0.032	0.7715	0.02
Government	Water_Heat	2	1	0.972	0.4748	0.4
Government	Water_Heat	2	2	0.8748	0.5222	0.5
Government	Water_Heat	2	3	0.7654	0.5697	0.08
Government	Water_Heat	2	4	0.6561	0.6172	0.02
Government	Cook_top	1	1	0.0346	0.4333	0.65
Government	Cook_top	1	2	0.0311	0.4766	0.35
Government	Cook_top	2	1	0.7096	0.3466	0.65
Government	Cook_top	2	2	0.6387	0.3813	0.35
Government	Fryer	1	1	0.0346	0.4332	0.65
Government	Fryer	1	2	0.0311	0.4765	0.35
Government	Fryer	2	1	0.7094	0.3465	0.65
Government	Fryer	2	2	0.6385	0.3812	0.35
Government	Griddle	1	1	0.0346	0.4332	0.65
Government	Griddle	1	2	0.0311	0.4765	0.35
Government	Griddle	2	1	0.7094	0.3465	0.65
Government	Griddle	2	2	0.6385	0.3812	0.35
Government	Other_Cooking	1	1	0.0346	0.4333	0.65
Government	Other_Cooking	1	2	0.0311	0.4766	0.35
Government	Other_Cooking	2	1	0.7096	0.3466	0.65
Government	Other_Cooking	2	2	0.6387	0.3813	0.35
Government	AC_Compressor	1	1	0.1043	1.3062	0.65
Government	AC_Compressor	1	2	0.0939	1.4368	0.35

Business Types	End Use	Fuel	Efficiency	(therm/SqFt)	Equipment Cost	efficiency shares
Government	AC_Compressor	2	1	2.1392	1.0449	0.65
Government	AC_Compressor	2	2	1.9253	1.1494	0.35
Government	Other	1	1	0	0	1
Government	Other	2	1	0	0	0
TCU	Space_Heat	1	1	0.1469	1.8457	0.65
TCU	Space_Heat	1	2	0.1322	2.0303	0.3
TCU	Space_Heat	1	3	0.1203	2.2149	0.04
TCU	Space_Heat	1	4	0.1084	2.3995	0.01
TCU	Space_Heat	2	1	3.0121	1.4766	1
TCU	Space_Heat	2	2	2.7109	1.6242	0
TCU	Space_Heat	2	3	2.4669	1.7719	0
TCU	Space_Heat	2	4	2.2229	1.9196	0
TCU	Water_Heat	1	1	0.2013	2.5303	0.4
TCU	Water_Heat	1	2	0.1812	2.7833	0.5
TCU	Water_Heat	1	3	0.1585	3.0364	0.08
TCU	Water_Heat	1	4	0.1359	3.2894	0.02
TCU	Water_Heat	2	1	4.1292	2.0243	0.4
TCU	Water_Heat	2	2	3.7163	2.2267	0.5
TCU	Water_Heat	2	3	3.2518	2.4291	0.08
TCU	Water_Heat	2	4	2.7872	2.6315	0.02
TCU	Engine	1	1	2.4409	30.6768	0.65
TCU	Engine	1	2	2.1968	33.7445	0.35
TCU	Engine	2	1	50.0617	24.5415	0.65
TCU	Engine	2	2	45.0556	26.9956	0.35
TCU	Other	1	1	0	0	1
TCU	Other	2	1	0	0	0
Construction	Space_Heat	1	1	0.1469	2.2951	0.65
Construction	Space_Heat	1	2	0.1322	2.5246	0.3
Construction	Space_Heat	1	3	0.1203	2.7542	0.04
Construction	Space_Heat	1	4	0.1084	2.9837	0.01
Construction	Space_Heat	2	1	3.0121	1.8361	1
Construction	Space_Heat	2	2	2.7109	2.0197	0
Construction	Space_Heat	2	3	2.4669	2.2033	0
Construction	Space_Heat	2	4	2.2229	2.3869	0
Construction	Water_Heat	1	1	0.2013	3.1464	0.4
Construction	Water_Heat	1	2	0.1812	3.461	0.5
Construction	Water_Heat	1	3	0.1585	3.7757	0.08
Construction	Water_Heat	1	4	0.1359	4.0903	0.02
Construction	Water_Heat	2	1	4.1292	2.5171	0.4
Construction	Water_Heat	2	2	3.7163	2.7688	0.5
Construction	Water_Heat	2	3	3.2518	3.0205	0.08
Construction	Water_Heat	2	4	2.7872	3.2722	0.02
Construction	Other	1	1	0	0	1
Construction	Other	2	1	0	0	0
Agriculture	Space_Heat	1	1	0.1469	1.6583	0.65
Agriculture	Space_Heat	1	2	0.1322	1.8242	0.3
Agriculture	Space_Heat	1	3	0.1203	1.99	0.04
Agriculture	Space_Heat	1	4	0.1084	2.1558	0.01
Agriculture	Space_Heat	2	1	3.0121	1.3267	1
Agriculture	Space_Heat	2	2	2.7109	1.4593	0
Agriculture	Space_Heat	2	3	2.4669	1.592	0
Agriculture	Space_Heat	2	4	2.2229	1.7247	0
Agriculture	Water_Heat	1	1	0.2013	2.2734	0.4
Agriculture	Water_Heat	1	2	0.1812	2.5008	0.5
Agriculture	Water_Heat	1	3	0.1585	2.7281	0.08
Agriculture	Water_Heat	1	4	0.1359	2.9554	0.02
Agriculture	Water_Heat	2	1	4.1292	1.8187	0.4
Agriculture	Water_Heat	2	2	3.7163	2.0006	0.5
Agriculture	Water_Heat	2	3	3.2518	2.1825	0.08
Agriculture	Water_Heat	2	4	2.7872	2.3644	0.02
Agriculture	Drying	1	1	0.2013	2.2734	0.65
Agriculture	Drying	1	2	0.1812	2.5008	0.35

Business Types	End Use	Fuel	Efficiency	(therm/SqFt)	Equipment Cost	efficiency shares
Agriculture	Drying	2	1	4.1292	1.8187	0.65
Agriculture	Drying	2	2	3.7163	2.0006	0.35
Agriculture	Engine	1	1	0.8657	9.7757	0.65
Agriculture	Engine	1	2	0.7791	10.7533	0.35
Agriculture	Engine	2	1	17.7557	7.8206	0.65
Agriculture	Engine	2	2	15.9802	8.6026	0.35
Agriculture	Other	1	1	0	0	1
Agriculture	Other	2	1	0	0	0

Southern California Gas Company
2009 BCAP - Commercial G10
Fuel Market Share

Where Fuel = 1 (gas) and 2 (electric)

Business Types	End Use	Fuel	Share
Office	Space_Heat	1	0.8555
Office	Space_Heat	2	0.1445
Office	Water_Heat	1	0.16581
Office	Water_Heat	2	0.83419
Office	Cooking	1	0.02069
Office	Cooking	2	0.97931
Office	AC_Compressor	1	0.06
Office	AC_Compressor	2	0.94
Office	Other	1	1
Restaurant	Space_Heat	1	0.59046
Restaurant	Space_Heat	2	0.40954
Restaurant	Water_Heat	1	0.90204
Restaurant	Water_Heat	2	0.09796
Restaurant	Cook_top	1	0.97733
Restaurant	Cook_top	2	0.02267
Restaurant	Fryer	1	0.90535
Restaurant	Fryer	2	0.09465
Restaurant	Griddle	1	0.97038
Restaurant	Griddle	2	0.02962
Restaurant	Other_Cooking	1	0.66
Restaurant	Other_Cooking	2	0.34
Restaurant	AC_Compressor	1	0.06
Restaurant	AC_Compressor	2	0.94
Restaurant	Other	1	1
Retail	Space_Heat	1	0.51751
Retail	Space_Heat	2	0.48249
Retail	Water_Heat	1	0.31008
Retail	Water_Heat	2	0.68992
Retail	Cooking	1	0.09367
Retail	Cooking	2	0.90633
Retail	Other	1	1
Laundry	Space_Heat	1	0.57692
Laundry	Space_Heat	2	0.42308
Laundry	Water_Heat	1	0.67647
Laundry	Water_Heat	2	0.32353
Laundry	Drying	1	0.6
Laundry	Drying	2	0.4
Laundry	Other	1	1
Warehouse	Space_Heat	1	0.43723
Warehouse	Space_Heat	2	0.56277
Warehouse	Water_Heat	1	0.07159
Warehouse	Water_Heat	2	0.92841
Warehouse	Engine	1	0.06
Warehouse	Engine	2	0.94
Warehouse	Other	1	1
School	Space_Heat	1	0.75284
School	Space_Heat	2	0.24716
School	Water_Heat	1	0.75843
School	Water_Heat	2	0.24157
School	Cook_top	1	0.42857
School	Cook_top	2	0.57143
School	Fryer	1	0.42857
School	Fryer	2	0.57143
School	Griddle	1	0.42857

Business Types	End Use	Fuel	Share
School	Griddle	2	0.57143
School	Other_Cooking	1	0.42857
School	Other_Cooking	2	0.57143
School	AC_Compressor	1	0.06
School	AC_Compressor	2	0.94
School	Other	1	1
College	Space_Heat	1	0.33028
College	Space_Heat	2	0.66972
College	Water_Heat	1	0.81675
College	Water_Heat	2	0.18325
College	Cook_top	1	0.04801
College	Cook_top	2	0.95199
College	Fryer	1	0.04801
College	Fryer	2	0.95199
College	Griddle	1	0.04801
College	Griddle	2	0.95199
College	Other_Cooking	1	0.04801
College	Other_Cooking	2	0.95199
College	AC_Compressor	1	0.06
College	AC_Compressor	2	0.94
College	Other	1	1
Health	Space_Heat	1	0.66026
Health	Space_Heat	2	0.33974
Health	Water_Heat	1	0.8242
Health	Water_Heat	2	0.1758
Health	Cook_top	1	0.09487
Health	Cook_top	2	0.90513
Health	Fryer	1	0.09487
Health	Fryer	2	0.90513
Health	Griddle	1	0.09487
Health	Griddle	2	0.90513
Health	Other_Cooking	1	0.66
Health	Other_Cooking	2	0.34
Health	Drying	1	0.6
Health	Drying	2	0.4
Health	AC_Compressor	1	0.06
Health	AC_Compressor	2	0.94
Health	Other	1	1
Lodging	Space_Heat	1	0.27151
Lodging	Space_Heat	2	0.72849
Lodging	Water_Heat	1	0.98948
Lodging	Water_Heat	2	0.01052
Lodging	Cook_top	1	0.44958
Lodging	Cook_top	2	0.55042
Lodging	Fryer	1	0.44958
Lodging	Fryer	2	0.55042
Lodging	Griddle	1	0.44958
Lodging	Griddle	2	0.55042
Lodging	Other_Cooking	1	0.44958
Lodging	Other_Cooking	2	0.55042
Lodging	Drying	1	0.6
Lodging	Drying	2	0.4
Lodging	AC_Compressor	1	0.06
Lodging	AC_Compressor	2	0.94
Lodging	Other	1	1
Misc	Space_Heat	1	0.54964
Misc	Space_Heat	2	0.45036
Misc	Water_Heat	1	0.55691
Misc	Water_Heat	2	0.44309
Misc	Cook_top	1	0.97733
Misc	Cook_top	2	0.02267
Misc	Fryer	1	0.90535
Misc	Fryer	2	0.09465

Business Types	End Use	Fuel	Share
Misc	Griddle	1	0.97038
Misc	Griddle	2	0.02962
Misc	Other_Cooking	1	0.66
Misc	Other_Cooking	2	0.34
Misc	AC_Compressor	1	0.06
Misc	AC_Compressor	2	0.94
Misc	Other	1	1
Government	Space_Heat	1	0.8555
Government	Space_Heat	2	0.1445
Government	Water_Heat	1	0.16581
Government	Water_Heat	2	0.83419
Government	Cook_top	1	0.97733
Government	Cook_top	2	0.02267
Government	Fryer	1	0.90535
Government	Fryer	2	0.09465
Government	Griddle	1	0.97038
Government	Griddle	2	0.02962
Government	Other_Cooking	1	0.66
Government	Other_Cooking	2	0.34
Government	AC_Compressor	1	0.06
Government	AC_Compressor	2	0.94
Government	Other	1	1
TCU	Space_Heat	1	0.57692
TCU	Space_Heat	2	0.42308
TCU	Water_Heat	1	0.67647
TCU	Water_Heat	2	0.32353
TCU	Engine	1	0.06
TCU	Engine	2	0.94
TCU	Other	1	1
Construction	Space_Heat	1	0.57692
Construction	Space_Heat	2	0.42308
Construction	Water_Heat	1	0.67647
Construction	Water_Heat	2	0.32353
Construction	Other	1	1
Agriculture	Space_Heat	1	0.57692
Agriculture	Space_Heat	2	0.42308
Agriculture	Water_Heat	1	0.67647
Agriculture	Water_Heat	2	0.32353
Agriculture	Drying	1	1
Agriculture	Drying	2	0
Agriculture	Engine	1	0.06
Agriculture	Engine	2	0.94
Agriculture	Other	1	1
Grocery	Space_Heat	1	0.74652
Grocery	Space_Heat	2	0.25348
Grocery	Water_Heat	1	0.70846
Grocery	Water_Heat	2	0.29154
Grocery	Cook_top	1	0.35627
Grocery	Cook_top	2	0.64373
Grocery	Fryer	1	0.35627
Grocery	Fryer	2	0.64373
Grocery	Griddle	1	0.35627
Grocery	Griddle	2	0.64373
Grocery	Other_Cooking	1	0.35627
Grocery	Other_Cooking	2	0.64373
Grocery	AC_Compressor	1	0.06
Grocery	AC_Compressor	2	0.94
Grocery	Other	1	1

The SAS System 15:03 Friday, July 9, 2004 1

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scg_comcore_effshares_clean

Obs	bname	nname	b	n	f	e	effshare
1	Office	Space_Heat	1	1	1	1	0.65
2	Office	Space_Heat	1	1	1	2	0.3
3	Office	Space_Heat	1	1	1	3	0.04
4	Office	Space_Heat	1	1	1	4	0.01
5	Office	Space_Heat	1	1	2	1	1
					2	2	0
					2	3	0
					2	4	0
6	Office	Water_Heat	1	2	1	1	0.4
7	Office	Water_Heat	1	2	1	2	0.5
8	Office	Water_Heat	1	2	1	3	0.08
9	Office	Water_Heat	1	2	1	4	0.02
10	Office	Water_Heat	1	2	2	1	0.4
11	Office	Water_Heat	1	2	2	2	0.5
12	Office	Water_Heat	1	2	2	3	0.08
13	Office	Water_Heat	1	2	2	4	0.02
14	Office	Cooking	1	3	1	1	0.65
15	Office	Cooking	1	3	1	2	0.35
16	Office	Cooking	1	3	2	1	0.65
17	Office	Cooking	1	3	2	2	0.35
18	Office	AC_Compressor	1	10	1	1	0.65
19	Office	AC_Compressor	1	10	1	2	0.35
20	Office	AC_Compressor	1	10	2	1	0.65
21	Office	AC_Compressor	1	10	2	2	0.35
22	Office	Other	1	11	1	1	1
					2	1	0
23	Restaurant	Space_Heat	2	1	1	1	0.65
24	Restaurant	Space_Heat	2	1	1	2	0.3
25	Restaurant	Space_Heat	2	1	1	3	0.04
26	Restaurant	Space_Heat	2	1	1	4	0.01
27	Restaurant	Space_Heat	2	1	2	1	1
					2	2	0
					2	3	0
					2	4	0
28	Restaurant	Water_Heat	2	2	1	1	0.4
29	Restaurant	Water_Heat	2	2	1	2	0.5
30	Restaurant	Water_Heat	2	2	1	3	0.08
31	Restaurant	Water_Heat	2	2	1	4	0.02
32	Restaurant	Water_Heat	2	2	2	1	0.4
33	Restaurant	Water_Heat	2	2	2	2	0.5
34	Restaurant	Water_Heat	2	2	2	3	0.08
35	Restaurant	Water_Heat	2	2	2	4	0.02
36	Restaurant	Cook_top	2	4	1	1	0.65
37	Restaurant	Cook_top	2	4	1	2	0.35
38	Restaurant	Cook_top	2	4	2	1	0.65
39	Restaurant	Cook_top	2	4	2	2	0.35
40	Restaurant	Fryer	2	5	1	1	0.65
41	Restaurant	Fryer	2	5	1	2	0.35
42	Restaurant	Fryer	2	5	2	1	0.65
43	Restaurant	Fryer	2	5	2	2	0.35
44	Restaurant	Griddle	2	6	1	1	0.65
45	Restaurant	Griddle	2	6	1	2	0.35
46	Restaurant	Griddle	2	6	2	1	0.65
47	Restaurant	Griddle	2	6	2	2	0.35
48	Restaurant	Other_Cooking	2	7	1	1	0.65
49	Restaurant	Other_Cooking	2	7	1	2	0.35
50	Restaurant	Other_Cooking	2	7	2	1	0.65
51	Restaurant	Other_Cooking	2	7	2	2	0.35
52	Restaurant	AC_Compressor	2	10	1	1	0.65
53	Restaurant	AC_Compressor	2	10	1	2	0.35
54	Restaurant	AC_Compressor	2	10	2	1	0.65
55	Restaurant	AC_Compressor	2	10	2	2	0.35
56	Restaurant	Other	2	11	1	1	1
					2	1	0

Obs	bname	nname	b	n	f	e	effshare
57	Retail	Space_Heat	3	1	1	1	0.65
58	Retail	Space_Heat	3	1	1	2	0.3
59	Retail	Space_Heat	3	1	1	3	0.04
60	Retail	Space_Heat	3	1	1	4	0.01
61	Retail	Space_Heat	3	1	2	1	1
					2	2	0
					2	3	0
					2	4	0
62	Retail	Water_Heat	3	2	1	1	0.4
63	Retail	Water_Heat	3	2	1	2	0.5
64	Retail	Water_Heat	3	2	1	3	0.08
65	Retail	Water_Heat	3	2	1	4	0.02
66	Retail	Water_Heat	3	2	2	1	0.4
67	Retail	Water_Heat	3	2	2	2	0.5
68	Retail	Water_Heat	3	2	2	3	0.08
69	Retail	Water_Heat	3	2	2	4	0.02
70	Retail	Cooking	3	3	1	1	0.65
71	Retail	Cooking	3	3	1	2	0.35
72	Retail	Cooking	3	3	2	1	0.65
73	Retail	Cooking	3	3	2	2	0.35
74	Retail	Other	3	11	1	1	1
					2	1	0
75	Laundry	Space_Heat	4	1	1	1	0.65
76	Laundry	Space_Heat	4	1	1	2	0.3
77	Laundry	Space_Heat	4	1	1	3	0.04
78	Laundry	Space_Heat	4	1	1	4	0.01
79	Laundry	Space_Heat	4	1	2	1	1
					2	2	0
					2	3	0
					2	4	0
80	Laundry	Water_Heat	4	2	1	1	0.4
81	Laundry	Water_Heat	4	2	1	2	0.5
82	Laundry	Water_Heat	4	2	1	3	0.08
83	Laundry	Water_Heat	4	2	1	4	0.02
84	Laundry	Water_Heat	4	2	2	1	0.4
85	Laundry	Water_Heat	4	2	2	2	0.5
86	Laundry	Water_Heat	4	2	2	3	0.08
87	Laundry	Water_Heat	4	2	2	4	0.02
88	Laundry	Drying	4	8	1	1	0.65
89	Laundry	Drying	4	8	1	2	0.35
90	Laundry	Drying	4	8	2	1	0.65
91	Laundry	Drying	4	8	2	2	0.35
92	Laundry	Other	4	11	1	1	1
					2	1	0
93	Warehouse	Space_Heat	5	1	1	1	0.65
94	Warehouse	Space_Heat	5	1	1	2	0.3
95	Warehouse	Space_Heat	5	1	1	3	0.04
96	Warehouse	Space_Heat	5	1	1	4	0.01
97	Warehouse	Space_Heat	5	1	2	1	1
					2	2	0
					2	3	0
					2	4	0
98	Warehouse	Water_Heat	5	2	1	1	0.4
99	Warehouse	Water_Heat	5	2	1	2	0.5
100	Warehouse	Water_Heat	5	2	1	3	0.08
101	Warehouse	Water_Heat	5	2	1	4	0.02
102	Warehouse	Water_Heat	5	2	2	1	0.4
103	Warehouse	Water_Heat	5	2	2	2	0.5
104	Warehouse	Water_Heat	5	2	2	3	0.08
105	Warehouse	Water_Heat	5	2	2	4	0.02
106	Warehouse	Engine	5	9	1	1	0.65
107	Warehouse	Engine	5	9	1	2	0.35
108	Warehouse	Engine	5	9	2	1	0.65
109	Warehouse	Engine	5	9	2	2	0.35
110	Warehouse	Other	5	11	1	1	1
					2	1	0
111	School	Space_Heat	6	1	1	1	0.65

Obs	bname	nname	b	n	f	e	effshare
112	School	Space_Heat	6	1	1	2	0.3
113	School	Space_Heat	6	1	1	3	0.04
114	School	Space_Heat	6	1	1	4	0.01
115	School	Space_Heat	6	1	2	1	1
					2		0
					2		0
					2		0
116	School	Water_Heat	6	2	1	1	0.4
117	School	Water_Heat	6	2	1	2	0.5
118	School	Water_Heat	6	2	1	3	0.08
119	School	Water_Heat	6	2	1	4	0.02
120	School	Water_Heat	6	2	2	1	0.4
121	School	Water_Heat	6	2	2	2	0.5
122	School	Water_Heat	6	2	2	3	0.08
123	School	Water_Heat	6	2	2	4	0.02
124	School	Cook_top	6	4	1	1	0.65
125	School	Cook_top	6	4	1	2	0.35
126	School	Cook_top	6	4	2	1	0.65
127	School	Cook_top	6	4	2	2	0.35
128	School	Fryer	6	5	1	1	0.65
129	School	Fryer	6	5	1	2	0.35
130	School	Fryer	6	5	2	1	0.65
131	School	Fryer	6	5	2	2	0.35
132	School	Griddle	6	6	1	1	0.65
133	School	Griddle	6	6	1	2	0.35
134	School	Griddle	6	6	2	1	0.65
135	School	Griddle	6	6	2	2	0.35
136	School	Other_Cooking	6	7	1	1	0.65
137	School	Other_Cooking	6	7	1	2	0.35
138	School	Other_Cooking	6	7	2	1	0.65
139	School	Other_Cooking	6	7	2	2	0.35
140	School	AC_Compressor	6	10	1	1	0.65
141	School	AC_Compressor	6	10	1	2	0.35
142	School	AC_Compressor	6	10	2	1	0.65
143	School	AC_Compressor	6	10	2	2	0.35
144	School	Other	6	11	1	1	1
							0
145	College	Space_Heat	7	1	1	1	0.65
146	College	Space_Heat	7	1	1	2	0.3
147	College	Space_Heat	7	1	1	3	0.04
148	College	Space_Heat	7	1	1	4	0.01
149	College	Space_Heat	7	1	2	1	1
					2	2	0
					2	3	0
					2	4	0
150	College	Water_Heat	7	2	1	1	0.4
151	College	Water_Heat	7	2	1	2	0.5
152	College	Water_Heat	7	2	1	3	0.08
153	College	Water_Heat	7	2	1	4	0.02
154	College	Water_Heat	7	2	2	1	0.4
155	College	Water_Heat	7	2	2	2	0.5
156	College	Water_Heat	7	2	2	3	0.08
157	College	Water_Heat	7	2	2	4	0.02
158	College	Cook_top	7	4	1	1	0.65
159	College	Cook_top	7	4	1	2	0.35
160	College	Cook_top	7	4	2	1	0.65
161	College	Cook_top	7	4	2	2	0.35
162	College	Fryer	7	5	1	1	0.65
163	College	Fryer	7	5	1	2	0.35
164	College	Fryer	7	5	2	1	0.65
165	College	Fryer	7	5	2	2	0.35
166	College	Griddle	7	6	1	1	0.65
167	College	Griddle	7	6	1	2	0.35
168	College	Griddle	7	6	2	1	0.65
169	College	Griddle	7	6	2	2	0.35
170	College	Other_Cooking	7	7	1	1	0.65
171	College	Other_Cooking	7	7	1	2	0.35

Obs	bname	nname	b	n	f	e	effshare
172	College	Other_Cooking	7	7	2	1	0.65
173	College	Other_Cooking	7	7	2	2	0.35
174	College	AC_Compressor	7	10	1	1	0.65
175	College	AC_Compressor	7	10	1	2	0.35
176	College	AC_Compressor	7	10	2	1	0.65
177	College	AC_Compressor	7	10	2	2	0.35
178	College	Other	7	11	1	1	1
					2	1	0
179	Health	Space_Heat	8	1	1	1	0.65
180	Health	Space_Heat	8	1	1	2	0.3
181	Health	Space_Heat	8	1	1	3	0.04
182	Health	Space_Heat	8	1	1	4	0.01
183	Health	Space_Heat	8	1	2	1	1
					2	2	0
					2	3	0
					2	4	0
184	Health	Water_Heat	8	2	1	1	0.4
185	Health	Water_Heat	8	2	1	2	0.5
186	Health	Water_Heat	8	2	1	3	0.08
187	Health	Water_Heat	8	2	1	4	0.02
188	Health	Water_Heat	8	2	2	1	0.4
189	Health	Water_Heat	8	2	2	2	0.5
190	Health	Water_Heat	8	2	2	3	0.08
191	Health	Water_Heat	8	2	2	4	0.02
192	Health	Cook_top	8	4	1	1	0.65
193	Health	Cook_top	8	4	1	2	0.35
194	Health	Cook_top	8	4	2	1	0.65
195	Health	Cook_top	8	4	2	2	0.35
196	Health	Fryer	8	5	1	1	0.65
197	Health	Fryer	8	5	1	2	0.35
198	Health	Fryer	8	5	2	1	0.65
199	Health	Fryer	8	5	2	2	0.35
200	Health	Griddle	8	6	1	1	0.65
201	Health	Griddle	8	6	1	2	0.35
202	Health	Griddle	8	6	2	1	0.65
203	Health	Griddle	8	6	2	2	0.35
204	Health	Other_Cooking	8	7	1	1	0.65
205	Health	Other_Cooking	8	7	1	2	0.35
206	Health	Other_Cooking	8	7	2	1	0.65
207	Health	Other_Cooking	8	7	2	2	0.35
208	Health	Drying	8	8	1	1	0.65
209	Health	Drying	8	8	1	2	0.35
210	Health	Drying	8	8	2	1	0.65
211	Health	Drying	8	8	2	2	0.35
212	Health	AC_Compressor	8	10	1	1	0.65
213	Health	AC_Compressor	8	10	1	2	0.35
214	Health	AC_Compressor	8	10	2	1	0.65
215	Health	AC_Compressor	8	10	2	2	0.35
216	Health	Other	8	11	1	1	1
					2	1	0
217	Lodging	Space_Heat	9	1	1	1	0.65
218	Lodging	Space_Heat	9	1	1	2	0.3
219	Lodging	Space_Heat	9	1	1	3	0.04
220	Lodging	Space_Heat	9	1	1	4	0.01
221	Lodging	Space_Heat	9	1	2	1	1
					2	2	
					2	3	
					2	4	
222	Lodging	Water_Heat	9	2	1	1	0.4
223	Lodging	Water_Heat	9	2	1	2	0.5
224	Lodging	Water_Heat	9	2	1	3	0.08
225	Lodging	Water_Heat	9	2	1	4	0.02
226	Lodging	Water_Heat	9	2	2	1	0.4
227	Lodging	Water_Heat	9	2	2	2	0.5
228	Lodging	Water_Heat	9	2	2	3	0.08
229	Lodging	Water_Heat	9	2	2	4	0.02
230	Lodging	Cook_top	9	4	1	1	0.65

Obs	bname	nname	b	n	f	e	effshare
231	Lodging	Cook_top	9	4	1	2	0.35
232	Lodging	Cook_top	9	4	2	1	0.65
233	Lodging	Cook_top	9	4	2	2	0.35
234	Lodging	Fryer	9	5	1	1	0.65
235	Lodging	Fryer	9	5	1	2	0.35
236	Lodging	Fryer	9	5	2	1	0.65
237	Lodging	Fryer	9	5	2	2	0.35
238	Lodging	Griddle	9	6	1	1	0.65
239	Lodging	Griddle	9	6	1	2	0.35
240	Lodging	Griddle	9	6	2	1	0.65
241	Lodging	Griddle	9	6	2	2	0.35
242	Lodging	Other_Cooking	9	7	1	1	0.65
243	Lodging	Other_Cooking	9	7	1	2	0.35
244	Lodging	Other_Cooking	9	7	2	1	0.65
245	Lodging	Other_Cooking	9	7	2	2	0.35
246	Lodging	Drying	9	8	1	1	0.65
247	Lodging	Drying	9	8	1	2	0.35
248	Lodging	Drying	9	8	2	1	0.65
249	Lodging	Drying	9	8	2	2	0.35
250	Lodging	AC_Compressor	9	10	1	1	0.65
251	Lodging	AC_Compressor	9	10	1	2	0.35
252	Lodging	AC_Compressor	9	10	2	1	0.65
253	Lodging	AC_Compressor	9	10	2	2	0.35
254	Lodging	Other	9	11	1	1	1
					2	1	0
255	Misc	Space_Heat	10	1	1	1	0.65
256	Misc	Space_Heat	10	1	1	2	0.3
257	Misc	Space_Heat	10	1	1	3	0.04
258	Misc	Space_Heat	10	1	1	4	0.01
259	Misc	Space_Heat	10	1	2	1	1
					2	2	0
					2	3	0
					2	4	0
260	Misc	Water_Heat	10	2	1	1	0.4
261	Misc	Water_Heat	10	2	1	2	0.5
262	Misc	Water_Heat	10	2	1	3	0.08
263	Misc	Water_Heat	10	2	1	4	0.02
264	Misc	Water_Heat	10	2	2	1	0.4
265	Misc	Water_Heat	10	2	2	2	0.5
266	Misc	Water_Heat	10	2	2	3	0.08
267	Misc	Water_Heat	10	2	2	4	0.02
268	Misc	Cook_top	10	4	1	1	0.65
269	Misc	Cook_top	10	4	1	2	0.35
270	Misc	Cook_top	10	4	2	1	0.65
271	Misc	Cook_top	10	4	2	2	0.35
272	Misc	Fryer	10	5	1	1	0.65
273	Misc	Fryer	10	5	1	2	0.35
274	Misc	Fryer	10	5	2	1	0.65
275	Misc	Fryer	10	5	2	2	0.35
276	Misc	Griddle	10	6	1	1	0.65
277	Misc	Griddle	10	6	1	2	0.35
278	Misc	Griddle	10	6	2	1	0.65
279	Misc	Griddle	10	6	2	2	0.35
280	Misc	Other_Cooking	10	7	1	1	0.65
281	Misc	Other_Cooking	10	7	1	2	0.35
282	Misc	Other_Cooking	10	7	2	1	0.65
283	Misc	Other_Cooking	10	7	2	2	0.35
284	Misc	AC_Compressor	10	10	1	1	0.65
285	Misc	AC_Compressor	10	10	1	2	0.35
286	Misc	AC_Compressor	10	10	2	1	0.65
287	Misc	AC_Compressor	10	10	2	2	0.35
288	Misc	Other	10	11	1	1	1
					2	1	0
289	Government	Space_Heat	11	1	1	1	0.65
290	Government	Space_Heat	11	1	1	2	0.3
291	Government	Space_Heat	11	1	1	3	0.04
292	Government	Space_Heat	11	1	1	4	0.01

Obs	bname	nname	b	n	f	e	effshare
293	Government	Space_Heat	11	1	2	1	1
					2	2	0
					2	3	0
					2	4	0
294	Government	Water_Heat	11	2	1	1	0.4
295	Government	Water_Heat	11	2	1	2	0.5
296	Government	Water_Heat	11	2	1	3	0.08
297	Government	Water_Heat	11	2	1	4	0.02
298	Government	Water_Heat	11	2	2	1	0.4
299	Government	Water_Heat	11	2	2	2	0.5
300	Government	Water_Heat	11	2	2	3	0.08
301	Government	Water_Heat	11	2	2	4	0.02
302	Government	Cook_top	11	4	1	1	0.65
303	Government	Cook_top	11	4	1	2	0.35
304	Government	Cook_top	11	4	2	1	0.65
305	Government	Cook_top	11	4	2	2	0.35
306	Government	Fryer	11	5	1	1	0.65
307	Government	Fryer	11	5	1	2	0.35
308	Government	Fryer	11	5	2	1	0.65
309	Government	Fryer	11	5	2	2	0.35
310	Government	Griddle	11	6	1	1	0.65
311	Government	Griddle	11	6	1	2	0.35
312	Government	Griddle	11	6	2	1	0.65
313	Government	Griddle	11	6	2	2	0.35
314	Government	Other_Cooking	11	7	1	1	0.65
315	Government	Other_Cooking	11	7	1	2	0.35
316	Government	Other_Cooking	11	7	2	1	0.65
317	Government	Other_Cooking	11	7	2	2	0.35
318	Government	AC_Compressor	11	10	1	1	0.65
319	Government	AC_Compressor	11	10	1	2	0.35
320	Government	AC_Compressor	11	10	2	1	0.65
321	Government	AC_Compressor	11	10	2	2	0.35
322	Government	Other	11	11	1	1	1
					2	1	0
323	TCU	Space_Heat	12	1	1	1	0.65
324	TCU	Space_Heat	12	1	1	2	0.3
325	TCU	Space_Heat	12	1	1	3	0.04
326	TCU	Space_Heat	12	1	1	4	0.01
327	TCU	Space_Heat	12	1	2	1	1
					2	2	0
					2	3	0
					2	4	0
328	TCU	Water_Heat	12	2	1	1	0.4
329	TCU	Water_Heat	12	2	1	2	0.5
330	TCU	Water_Heat	12	2	1	3	0.08
331	TCU	Water_Heat	12	2	1	4	0.02
332	TCU	Water_Heat	12	2	2	1	0.4
333	TCU	Water_Heat	12	2	2	2	0.5
334	TCU	Water_Heat	12	2	2	3	0.08
335	TCU	Water_Heat	12	2	2	4	0.02
336	TCU	Engine	12	9	1	1	0.65
337	TCU	Engine	12	9	1	2	0.35
338	TCU	Engine	12	9	2	1	0.65
339	TCU	Engine	12	9	2	2	0.35
340	TCU	Other	12	11	1	1	1
					2	1	0
341	Construction	Space_Heat	13	1	1	1	0.65
342	Construction	Space_Heat	13	1	1	2	0.3
343	Construction	Space_Heat	13	1	1	3	0.04
344	Construction	Space_Heat	13	1	1	4	0.01
345	Construction	Space_Heat	13	1	2	1	1
					2	2	0
					2	3	0
					2	4	0
346	Construction	Water_Heat	13	2	1	1	0.4
347	Construction	Water_Heat	13	2	1	2	0.5
348	Construction	Water_Heat	13	2	1	3	0.08

Obs	bname	nname	b	n	f	e	effshare
349	Construction	Water_Heat	13	2	1	4	0.02
350	Construction	Water_Heat	13	2	2	1	0.4
351	Construction	Water_Heat	13	2	2	2	0.5
352	Construction	Water_Heat	13	2	2	3	0.08
353	Construction	Water_Heat	13	2	2	4	0.02
354	Construction	Other	13	11	1	1	1
					2	1	0
355	Agriculture	Space_Heat	14	1	1	1	0.65
356	Agriculture	Space_Heat	14	1	1	2	0.3
357	Agriculture	Space_Heat	14	1	1	3	0.04
358	Agriculture	Space_Heat	14	1	1	4	0.01
359	Agriculture	Space_Heat	14	1	2	1	1
					2	2	0
					2	3	0
					2	4	0
360	Agriculture	Water_Heat	14	2	1	1	0.4
361	Agriculture	Water_Heat	14	2	1	2	0.5
362	Agriculture	Water_Heat	14	2	1	3	0.08
363	Agriculture	Water_Heat	14	2	1	4	0.02
364	Agriculture	Water_Heat	14	2	2	1	0.4
365	Agriculture	Water_Heat	14	2	2	2	0.5
366	Agriculture	Water_Heat	14	2	2	3	0.08
367	Agriculture	Water_Heat	14	2	2	4	0.02
368	Agriculture	Drying	14	8	1	1	0.65
369	Agriculture	Drying	14	8	1	2	0.35
370	Agriculture	Drying	14	8	2	1	0.65
371	Agriculture	Drying	14	8	2	2	0.35
372	Agriculture	Engine	14	9	1	1	0.65
373	Agriculture	Engine	14	9	1	2	0.35
374	Agriculture	Engine	14	9	2	1	0.65
375	Agriculture	Engine	14	9	2	2	0.35
376	Agriculture	Other	14	11	1	1	1
					2	1	0

Southern California Gas Company
2009 BCAP - Commercial G10
Saturation Rate

Where Fuel = 1 (gas) and 2 (electric), and

Business Type	End Use	saturation
Office	Space_Heat	0.872
Office	Water_Heat	0.7
Office	Cooking	0.082
Office	AC_Compressor	0.931
Office	Other	1
Restaurant	Space_Heat	0.818
Restaurant	Water_Heat	0.96
Restaurant	Cook_top	0.75
Restaurant	Fryer	0.729
Restaurant	Griddle	0.574
Restaurant	Other_Cooking	0.9
Restaurant	AC_Compressor	0.871
Restaurant	Other	1
Retail	Space_Heat	0.771
Retail	Water_Heat	0.62
Retail	Cooking	0.245
Retail	Other	1
Laundry	Space_Heat	0.72
Laundry	Water_Heat	1
Laundry	Drying	1
Laundry	Other	1
Warehouse	Space_Heat	0.231
Warehouse	Water_Heat	0.88
Warehouse	Engine	0.25
Warehouse	Other	1
School	Space_Heat	0.967
School	Water_Heat	0.9
School	Cook_top	0.147
School	Fryer	0.147
School	Griddle	0.147
School	Other_Cooking	0.147
School	AC_Compressor	0.885
School	Other	1
College	Space_Heat	0.763
College	Water_Heat	0.955
College	Cook_top	0.147
College	Fryer	0.147
College	Griddle	0.147
College	Other_Cooking	0.147
College	AC_Compressor	0.885
College	Other	1
Health	Space_Heat	0.936
Health	Water_Heat	1
Health	Cook_top	0.102
Health	Fryer	0.102
Health	Griddle	0.102
Health	Other_Cooking	0.102
Health	Drying	0.82
Health	AC_Compressor	0.792
Health	Other	1
Lodging	Space_Heat	0.895
Lodging	Water_Heat	1
Lodging	Cook_top	0.084
Lodging	Fryer	0.084
Lodging	Griddle	0.084

Business Type	End Use	saturation
Lodging	Other_Cooking	0.084
Lodging	Drying	0.82
Lodging	AC_Compressor	0.795
Lodging	Other	1
Misc	Space_Heat	0.695
Misc	Water_Heat	0.69
Misc	Cook_top	0.021
Misc	Fryer	0.021
Misc	Griddle	0.021
Misc	Other_Cooking	0.021
Misc	AC_Compressor	0.731
Misc	Other	1
Government	Space_Heat	0.872
Government	Water_Heat	0.7
Government	Cook_top	0.196
Government	Fryer	0.196
Government	Griddle	0.196
Government	Other_Cooking	0.196
Government	AC_Compressor	0.888
Government	Other	1
TCU	Space_Heat	0.72
TCU	Water_Heat	0.69
TCU	Engine	0.5
TCU	Other	1
Construction	Space_Heat	0.72
Construction	Water_Heat	0.69
Construction	Other	1
Agriculture	Space_Heat	0.72
The SAS	System	14:10 Wednesday, July 7, 2(
bname	nname	saturation
Agriculture	Water_Heat	0.69
Agriculture	Drying	1
Agriculture	Engine	0.5
Agriculture	Other	1
Grocery	Space_Heat	0.647
Grocery	Water_Heat	0.93
Grocery	Cook_top	0.245
Grocery	Fryer	0.245
Grocery	Griddle	0.245
Grocery	Other_Cooking	0.245
Grocery	AC_Compressor	0.856
Grocery	Other	1

The SAS System 14:10 Wednesday, July 7, 2004 23

scg_comcore_eqcostdata_clean

b	n	f	e	bname	nname	EQcost
1	1	1	1	Office	Space_Heat	4.3149
1	1	1	2	Office	Space_Heat	4.7464
1	1	1	3	Office	Space_Heat	5.1779
1	1	1	4	Office	Space_Heat	5.6094
1	1	2	1	Office	Space_Heat	3.4519
1	1	2	2	Office	Space_Heat	3.7971
1	1	2	3	Office	Space_Heat	4.1423
1	1	2	4	Office	Space_Heat	4.4875
1	2	1	1	Office	Water_Heat	0.6712
1	2	1	2	Office	Water_Heat	0.7384
1	2	1	3	Office	Water_Heat	0.8055
1	2	1	4	Office	Water_Heat	0.8726
1	2	2	1	Office	Water_Heat	0.537
1	2	2	2	Office	Water_Heat	0.5907
1	2	2	3	Office	Water_Heat	0.6444
1	2	2	4	Office	Water_Heat	0.6981
1	3	1	1	Office	Cooking	0.4899
1	3	1	2	Office	Cooking	0.5389
1	3	2	1	Office	Cooking	0.3919
1	3	2	2	Office	Cooking	0.4311
1	10	1	1	Office	AC_Compressor	1.4773
1	10	1	2	Office	AC_Compressor	1.6251
1	10	2	1	Office	AC_Compressor	1.1819
1	10	2	2	Office	AC_Compressor	1.3
1	11	1	1	Office	Other	0
1	11	2	1	Office	Other	0
2	1	1	1	Restaurant	Space_Heat	1.5841
2	1	1	2	Restaurant	Space_Heat	1.7425
2	1	1	3	Restaurant	Space_Heat	1.9009
2	1	1	4	Restaurant	Space_Heat	2.0593
2	1	2	1	Restaurant	Space_Heat	1.2673
2	1	2	2	Restaurant	Space_Heat	1.394
2	1	2	3	Restaurant	Space_Heat	1.5207
2	1	2	4	Restaurant	Space_Heat	1.6474
2	2	1	1	Restaurant	Water_Heat	11.666
2	2	1	2	Restaurant	Water_Heat	12.8326
2	2	1	3	Restaurant	Water_Heat	13.9992
2	2	1	4	Restaurant	Water_Heat	15.1658
2	2	2	1	Restaurant	Water_Heat	9.3328
2	2	2	2	Restaurant	Water_Heat	10.2661
2	2	2	3	Restaurant	Water_Heat	11.1994
2	2	2	4	Restaurant	Water_Heat	12.1327
2	4	1	1	Restaurant	Cook_top	16.1343
2	4	1	2	Restaurant	Cook_top	17.7477
2	4	2	1	Restaurant	Cook_top	12.9074
2	4	2	2	Restaurant	Cook_top	14.1981
2	5	1	1	Restaurant	Fryer	14.5274
2	5	1	2	Restaurant	Fryer	15.9802
2	5	2	1	Restaurant	Fryer	11.622
2	5	2	2	Restaurant	Fryer	12.7841
2	6	1	1	Restaurant	Griddle	12.2603
2	6	1	2	Restaurant	Griddle	13.4863
2	6	2	1	Restaurant	Griddle	9.8082
2	6	2	2	Restaurant	Griddle	10.789
2	7	1	1	Restaurant	Other_Cooking	13.0747
2	7	1	2	Restaurant	Other_Cooking	14.3822

b	n	f	e	bname	nname	EQcost
2	7	2	1	Restaurant	Other_Cooking	10.4598
2	7	2	2	Restaurant	Other_Cooking	11.5057
2	10	1	1	Restaurant	AC_Compressor	2.7306
2	10	1	2	Restaurant	AC_Compressor	3.0036
2	10	2	1	Restaurant	AC_Compressor	2.1844
2	10	2	2	Restaurant	AC_Compressor	2.4029
2	11	1	1	Restaurant	Other	0
2	11	2	1	Restaurant	Other	0
3	1	1	1	Retail	Space_Heat	3.5122
3	1	1	2	Retail	Space_Heat	3.8634
3	1	1	3	Retail	Space_Heat	4.2146
3	1	1	4	Retail	Space_Heat	4.5658
3	1	2	1	Retail	Space_Heat	2.8097
3	1	2	2	Retail	Space_Heat	3.0907
3	1	2	3	Retail	Space_Heat	3.3717
3	1	2	4	Retail	Space_Heat	3.6527
3	2	1	1	Retail	Water_Heat	1.563
3	2	1	2	Retail	Water_Heat	1.7193
3	2	1	3	Retail	Water_Heat	1.8756
3	2	1	4	Retail	Water_Heat	2.0319
3	2	2	1	Retail	Water_Heat	1.2504
3	2	2	2	Retail	Water_Heat	1.3754
3	2	2	3	Retail	Water_Heat	1.5004
3	2	2	4	Retail	Water_Heat	1.6255
3	3	1	1	Retail	Cooking	4.4039
3	3	1	2	Retail	Cooking	4.8443
3	3	2	1	Retail	Cooking	3.5231
3	3	2	2	Retail	Cooking	3.875
3	11	1	1	Retail	Other	0
3	11	2	1	Retail	Other	0
4	1	1	1	Laundry	Space_Heat	1.836
4	1	1	2	Laundry	Space_Heat	2.02
4	1	1	3	Laundry	Space_Heat	2.203
4	1	1	4	Laundry	Space_Heat	2.387
4	1	2	1	Laundry	Space_Heat	1.469
4	1	2	2	Laundry	Space_Heat	1.616
4	1	2	3	Laundry	Space_Heat	1.763
4	1	2	4	Laundry	Space_Heat	1.909
4	2	1	1	Laundry	Water_Heat	34.512
4	2	1	2	Laundry	Water_Heat	37.963
4	2	1	3	Laundry	Water_Heat	41.414
4	2	1	4	Laundry	Water_Heat	44.865
4	2	2	1	Laundry	Water_Heat	27.609
4	2	2	2	Laundry	Water_Heat	30.37
4	2	2	3	Laundry	Water_Heat	33.131
4	2	2	4	Laundry	Water_Heat	35.892
4	8	1	1	Laundry	Drying	186.738
4	8	1	2	Laundry	Drying	205.412
4	8	2	1	Laundry	Drying	149.39
4	8	2	2	Laundry	Drying	164.329
4	11	1	1	Laundry	Other	0
4	11	2	1	Laundry	Other	0
5	1	1	1	Warehouse	Space_Heat	7.909
5	1	1	2	Warehouse	Space_Heat	8.7
5	1	1	3	Warehouse	Space_Heat	9.491
5	1	1	4	Warehouse	Space_Heat	10.282
5	1	2	1	Warehouse	Space_Heat	6.327
5	1	2	2	Warehouse	Space_Heat	6.96
5	1	2	3	Warehouse	Space_Heat	7.593
5	1	2	4	Warehouse	Space_Heat	8.225
5	2	1	1	Warehouse	Water_Heat	2.608
5	2	1	2	Warehouse	Water_Heat	2.869
5	2	1	3	Warehouse	Water_Heat	3.13

b	n	f	e	bname	nname	EQcost
5	2	1	4	Warehouse	Water_Heat	3.39
5	2	2	1	Warehouse	Water_Heat	2.086
5	2	2	2	Warehouse	Water_Heat	2.295
5	2	2	3	Warehouse	Water_Heat	2.504
5	2	2	4	Warehouse	Water_Heat	2.712
5	9	1	1	Warehouse	Engine	113.127
5	9	1	2	Warehouse	Engine	124.44
5	9	2	1	Warehouse	Engine	90.502
5	9	2	2	Warehouse	Engine	99.552
5	11	1	1	Warehouse	Other	0
5	11	2	1	Warehouse	Other	0
6	1	1	1	School	Space_Heat	1.225
6	1	1	2	School	Space_Heat	1.348
6	1	1	3	School	Space_Heat	1.471
6	1	1	4	School	Space_Heat	1.593
6	1	2	1	School	Space_Heat	0.98
6	1	2	2	School	Space_Heat	1.078
6	1	2	3	School	Space_Heat	1.176
6	1	2	4	School	Space_Heat	1.274
6	2	1	1	School	Water_Heat	1.635
6	2	1	2	School	Water_Heat	1.799
6	2	1	3	School	Water_Heat	1.962
6	2	1	4	School	Water_Heat	2.126
6	2	2	1	School	Water_Heat	1.308
6	2	2	2	School	Water_Heat	1.439
6	2	2	3	School	Water_Heat	1.57
6	2	2	4	School	Water_Heat	1.701
6	4	1	1	School	Cook_top	0.61
6	4	1	2	School	Cook_top	0.671
6	4	2	1	School	Cook_top	0.488
6	4	2	2	School	Cook_top	0.537
6	5	1	1	School	Fryer	0.612
6	5	1	2	School	Fryer	0.673
6	5	2	1	School	Fryer	0.489
6	5	2	2	School	Fryer	0.538
6	6	1	1	School	Griddle	0.612
6	6	1	2	School	Griddle	0.673
6	6	2	1	School	Griddle	0.489
6	6	2	2	School	Griddle	0.538
6	7	1	1	School	Other_Cooking	0.61
6	7	1	2	School	Other_Cooking	0.671
6	7	2	1	School	Other_Cooking	0.488
6	7	2	2	School	Other_Cooking	0.537
6	10	1	1	School	AC_Compressor	0.866
6	10	1	2	School	AC_Compressor	0.953
6	10	2	1	School	AC_Compressor	0.693
6	10	2	2	School	AC_Compressor	0.762
6	11	1	1	School	Other	0
6	11	2	1	School	Other	0
7	1	1	1	College	Space_Heat	3.14441
7	1	1	2	College	Space_Heat	3.45885
7	1	1	3	College	Space_Heat	3.77329
7	1	1	4	College	Space_Heat	4.08773
7	1	2	1	College	Space_Heat	2.51553
7	1	2	2	College	Space_Heat	2.76708
7	1	2	3	College	Space_Heat	3.01863
7	1	2	4	College	Space_Heat	3.27018
7	2	1	1	College	Water_Heat	3.38894
7	2	1	2	College	Water_Heat	3.72784
7	2	1	3	College	Water_Heat	4.06673
7	2	1	4	College	Water_Heat	4.40563
7	2	2	1	College	Water_Heat	2.71116
7	2	2	2	College	Water_Heat	2.98227

b	n	f	e	bname	nname	EQcost
7	2	2	3	College	Water_Heat	3.25339
7	2	2	4	College	Water_Heat	3.5245
7	4	1	1	College	Cook_top	0.57358
7	4	1	2	College	Cook_top	0.63093
7	4	2	1	College	Cook_top	0.45886
7	4	2	2	College	Cook_top	0.50475
7	5	1	1	College	Fryer	0.57322
7	5	1	2	College	Fryer	0.63055
7	5	2	1	College	Fryer	0.45858
7	5	2	2	College	Fryer	0.50444
7	6	1	1	College	Griddle	0.57322
7	6	1	2	College	Griddle	0.63055
7	6	2	1	College	Griddle	0.45858
7	6	2	2	College	Griddle	0.50444
7	7	1	1	College	Other_Cooking	0.57358
7	7	1	2	College	Other_Cooking	0.63093
7	7	2	1	College	Other_Cooking	0.45886
7	7	2	2	College	Other_Cooking	0.50475
7	10	1	1	College	AC_Compressor	1.3949
7	10	1	2	College	AC_Compressor	1.53439
7	10	2	1	College	AC_Compressor	1.11592
7	10	2	2	College	AC_Compressor	1.22752
7	11	1	1	College	Other	0
7	11	2	1	College	Other	0
8	1	1	1	Health	Space_Heat	0.8825
8	1	1	2	Health	Space_Heat	0.97075
8	1	1	3	Health	Space_Heat	1.059
8	1	1	4	Health	Space_Heat	1.14725
8	1	2	1	Health	Space_Heat	0.706
8	1	2	2	Health	Space_Heat	0.7766
8	1	2	3	Health	Space_Heat	0.8472
8	1	2	4	Health	Space_Heat	0.9178
8	2	1	1	Health	Water_Heat	5.33917
8	2	1	2	Health	Water_Heat	5.87309
8	2	1	3	Health	Water_Heat	6.407
8	2	1	4	Health	Water_Heat	6.94092
8	2	2	1	Health	Water_Heat	4.27134
8	2	2	2	Health	Water_Heat	4.69847
8	2	2	3	Health	Water_Heat	5.1256
8	2	2	4	Health	Water_Heat	5.55274
8	4	1	1	Health	Cook_top	3.37409
8	4	1	2	Health	Cook_top	3.7115
8	4	2	1	Health	Cook_top	2.69927
8	4	2	2	Health	Cook_top	2.9692
8	5	1	1	Health	Fryer	3.37409
8	5	1	2	Health	Fryer	3.7115
8	5	2	1	Health	Fryer	2.69927
8	5	2	2	Health	Fryer	2.9692
8	6	1	1	Health	Griddle	3.37409
8	6	1	2	Health	Griddle	3.7115
8	6	2	1	Health	Griddle	2.69927
8	6	2	2	Health	Griddle	2.9692
8	7	1	1	Health	Other_Cooking	0.33743
8	7	1	2	Health	Other_Cooking	0.37118
8	7	2	1	Health	Other_Cooking	0.26995
8	7	2	2	Health	Other_Cooking	0.29694
8	8	1	1	Health	Drying	1.86871
8	8	1	2	Health	Drying	2.05558
8	8	2	1	Health	Drying	1.49497
8	8	2	2	Health	Drying	1.64446
8	10	1	1	Health	AC_Compressor	1.45749
8	10	1	2	Health	AC_Compressor	1.60324
8	10	2	1	Health	AC_Compressor	1.16599

b	n	f	e	bname	nname	EQcost
8	10	2	2	Health	AC_Compressor	1.28259
8	11	1	1	Health	Other	0
8	11	2	1	Health	Other	0
9	1	1	1	Lodging	Space_Heat	4.85892
9	1	1	2	Lodging	Space_Heat	5.3448
9	1	1	3	Lodging	Space_Heat	5.8307
9	1	1	4	Lodging	Space_Heat	6.3166
9	1	2	1	Lodging	Space_Heat	3.8871
9	1	2	2	Lodging	Space_Heat	4.2759
9	1	2	3	Lodging	Space_Heat	4.6646
9	1	2	4	Lodging	Space_Heat	5.0533
9	2	1	1	Lodging	Water_Heat	8.6651
9	2	1	2	Lodging	Water_Heat	9.5317
9	2	1	3	Lodging	Water_Heat	10.3982
9	2	1	4	Lodging	Water_Heat	11.2647
9	2	2	1	Lodging	Water_Heat	6.9321
9	2	2	2	Lodging	Water_Heat	7.6253
9	2	2	3	Lodging	Water_Heat	8.3185
9	2	2	4	Lodging	Water_Heat	9.0118
9	4	1	1	Lodging	Cook_top	4.0305
9	4	1	2	Lodging	Cook_top	4.4335
9	4	2	1	Lodging	Cook_top	3.2244
9	4	2	2	Lodging	Cook_top	3.5468
9	5	1	1	Lodging	Fryer	5.2524
9	5	1	2	Lodging	Fryer	5.7777
9	5	2	1	Lodging	Fryer	4.2019
9	5	2	2	Lodging	Fryer	4.6221
9	6	1	1	Lodging	Griddle	5.2524
9	6	1	2	Lodging	Griddle	5.7777
9	6	2	1	Lodging	Griddle	4.2019
9	6	2	2	Lodging	Griddle	4.6221
9	7	1	1	Lodging	Other_Cooking	0.5148
9	7	1	2	Lodging	Other_Cooking	0.5663
9	7	2	1	Lodging	Other_Cooking	0.4118
9	7	2	2	Lodging	Other_Cooking	0.453
9	8	1	1	Lodging	Drying	2.1663
9	8	1	2	Lodging	Drying	2.3829
9	8	2	1	Lodging	Drying	1.733
9	8	2	2	Lodging	Drying	1.9063
9	10	1	1	Lodging	AC_Compressor	0.7157
9	10	1	2	Lodging	AC_Compressor	0.7872
9	10	2	1	Lodging	AC_Compressor	0.5725
9	10	2	2	Lodging	AC_Compressor	0.6298
9	11	1	1	Lodging	Other	0
9	11	2	1	Lodging	Other	0
10	1	1	1	Misc	Space_Heat	2.1455
10	1	1	2	Misc	Space_Heat	2.36
10	1	1	3	Misc	Space_Heat	2.5746
10	1	1	4	Misc	Space_Heat	2.7891
10	1	2	1	Misc	Space_Heat	1.7164
10	1	2	2	Misc	Space_Heat	1.888
10	1	2	3	Misc	Space_Heat	2.0597
10	1	2	4	Misc	Space_Heat	2.2313
10	2	1	1	Misc	Water_Heat	2.9412
10	2	1	2	Misc	Water_Heat	3.2354
10	2	1	3	Misc	Water_Heat	3.5295
10	2	1	4	Misc	Water_Heat	3.8236
10	2	2	1	Misc	Water_Heat	2.353
10	2	2	2	Misc	Water_Heat	2.5883
10	2	2	3	Misc	Water_Heat	2.8236
10	2	2	4	Misc	Water_Heat	3.0589
10	4	1	1	Misc	Cook_top	0.6282
10	4	1	2	Misc	Cook_top	0.691

b	n	f	e	bname	nname	EQcost
10	4	2	1	Misc	Cook_top	0.5025
10	4	2	2	Misc	Cook_top	0.5528
10	5	1	1	Misc	Fryer	0.6285
10	5	1	2	Misc	Fryer	0.6913
10	5	2	1	Misc	Fryer	0.5028
10	5	2	2	Misc	Fryer	0.5531
10	6	1	1	Misc	Griddle	0.6285
10	6	1	2	Misc	Griddle	0.6913
10	6	2	1	Misc	Griddle	0.5028
10	6	2	2	Misc	Griddle	0.5531
10	7	1	1	Misc	Other_Cooking	0.6282
10	7	1	2	Misc	Other_Cooking	0.691
10	7	2	1	Misc	Other_Cooking	0.5025
10	7	2	2	Misc	Other_Cooking	0.5528
10	10	1	1	Misc	AC_Compressor	1.9306
10	10	1	2	Misc	AC_Compressor	2.1237
10	10	2	1	Misc	AC_Compressor	1.5445
10	10	2	2	Misc	AC_Compressor	1.6989
10	11	1	1	Misc	Other	0
10	11	2	1	Misc	Other	0
11	1	1	1	Government	Space_Heat	3.815
11	1	1	2	Government	Space_Heat	4.1965
11	1	1	3	Government	Space_Heat	4.578
11	1	1	4	Government	Space_Heat	4.9595
11	1	2	1	Government	Space_Heat	3.052
11	1	2	2	Government	Space_Heat	3.3572
11	1	2	3	Government	Space_Heat	3.6624
11	1	2	4	Government	Space_Heat	3.9676
11	2	1	1	Government	Water_Heat	0.5935
11	2	1	2	Government	Water_Heat	0.6528
11	2	1	3	Government	Water_Heat	0.7122
11	2	1	4	Government	Water_Heat	0.7715
11	2	2	1	Government	Water_Heat	0.4748
11	2	2	2	Government	Water_Heat	0.5222
11	2	2	3	Government	Water_Heat	0.5697
11	2	2	4	Government	Water_Heat	0.6172
11	4	1	1	Government	Cook_top	0.4333
11	4	1	2	Government	Cook_top	0.4766
11	4	2	1	Government	Cook_top	0.3466
11	4	2	2	Government	Cook_top	0.3813
11	5	1	1	Government	Fryer	0.4332
11	5	1	2	Government	Fryer	0.4765
11	5	2	1	Government	Fryer	0.3465
11	5	2	2	Government	Fryer	0.3812
11	6	1	1	Government	Griddle	0.4332
11	6	1	2	Government	Griddle	0.4765
11	6	2	1	Government	Griddle	0.3465
11	6	2	2	Government	Griddle	0.3812
11	7	1	1	Government	Other_Cooking	0.4333
11	7	1	2	Government	Other_Cooking	0.4766
11	7	2	1	Government	Other_Cooking	0.3466
11	7	2	2	Government	Other_Cooking	0.3813
11	10	1	1	Government	AC_Compressor	1.3062
11	10	1	2	Government	AC_Compressor	1.4368
11	10	2	1	Government	AC_Compressor	1.0449
11	10	2	2	Government	AC_Compressor	1.1494
11	11	1	1	Government	Other	0
11	11	2	1	Government	Other	0
12	1	1	1	TCU	Space_Heat	1.8457
12	1	1	2	TCU	Space_Heat	2.0303
12	1	1	3	TCU	Space_Heat	2.2149
12	1	1	4	TCU	Space_Heat	2.3995
12	1	2	1	TCU	Space_Heat	1.4766

b	n	f	e	bname	nname	EQcost
12	1	2	2	TCU	Space_Heat	1.6242
12	1	2	3	TCU	Space_Heat	1.7719
12	1	2	4	TCU	Space_Heat	1.9196
12	2	1	1	TCU	Water_Heat	2.5303
12	2	1	2	TCU	Water_Heat	2.7833
12	2	1	3	TCU	Water_Heat	3.0364
12	2	1	4	TCU	Water_Heat	3.2894
12	2	2	1	TCU	Water_Heat	2.0243
12	2	2	2	TCU	Water_Heat	2.2267
12	2	2	3	TCU	Water_Heat	2.4291
12	2	2	4	TCU	Water_Heat	2.6315
12	9	1	1	TCU	Engine	30.6768
12	9	1	2	TCU	Engine	33.7445
12	9	2	1	TCU	Engine	24.5415
12	9	2	2	TCU	Engine	26.9956
12	11	1	1	TCU	Other	0
12	11	2	1	TCU	Other	0
13	1	1	1	Construction	Space_Heat	2.2951
13	1	1	2	Construction	Space_Heat	2.5246
13	1	1	3	Construction	Space_Heat	2.7542
13	1	1	4	Construction	Space_Heat	2.9837
13	1	2	1	Construction	Space_Heat	1.8361
13	1	2	2	Construction	Space_Heat	2.0197
13	1	2	3	Construction	Space_Heat	2.2033
13	1	2	4	Construction	Space_Heat	2.3869
13	2	1	1	Construction	Water_Heat	3.1464
13	2	1	2	Construction	Water_Heat	3.461
13	2	1	3	Construction	Water_Heat	3.7757
13	2	1	4	Construction	Water_Heat	4.0903
13	2	2	1	Construction	Water_Heat	2.5171
13	2	2	2	Construction	Water_Heat	2.7688
13	2	2	3	Construction	Water_Heat	3.0205
13	2	2	4	Construction	Water_Heat	3.2722
13	11	1	1	Construction	Other	0
13	11	2	1	Construction	Other	0
14	1	1	1	Agriculture	Space_Heat	1.6583
14	1	1	2	Agriculture	Space_Heat	1.8242
14	1	1	3	Agriculture	Space_Heat	1.99
14	1	1	4	Agriculture	Space_Heat	2.1558
14	1	2	1	Agriculture	Space_Heat	1.3267
14	1	2	2	Agriculture	Space_Heat	1.4593
14	1	2	3	Agriculture	Space_Heat	1.592
14	1	2	4	Agriculture	Space_Heat	1.7247
14	2	1	1	Agriculture	Water_Heat	2.2734
14	2	1	2	Agriculture	Water_Heat	2.5008
14	2	1	3	Agriculture	Water_Heat	2.7281
14	2	1	4	Agriculture	Water_Heat	2.9554
14	2	2	1	Agriculture	Water_Heat	1.8187
14	2	2	2	Agriculture	Water_Heat	2.0006
14	2	2	3	Agriculture	Water_Heat	2.1825
14	2	2	4	Agriculture	Water_Heat	2.3644
14	8	1	1	Agriculture	Drying	2.2734
14	8	1	2	Agriculture	Drying	2.5008
14	8	2	1	Agriculture	Drying	1.8187
14	8	2	2	Agriculture	Drying	2.0006
14	9	1	1	Agriculture	Engine	9.7757
14	9	1	2	Agriculture	Engine	10.7533
14	9	2	1	Agriculture	Engine	7.8206
14	9	2	2	Agriculture	Engine	8.6026
14	11	1	1	Agriculture	Other	0
14	11	2	1	Agriculture	Other	0

Southern California Gas Company
2009 BCAP - Commercial G10
Employment Forecast (in millions)

YEAR	EMPLOY 1	EMPLOY 2	EMPLOY 3	EMPLOY 4	EMPLOY 5	EMPLOY 6	EMPLOY 7	EMPLOY 8	EMPLOY 9	EMPLOY 10	EMPLOY 11	EMPLOY 12	EMPLOY 13	EMPLOY 14	EMPLTOT
2005	1.5848	0.5726	0.9816	0.0760	0.4315	0.5891	0.1964	0.7051	0.0933	0.2437	0.6088	0.5494	0.4557	0.2136	7.3016
2006	1.6646	0.5897	1.0142	0.0841	0.4535	0.6222	0.2074	0.7374	0.0976	0.2182	0.6240	0.5680	0.4828	0.2302	7.5938
2007	1.7056	0.5980	1.0285	0.0838	0.4603	0.6267	0.2089	0.7454	0.0991	0.2175	0.6280	0.5727	0.4689	0.2332	7.6765
2008	1.7630	0.6040	1.0389	0.0834	0.4657	0.6327	0.2109	0.7548	0.1006	0.2163	0.6321	0.5852	0.4608	0.2369	7.7853
2009	1.8139	0.6079	1.0455	0.0833	0.4704	0.6389	0.2130	0.7611	0.1021	0.2161	0.6405	0.5961	0.4630	0.2413	7.8931
2010	1.8473	0.6111	1.0510	0.0836	0.4744	0.6444	0.2148	0.7681	0.1034	0.2169	0.6407	0.6083	0.4647	0.2451	7.9737
2011	1.8697	0.6134	1.0549	0.0838	0.4766	0.6503	0.2168	0.7780	0.1044	0.2173	0.6452	0.6194	0.4714	0.2490	8.0501
2012	1.8920	0.6152	1.0580	0.0838	0.4783	0.6555	0.2185	0.7871	0.1052	0.2173	0.6491	0.6302	0.4805	0.2531	8.1237
2013	1.9182	0.6164	1.0602	0.0838	0.4806	0.6601	0.2200	0.7950	0.1058	0.2173	0.6526	0.6402	0.4902	0.2569	8.1974
2014	1.9423	0.6172	1.0615	0.0839	0.4825	0.6641	0.2214	0.8031	0.1064	0.2176	0.6555	0.6500	0.5006	0.2605	8.2667
2015	1.9643	0.6177	1.0623	0.0841	0.4851	0.6680	0.2227	0.8097	0.1070	0.2183	0.6584	0.6611	0.5112	0.2639	8.3338
2016	1.9858	0.6175	1.0620	0.0844	0.4881	0.6724	0.2241	0.8174	0.1075	0.2189	0.6616	0.6727	0.5217	0.2673	8.4014
2017	2.0096	0.6180	1.0629	0.0845	0.4925	0.6757	0.2252	0.8260	0.1081	0.2192	0.6639	0.6802	0.5312	0.2707	8.4677
2018	2.0369	0.6193	1.0651	0.0846	0.4974	0.6780	0.2260	0.8353	0.1089	0.2196	0.6657	0.6850	0.5389	0.2738	8.5344
2019	2.0649	0.6214	1.0687	0.0849	0.5016	0.6802	0.2267	0.8445	0.1099	0.2203	0.6706	0.6912	0.5462	0.2772	8.6082
2020	2.0899	0.6239	1.0730	0.0854	0.5056	0.6815	0.2272	0.8548	0.1108	0.2214	0.6677	0.7004	0.5533	0.2805	8.6753
2021	2.1187	0.6266	1.0777	0.0859	0.5105	0.6828	0.2276	0.8645	0.1117	0.2227	0.6686	0.7105	0.5605	0.2841	8.7524
2022	2.1498	0.6296	1.0829	0.0864	0.5151	0.6842	0.2281	0.8741	0.1127	0.2241	0.6695	0.7208	0.5680	0.2879	8.8332
2023	2.1834	0.6325	1.0879	0.0869	0.5202	0.6855	0.2285	0.8830	0.1136	0.2254	0.6703	0.7305	0.5757	0.2916	8.9149
2024	2.2168	0.6351	1.0923	0.0873	0.5255	0.6869	0.2290	0.8906	0.1145	0.2264	0.6713	0.7399	0.5839	0.2953	8.9947
2025	2.2499	0.6379	1.0971	0.0878	0.5291	0.6881	0.2294	0.8976	0.1155	0.2277	0.6720	0.7506	0.5941	0.2991	9.0758

RATE	MARKET	DELCOD	YEAR	MDTH1	MDTH2	MDTH3	MDTH4	MDTH5	MDTH6	MDTH7	MDTH8	MDTH9	MDTH10	MDTH11	MDTH12	TOTAL
GAC	C	N+T	2006	7	7	6	6	7	11	15	20	16	14	9	9	127
GAC	C	N+T	2007	6	6	5	8	7	10	13	17	16	14	10	7	121
GAC	C	N+T	2008	6	9	4	7	9	11	13	17	16	14	10	7	124
GAC	C	N+T	2009	6	9	4	7	9	11	13	17	16	14	10	7	124
GAC	C	N+T	2010	6	9	4	7	9	11	13	17	16	14	10	7	124
GAC	C	N+T	2011	6	8	4	6	8	11	12	16	15	13	9	7	116
GAC	C	N+T	2012	6	8	4	6	8	11	12	16	15	13	9	7	116
GAC	C	N+T	2013	6	7	3	6	7	10	12	15	14	12	8	7	108
GAC	C	N+T	2014	6	7	3	6	7	10	12	15	14	12	8	7	108
GAC	C	N+T	2015	5	7	3	5	7	9	11	14	13	11	8	6	100
GAC	C	N+T	2016	5	7	3	5	7	9	11	14	13	11	8	6	100
GAC	C	N+T	2017	5	7	3	5	7	9	11	14	13	11	8	6	100
GAC	C	N+T	2018	5	6	3	5	6	9	10	13	12	10	7	6	93
GAC	C	N+T	2019	4	6	3	5	6	8	9	12	11	10	7	5	85
GAC	C	N+T	2020	4	5	2	4	5	7	8	11	10	9	6	5	77
GAC	C	N+T	2021	4	5	2	4	5	6	7	10	9	8	5	4	70
GAC	C	N+T	2022	4	5	2	4	5	6	7	10	9	8	5	4	70
GAC	C	N+T	2023	3	4	2	3	4	6	7	9	8	7	5	4	62
GAC	C	N+T	2024	3	4	2	3	4	6	7	9	8	7	5	4	62
GAC	C	N+T	2025	3	4	2	3	4	5	6	8	7	6	4	3	54

RATE	MARKE	DELCODE	YEAR	MDTH1	MDTH2	MDTH3	MDTH4	MDTH5	MDTH6	MDTH7	MDTH8	MDTH9	MDTH1	MDTH1	MDTH1	TOTAL
GEN	C	N+T	2006	44	65	91	73	120	178	240	247	238	144	94	96	1,630
GEN	C	N+T	2007	56	92	119	173	228	276	261	293	256	164	90	88	2,097
GEN	C	N+T	2008	32	57	94	120	175	226	257	289	252	161	88	86	1,836
GEN	C	N+T	2009	32	56	93	119	174	224	254	286	249	160	87	85	1,819
GEN	C	N+T	2010	32	56	92	118	173	223	253	284	248	159	87	85	1,808
GEN	C	N+T	2011	31	55	92	117	172	222	251	283	247	158	86	84	1,797
GEN	C	N+T	2012	31	55	91	117	171	220	250	281	245	157	86	84	1,787
GEN	C	N+T	2013	31	55	90	116	169	219	248	279	244	156	85	83	1,776
GEN	C	N+T	2014	31	54	90	115	168	218	247	278	242	155	85	83	1,765
GEN	C	N+T	2015	30	53	87	112	163	211	239	269	235	150	82	80	1,712
GEN	C	N+T	2016	29	51	84	108	158	204	232	261	227	145	79	78	1,658
GEN	C	N+T	2017	28	50	82	105	153	198	225	252	220	141	77	75	1,605
GEN	C	N+T	2018	27	48	79	101	148	191	217	244	213	136	74	73	1,551
GEN	C	N+T	2019	26	46	76	98	143	185	210	236	205	131	72	70	1,498
GEN	C	N+T	2020	24	43	71	91	133	171	195	219	191	122	67	65	1,391
GEN	C	N+T	2021	22	40	65	84	123	158	180	202	176	113	62	60	1,284
GEN	C	N+T	2022	21	36	60	77	112	145	165	185	161	103	56	55	1,177
GEN	C	N+T	2023	19	33	55	70	102	132	150	168	147	94	51	50	1,070
GEN	C	N+T	2024	17	30	49	63	92	119	135	151	132	84	46	45	963
GEN	C	N+T	2025	15	26	44	56	82	105	120	135	117	75	41	40	856

Southern California Gas Company

2009 BCAP Commercial G10

Core Commercial Demand Forecast (MDth)

Avg Temperature

YEAR	Model Output G10-Com	DSM	Vernon	AB970	G30 Migrate to G10	Com-G10	GAC	GEN	Total Core Com
2006	79,409	0	0	20	0	79,429	127	1,630	81,185
2007	79,727	954	0	40	0	78,813	121	2,097	81,030
2008	80,024	2122	0	60	0	77,566	124	1,836	79,526
2009	80,568	3,486	396	80	67	76,832	124	1,819	78,775
2010	81,147	4,905	396	100	100	76,046	124	1,808	77,978
2011	81,606	6,404	396	120	133	75,059	116	1,797	76,972
2012	81,976	8,024	396	140	133	73,830	116	1,787	75,732
2013	82,264	9,818	396	160	133	72,343	108	1,776	74,227
2014	82,518	11,613	396	180	133	70,822	108	1,765	72,695
2015	82,734	13,408	396	200	133	69,263	100	1,712	71,075
2016	82,944	15,203	396	220	133	67,698	100	1,658	69,456
2017	83,037	16,998	396	240	133	66,016	100	1,605	67,721
2018	83,184	18,793	396	240	133	64,368	93	1,551	66,012
2019	83,408	20,588	396	240	133	62,797	85	1,498	64,380
2020	83,658	21,845	396	240	133	61,790	77	1,391	63,258
2021	83,913	22,998	396	240	133	60,892	70	1,284	62,246
2022	84,194	23,839	396	240	133	60,333	70	1,177	61,579
2023	84,492	24,466	396	240	133	60,004	62	1,070	61,136
2024	84,784	24,897	396	240	133	59,864	62	963	60,889
2025	85,079	25,273	396	240	133	59,784	54	856	60,694

Southern California Gas Company

2009 BCAP Commercial G10

Core Commercial Demand Forecast (MDth)

Cold Temperature

YEAR	Model Output G10-Com	DSM	Vernon	AB970	G30 Migrate to G10	Com-G10	GAC	GEN	Total Core Com
2006	83,787	0	0	20	0	83,807	127	1,630	85,564
2007	84,071	954	0	40	0	83,157	121	2,097	85,375
2008	83,904	2,122	0	60	0	81,842	124	1,836	83,802
2009	84,802	3,486	396	80	67	81,067	124	1,819	83,009
2010	85,339	4,905	396	100	100	80,238	124	1,808	82,170
2011	85,743	6,404	396	120	133	79,196	116	1,797	81,109
2012	86,045	8,024	396	140	133	77,899	116	1,787	79,801
2013	86,251	9,818	396	160	133	76,330	108	1,776	78,214
2014	86,422	11,613	396	180	133	74,726	108	1,765	76,600
2015	86,552	13,408	396	200	133	73,081	100	1,712	74,893
2016	86,675	15,203	396	220	133	71,429	100	1,658	73,188
2017	86,676	16,998	396	240	133	69,655	100	1,605	71,361
2018	86,731	18,793	396	240	133	67,916	93	1,551	69,560
2019	86,869	20,588	396	240	133	66,259	85	1,498	67,841
2020	87,064	21,845	396	240	133	65,196	77	1,391	66,664
2021	87,269	22,998	396	240	133	64,249	70	1,284	65,602
2022	87,521	23,839	396	240	133	63,659	70	1,177	64,906
2023	87,799	24,466	396	240	133	63,311	62	1,070	64,443
2024	88,083	24,897	396	240	133	63,164	62	963	64,188
2025	88,374	25,273	396	240	133	63,079	54	856	63,989

Southern California Gas Company

2009 BCAP Commercial G10

Core Commercial Demand Forecast (MDth)

Hot Temperature

YEAR	Model Output G10-Com	DSM	Vernon	AB970	G30 Migrate to G10	Com-G10	GAC	GEN	Total Core Com
2006	75,046	0	0	20	0	75,066	127	1,630	76,822
2007	75,397	954	0	40	0	74,483	121	2,097	76,701
2008	75,367	2,122	0	60	0	73,305	124	1,836	75,265
2009	76,347	3,486	396	80	67	72,612	124	1,819	74,554
2010	76,969	4,905	396	100	100	71,869	124	1,808	73,800
2011	77,483	6,404	396	120	133	70,936	116	1,797	72,849
2012	77,920	8,024	396	140	133	69,774	116	1,787	71,677
2013	78,290	9,818	396	160	133	68,369	108	1,776	70,253
2014	78,628	11,613	396	180	133	66,932	108	1,765	68,805
2015	78,930	13,408	396	200	133	65,459	100	1,712	67,271
2016	79,225	15,203	396	220	133	63,979	100	1,658	65,738
2017	79,410	16,998	396	240	133	62,390	100	1,605	64,095
2018	79,648	18,793	396	240	133	60,832	93	1,551	62,476
2019	79,959	20,588	396	240	133	59,348	85	1,498	60,931
2020	80,264	21,845	396	240	133	58,396	77	1,391	59,864
2021	80,568	22,998	396	240	133	57,547	70	1,284	58,901
2022	80,880	23,839	396	240	133	57,019	70	1,177	58,265
2023	81,196	24,466	396	240	133	56,708	62	1,070	57,839
2024	81,495	24,897	396	240	133	56,576	62	963	57,600
2025	81,795	25,273	396	240	133	56,500	54	856	57,410

Southern California Gas Company
2009 BCAP Commercial G10
Core Commercial Demand Forecast (MDth)
Base Temperature

YEAR	Model Output G10-Com	DSM	Vernon	AB970	G30 Migrate to G10	Com-G10	GAC	GEN	Total Core Com
2006	58,360	0	0	20	0	58,380	127	1,630	60,137
2007	58,841	954	0	40	0	57,928	121	2,097	60,145
2008	59,073	2,122	0	60	0	57,011	124	1,836	58,971
2009	60,207	3,486	396	80	67	56,472	124	1,819	58,414
2010	60,995	4,905	396	100	100	55,894	124	1,808	57,826
2011	61,715	6,404	396	120	133	55,169	116	1,797	57,082
2012	62,411	8,024	396	140	133	54,265	116	1,787	56,168
2013	63,093	9,818	396	160	133	53,172	108	1,776	55,056
2014	63,751	11,613	396	180	133	52,054	108	1,765	53,928
2015	64,380	13,408	396	200	133	50,909	100	1,712	52,721
2016	65,004	15,203	396	220	133	49,758	100	1,658	51,517
2017	65,543	16,998	396	240	133	48,522	100	1,605	50,227
2018	66,127	18,793	396	240	133	47,311	93	1,551	48,955
2019	66,767	20,588	396	240	133	46,156	85	1,498	47,739
2020	67,284	21,845	396	240	133	45,416	77	1,391	46,884
2021	67,777	22,998	396	240	133	44,756	70	1,284	46,109
2022	68,206	23,839	396	240	133	44,345	70	1,177	45,591
2023	68,591	24,466	396	240	133	44,103	62	1,070	45,235
2024	68,920	24,897	396	240	133	44,000	62	963	45,025
2025	69,237	25,273	396	240	133	43,941	54	856	44,851

2009 BCAP

SoCalGas Core Industrial Tables
February 2008

Southern California Gas Company
2009 BCAP - Industrial G10
The Year the Equipment Was Installed by Business Types

Business Type	Fire_ Tube_ Boiler	Water_ Tube_ Boiler	Space_ Heat	Water_ Heat	Dryer	Furnace_ Oven_ Kiln	AC	Engine	Other
Mining	1981	1974	1978	1978	1968	1980	1973	1980	1975
Food	1980	1982	1975	1978	1976	1983	1970	1987	1977
Textile	1985	1979	1977	1978	1981	1976	1976 .		1979
Wood_Paper	1979	1975	1975	1976	1976	1976	1976 .		1980
Chemical	1980	1980	1976	1977	1967	1976	1974	1980	1979
Petroleum	1980	1981	1974	1977	1975	1979 .		1972	1978
Stone	1980	1973	1975	1977	1980	1978	1982 .		1977
Primary_Metal	1986	1979	1975	1976	1976	1977	1978 .		1974
Fabricated_Metal	1982	1981	1976	1977	1979	1979	1976	1972	1976
Transport	1980	1978	1976	1976	1980	1980	1974	1988	1976
Misc	1979	1980	1976	1976	1978	1978	1976	1979	1977

Southern California Gas Company
2009 BCAP - Industrial G10
Incremental Meter Forecast by Business Types

Year	Mining	Food	Textile	Wood_ Paper	Chemical	Petroleum	Stone	Primary_ Metal	Fabricated_ Metal	Transportation	Miscellaneous
2007	1	-22	-18	1	16	0	15	-2	92	4	-53
2008	0	-35	-18	0	16	0	3	-9	64	4	-47
2009	-2	-29	-16	0	15	0	-5	-4	67	5	-46
2010	-2	-4	-15	1	16	0	-5	-5	33	6	-38
2011	-2	24	-15	-1	15	0	-3	-1	33	-1	-59
2012	-2	39	-16	-2	12	-1	0	-1	43	-6	-68
2013	-2	46	-15	-2	13	-1	1	-4	27	-5	-60
2014	-2	43	-14	-1	15	-1	1	-4	18	-2	-52
2015	-2	31	-14	-1	18	-1	0	-5	29	-2	-50
2016	-1	22	-12	0	23	0	1	-5	14	1	-37
2017	-1	14	-11	0	29	0	1	-4	3	3	-30
2018	-1	14	-11	1	31	0	6	-4	-9	4	-26
2019	-1	16	-11	1	31	0	6	-5	-13	4	-26
2020	-1	23	-10	1	30	0	6	-5	-24	5	-24
2021	-1	31	-10	1	30	0	4	-5	-26	4	-27
2022	-1	35	-10	0	30	0	4	-5	-27	3	-29
2023	-1	36	-10	0	30	0	4	-4	-24	2	-31
2024	-1	33	-10	0	30	0	4	-4	-26	3	-29
2025	-1	32	-9	1	31	0	0	-4	-33	5	-22
2026	-1	32	-9	1	31	0	0	-4	-33	5	-22

Southern California Gas Company
2009 BCAP - Industrial G10
Electric Price Forecast **(Cent/KWH)**

(a) Average Price Forecast

Year	Chemical	Fab_Metal	Food	Mining	Petroleum	Prim_Metal	Stone	Textile	Transport	Wood_Paper	Misc
2006	13.03	12.38	12.48	12.88	12.91	12.24	12.93	12.72	13.25	14.15	13.60
2007	11.89	11.30	11.39	11.75	11.79	11.16	11.82	11.62	12.11	12.90	12.41
2008	12.61	12.05	12.13	12.47	12.51	11.92	12.53	12.35	12.81	13.55	13.09
2009	13.11	12.63	12.70	13.00	13.01	12.53	13.03	12.87	13.26	13.96	13.54
2010	12.87	12.39	12.46	12.76	12.77	12.28	12.79	12.63	13.03	13.73	13.31
2011	12.88	12.38	12.46	12.77	12.78	12.28	12.79	12.63	13.04	13.76	13.33
2012	13.19	12.66	12.74	13.07	13.08	12.55	13.10	12.92	13.36	14.12	13.66
2013	13.39	12.84	12.93	13.27	13.28	12.72	13.29	13.11	13.56	14.36	13.88
2014	13.44	12.88	12.97	13.32	13.33	12.76	13.35	13.16	13.63	14.44	13.95
2015	13.63	13.05	13.14	13.51	13.52	12.93	13.53	13.34	13.82	14.67	14.16
2016	13.70	13.10	13.19	13.57	13.58	12.97	13.59	13.40	13.89	14.76	14.24
2017	13.77	13.18	13.27	13.64	13.65	13.05	13.67	13.47	13.96	14.82	14.30
2018	13.84	13.24	13.33	13.71	13.72	13.11	13.73	13.54	14.03	14.90	14.37
2019	13.91	13.30	13.39	13.77	13.79	13.17	13.80	13.60	14.10	14.99	14.46
2020	13.97	13.37	13.46	13.84	13.85	13.23	13.87	13.67	14.17	15.06	14.52
2021	14.04	13.43	13.52	13.91	13.92	13.30	13.93	13.73	14.24	15.13	14.60
2022	14.11	13.49	13.59	13.97	13.98	13.36	14.00	13.80	14.30	15.20	14.66
2023	14.17	13.56	13.66	14.04	14.05	13.43	14.07	13.86	14.37	15.26	14.72
2024	14.24	13.63	13.72	14.10	14.12	13.50	14.13	13.93	14.43	15.32	14.79
2025	14.30	13.69	13.79	14.17	14.18	13.56	14.20	13.99	14.50	15.39	14.85

Southern California Gas Company
2009 BCAP - Industrial G10
Electric Price Forecast (Cent/KWH)

(b) Marginal Price Forecasat

Year	Chemical	Fab_Metal	Food	Mining	Petroleum	Prim_Metal	Stone	Textile	Transport	Wood_Paper	Misc
2006	10.28	9.98	10.00	10.18	10.22	9.92	10.19	10.10	10.30	10.78	10.50
2007	9.39	9.10	9.12	9.29	9.33	9.04	9.31	9.21	9.40	9.86	9.59
2008	9.95	9.68	9.70	9.86	9.89	9.62	9.87	9.78	9.96	10.39	10.14
2009	10.34	10.13	10.14	10.27	10.29	10.09	10.28	10.21	10.35	10.70	10.49
2010	10.15	9.94	9.95	10.08	10.11	9.90	10.09	10.02	10.16	10.51	10.31
2011	10.16	9.94	9.96	10.09	10.11	9.90	10.10	10.02	10.17	10.53	10.32
2012	10.40	10.17	10.19	10.33	10.35	10.12	10.33	10.26	10.41	10.80	10.57
2013	10.56	10.32	10.34	10.48	10.51	10.27	10.49	10.41	10.57	10.97	10.74
2014	10.60	10.36	10.37	10.52	10.55	10.31	10.53	10.45	10.62	11.03	10.79
2015	10.75	10.50	10.52	10.67	10.70	10.44	10.68	10.59	10.77	11.19	10.94
2016	10.80	10.54	10.56	10.72	10.75	10.49	10.73	10.64	10.82	11.25	11.00
2017	10.86	10.60	10.62	10.78	10.80	10.54	10.78	10.70	10.87	11.30	11.05
2018	10.91	10.65	10.67	10.83	10.86	10.60	10.84	10.75	10.93	11.36	11.11
2019	10.97	10.70	10.72	10.88	10.91	10.64	10.89	10.80	10.98	11.43	11.17
2020	11.02	10.76	10.77	10.93	10.96	10.70	10.94	10.85	11.04	11.48	11.22
2021	11.07	10.81	10.82	10.99	11.02	10.75	11.00	10.91	11.09	11.54	11.27
2022	11.12	10.86	10.87	11.04	11.07	10.80	11.05	10.96	11.14	11.59	11.33
2023	11.18	10.91	10.93	11.09	11.12	10.85	11.10	11.01	11.19	11.64	11.38
2024	11.23	10.96	10.98	11.14	11.17	10.91	11.15	11.06	11.24	11.69	11.43
2025	11.28	11.01	11.03	11.19	11.22	10.96	11.20	11.11	11.30	11.74	11.48

Southern California Gas Company
2009 BCAP - Industrial G10
Gas Price Forecast ($/Therm)

(a) Average Price Forecast

Year	Price Deflator	Chemical	Fabricated_ Metal	Food	Mining	Petroleum	Primary_ Metal	Stone	Textile	Transport	Wood_Pa per	Misc
2006	100.00	0.8576	0.8151	0.8215	0.8479	0.8496	0.8055	0.8512	0.8372	0.8723	0.9315	0.8953
2007	102.13	0.9404	0.8936	0.9005	0.9293	0.9321	0.8825	0.9342	0.9189	0.9576	1.0198	0.9811
2008	104.19	1.0582	1.0114	1.0183	1.0471	1.0499	1.0003	1.0520	1.0367	1.0754	1.1376	1.0989
2009	106.41	1.0805	1.0411	1.0471	1.0718	1.0725	1.0326	1.0736	1.0606	1.0931	1.1506	1.1161
2010	108.52	1.0503	1.0109	1.0170	1.0417	1.0424	1.0024	1.0434	1.0304	1.0630	1.1205	1.0860
2011	110.74	1.0232	0.9838	0.9899	1.0146	1.0153	0.9754	1.0163	1.0033	1.0359	1.0934	1.0589
2012	113.37	1.0098	0.9695	0.9757	1.0010	1.0017	0.9608	1.0028	0.9895	1.0228	1.0816	1.0463
2013	116.23	1.0121	0.9708	0.9772	1.0031	1.0038	0.9620	1.0049	0.9913	1.0254	1.0857	1.0495
2014	119.10	1.0145	0.9722	0.9787	1.0052	1.0060	0.9631	1.0071	0.9931	1.0281	1.0898	1.0528
2015	122.01	1.0181	0.9748	0.9815	1.0086	1.0094	0.9655	1.0106	0.9963	1.0321	1.0953	1.0574
2016	125.15	1.0211	0.9767	0.9835	1.0114	1.0122	0.9672	1.0133	0.9987	1.0354	1.1002	1.0613
2017	128.51	1.0617	1.0162	1.0232	1.0518	1.0526	1.0064	1.0538	1.0388	1.0764	1.1429	1.1030
2018	131.98	1.0881	1.0413	1.0485	1.0778	1.0787	1.0313	1.0799	1.0645	1.1031	1.1713	1.1304
2019	135.56	1.0988	1.0508	1.0582	1.0883	1.0892	1.0405	1.0904	1.0746	1.1142	1.1843	1.1423
2020	139.20	1.1315	1.0823	1.0899	1.1207	1.1216	1.0717	1.1229	1.1067	1.1474	1.2192	1.1761
2021	142.93	1.1564	1.1059	1.1137	1.1454	1.1463	1.0951	1.1476	1.1310	1.1727	1.2464	1.2022
2022	146.76	1.1950	1.1431	1.1511	1.1836	1.1846	1.1320	1.1859	1.1688	1.2117	1.2873	1.2419
2023	150.69	1.2377	1.1845	1.1927	1.2260	1.2270	1.1731	1.2284	1.2108	1.2548	1.3324	1.2859
2024	154.73	1.2813	1.2268	1.2352	1.2694	1.2704	1.2150	1.2718	1.2538	1.2989	1.3786	1.3308
2025	158.85	1.3139	1.2580	1.2666	1.3017	1.3027	1.2459	1.3042	1.2857	1.3320	1.4137	1.3647

Southern California Gas Company
2009 BCAP - Industrial G10
Gas Price Forecast ($/Therm)

(b) Marginal Price Forecasat

Year	Price Deflator	Chemical	Fabricated Metal	Food	Mining	Petroleum	Primary Metal	Stone	Textile	Transport	Wood Paper	Misc
2006	100.0000	0.8010	0.7778	0.7792	0.7933	0.7962	0.7727	0.7945	0.7867	0.8025	0.8403	0.8180
2007	102.1292	0.8779	0.8514	0.8530	0.8690	0.8725	0.8455	0.8706	0.8618	0.8797	0.9225	0.8973
2008	104.1880	0.9957	0.9692	0.9708	0.9868	0.9903	0.9632	0.9884	0.9796	0.9975	1.0403	1.0151
2009	106.4107	1.0281	1.0076	1.0088	1.0214	1.0237	1.0030	1.0221	1.0152	1.0293	1.0636	1.0436
2010	108.5206	0.9979	0.9774	0.9786	0.9912	0.9935	0.9729	0.9920	0.9851	0.9991	1.0335	1.0134
2011	110.7409	0.9708	0.9504	0.9516	0.9642	0.9665	0.9458	0.9649	0.9580	0.9721	1.0064	0.9863
2012	113.3651	0.9562	0.9353	0.9365	0.9494	0.9517	0.9306	0.9501	0.9431	0.9575	0.9926	0.9720
2013	116.2306	0.9572	0.9358	0.9370	0.9502	0.9526	0.9310	0.9510	0.9438	0.9585	0.9945	0.9734
2014	119.0983	0.9582	0.9363	0.9376	0.9511	0.9535	0.9314	0.9519	0.9445	0.9596	0.9964	0.9749
2015	122.0065	0.9605	0.9381	0.9394	0.9532	0.9558	0.9330	0.9540	0.9464	0.9619	0.9996	0.9776
2016	125.1475	0.9621	0.9390	0.9404	0.9546	0.9571	0.9338	0.9554	0.9476	0.9634	1.0021	0.9795
2017	128.5059	1.0012	0.9775	0.9789	0.9935	0.9961	0.9722	0.9943	0.9863	1.0026	1.0423	1.0191
2018	131.9772	1.0259	1.0016	1.0030	1.0180	1.0207	0.9962	1.0189	1.0107	1.0274	1.0681	1.0443
2019	135.5554	1.0350	1.0101	1.0115	1.0269	1.0297	1.0045	1.0278	1.0193	1.0365	1.0783	1.0538
2020	139.1977	1.0660	1.0404	1.0419	1.0577	1.0606	1.0347	1.0586	1.0500	1.0676	1.1105	1.0854
2021	142.9339	1.0892	1.0630	1.0645	1.0807	1.0837	1.0571	1.0816	1.0728	1.0908	1.1349	1.1091
2022	146.7639	1.1260	1.0991	1.1007	1.1173	1.1203	1.0931	1.1182	1.1091	1.1277	1.1728	1.1464
2023	150.6914	1.1669	1.1393	1.1409	1.1580	1.1610	1.1331	1.1589	1.1496	1.1686	1.2149	1.1878
2024	154.7270	1.2087	1.1804	1.1821	1.1995	1.2027	1.1740	1.2005	1.1910	1.2105	1.2580	1.2302
2025	158.8457	1.2395	1.2104	1.2121	1.2300	1.2333	1.2039	1.2311	1.2212	1.2412	1.2900	1.2615

Southern California Gas Company
2009 BCAP - Industrial G10
Historical Throughput and Customer Counts

Business Type	therms_ 2006	meters_ 2006	meters_ 2006_ ExCust	meters_ 2006_ NewCust	avgUse_ 2006_ ExCust	avgUse_ 2006_ NewCust	Price Elasticity	Employment Elasticity
Mining	4347320.29	258	254	4	17105.82	610.61	0.000000	0.321451
Food	58469104.97	2239	2178	61	26232.64	21875.74	-0.190795	1.242506
Textile	25743561.35	775	767	8	33535.07	2770.26	0.000000	0.033325
Wood_Paper	7422544.50	681	668	13	11044.01	3472.90	0.000000	0.508272
Chemical	16793192.29	906	893	13	18030.22	53246.69	-0.080517	0.650067
Petroleum	10015236.55	182	182	0	55028.77	0.00	-0.180563	0.084537
Stone	9005585.20	607	601	6	14955.12	2925.86	0.000000	0.416909
Primary_Metal	12748307.00	411	411	0	31017.78	0.00	0.000000	0.956685
Fabricated_Metal	26170011.67	2319	2301	18	11301.29	9207.46	-0.137441	1.023881
Transportation	9652417.96	2333	2323	10	4151.18	922.75	0.000000	0.402505
Misc	58890972.41	9668	9595	73	6098.25	5181.45	-0.108307	0.879307

Southern California Gas Company
2009 BCAP - Industrial G10
Average Use Per Meter

therm

Business Type	Fire_ Tube_ Boiler	Water_ Tube_ Boiler	Space_ Heat	Water_ Heat	Dryer	Furnace_ Oven_ Kiln	AC	Engine	Other	Total
Mining	4366.6	42.6	491.8	121.7	1553.1	1535.6	11.0	1218.1	4169.3	13509.8
Food	16172.7	3829.2	1397.9	549.5	1970.7	4751.6	95.4	397.2	3383.0	32547.2
Textile	13453.1	3495.6	435.2	874.1	8247.0	1773.6	282.9	0.0	904.9	29466.4
Wood_Paper	4003.5	1313.9	895.2	91.2	727.6	1271.4	12.3	0.0	1333.4	9648.5
Chemical	5933.3	3338.2	757.4	575.4	49.0	1093.9	6.3	0.3	3051.2	14805.0
Petroleum	7748.0	1953.7	342.9	449.8	25523.9	112.3	0.0	34.5	10240.9	46406.0
Stone	1797.2	357.2	697.5	675.5	3176.5	6897.1	127.4	0.0	1204.3	14932.7
Prim_Metal	442.0	1396.6	1205.0	287.3	59.1	25647.9	237.4	0.0	2342.9	31618.2
Fab_Metal	1535.4	1498.7	1207.0	266.6	133.7	3842.0	20.7	0.0	2434.7	10938.7
Transport	387.3	225.6	666.8	192.0	424.5	723.0	5.7	2.5	373.0	3000.4
Misc	750.9	528.1	496.4	138.2	336.2	1853.1	33.0	6.0	952.2	5094.1

Southern California Gas Company
2009 BCAP - Industrial G10
Use Per Meter for New Customers therm

Business Type	Fire_ Tube_ Boiler	Water_ Tube_ Boiler	Space_ Heat	Water_ Heat	Dryer	Furnace_ Oven_ Kiln	AC	Engine	Other	Total
Mining	0.0	0.0	0.0	0.0	0.0	0.0	0.0	35872.2	0.0	35872.2
Food	13791.7	2.8	205.1	225.3	0.0	0.0	0.0	0.0	0.0	14224.8
Textile	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wood_Paper	.	.	.	.	.	.	.	.	.	0.0
Chemical	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17866.6	17866.6
Petroleum	0.0	0.0	0.0	0.0	140409.4	0.0	0.0	0.0	0.0	140409.4
Stone	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prim_Metal	0.0	0.0	0.0	891.7	0.0	14986.1	0.0	0.0	4995.4	20873.2
Fab_Metal	0.0	0.0	558.2	0.0	0.0	3041.6	0.0	0.0	8110.9	11710.8
Transport	0.0	0.0	0.0	0.0	0.0	2306.4	0.0	0.0	331.4	2637.8
Misc	612.3	0.0	0.0	5.0	2182.2	1428.8	0.0	0.0	983.8	5212.0

Southern California Gas Company
2009 BCAP - Industrial G10
Electric UEC (Kwh/SqFt)

Business Type	Fire_ Tube_ Boiler	Water_ Tube_ Boiler	Space_ Heat	Water_ Heat	Dryer	Furnace_ Oven_ Kiln	AC	Engine	Other
Mining	12053557	117480	22540	4117	3349437	1388699	3261	2871579	.
Food	992080	234899	77958	15939	1062552	781260	24817	1163891	.
Textile	1428304	371125	20797	30369	3811277	1069238	74615	0	.
Wood_Paper	11051345	3626956	48301	2915	523062	985476	3282	0	.
Chemical	1169880	658201	34723	19440	26417	593554	1620	738	.
Petroleum	1527674	385215	15711	15192	13761553	60935	0	101154	.
Stone	4960873	985989	31975	22824	6850607	6237158	37820	0	.
Primary_Metal	174313	550730	55233	9317	25494	13916258	66288	0	.
Fabricated_Metal	605450	591011	55315	8658	57653	2084618	5763	0	.
Transportation	76358	44486	30560	6490	228869	392291	1456	7240	.
Miscellaneous	148060	104128	22745	4673	181266	1005453	8471	17618	.

Southern California Gas Company
2009 BCAP - Industrial G10
GAS UEC (Therm per SqFt.)

Business Type	Fire_ Tube_ Boiler	Water_ Tube_ Boiler	Space_ Heat	Water_ Heat	Dryer	Furnace_ Oven_ Kiln	AC	Engine	Other
Mining	587697	5728	1099	281	163309	67709	159	140010	4169
Food	48371	11453	3801	1088	51807	38092	1210	56748	3383
Textile	69640	18095	1014	2073	185827	52133	3638	0	905
Wood_Paper	538832	176840	2355	199	25503	48049	160	0	1333
Chemical	57040	32092	1693	1327	1288	28940	79	36	3051
Petroleum	74485	18782	766	1037	670974	2971	0	4932	10241
Stone	241878	48074	1559	1558	334016	304106	1844	0	1204
Primary_Metal	8499	26852	2693	636	1243	678517	3232	0	2343
Fabricated_Metal	29520	28816	2697	591	2811	101640	281	0	2435
Transportation	3723	2169	1490	443	11159	19127	71	353	373
Miscellaneous	7219	5077	1109	319	8838	49023	413	859	

Southern California Gas Company
2009 BCAP - Industrial G10
Gas Market Shares

Business Type	Fire_ Tube_ Boiler	Water_ Tube_ Boiler	Space_ Heat	Water_ Heat	Dryer	Furnace_ Oven_ Kiln	AC	Engine	Other
Chemical	0.74	0.74	0.61	0.59	0.32	0.38	0.11	0.01	1
Fabricated_Metal	0.74	0.74	0.61	0.59	0.32	0.38	0.11	0.01	1
Food	0.74	0.74	0.61	0.59	0.32	0.38	0.11	0.01	1
Mining	0.74	0.74	0.61	0.59	0.32	0.38	0.11	0.01	1
Miscllaneous	0.74	0.74	0.61	0.59	0.32	0.38	0.11	0.01	1
Petroleum	0.74	0.74	0.61	0.59	0.32	0.38	0.11	0.01	1
Primary_Metal	0.74	0.74	0.61	0.59	0.32	0.38	0.11	0.01	1
Stone	0.74	0.74	0.61	0.59	0.32	0.38	0.11	0.01	1
Textile	0.74	0.74	0.61	0.59	0.32	0.38	0.11	0.01	1
Transportation	0.74	0.74	0.61	0.59	0.32	0.38	0.11	0.01	1
Wood_Paper	0.74	0.74	0.61	0.59	0.32	0.38	0.11	0.01	1

Southern California Gas Company
2009 BCAP - Industrial G10
Saturation Rate

Business Type	Fire_ Tube_ Boiler	Water_ Tube_ Boiler	Space_ Heat	Water_ Heat	Dryer	Furnace_ Oven_ Kiln	AC	Engine	Other
Mining	0.01	0.01	0.73	0.73	0.03	0.06	0.64	0.87	1.00
Food	0.45	0.45	0.60	0.85	0.12	0.33	0.73	0.70	1.00
Textile	0.26	0.26	0.70	0.71	0.14	0.09	0.72	0.46	1.00
Wood_Paper	0.01	0.01	0.62	0.77	0.09	0.07	0.71	0.50	1.00
Chemical	0.14	0.14	0.73	0.73	0.12	0.10	0.74	0.70	1.00
Petroleum	0.14	0.14	0.73	0.73	0.12	0.10	0.74	0.70	1.00
Stone	0.01	0.01	0.73	0.73	0.03	0.06	0.64	0.87	1.00
Prim_Metal	0.07	0.07	0.73	0.76	0.15	0.10	0.68	0.86	1.00
Fab_Metal	0.07	0.07	0.73	0.76	0.15	0.10	0.68	0.86	1.00
Transport	0.14	0.14	0.73	0.73	0.12	0.10	0.74	0.70	1.00
Misc	0.14	0.14	0.73	0.73	0.12	0.10	0.74	0.70	1.00

Southern California Gas Company
2009 BCAP - Industrial G10
UEC, Equipment Cost and Efficiency Shares

Where Fuel = 1 (gas) and = 2 (electric), and
Efficiency =1 (stock), =2 (standard), =3 (high) and =4 (premium)

Business Type	End Use	Fuel	Efficiency	EQcost
Mining	Fire_Tube_Boiler	1	1	3,907,010
Mining	Fire_Tube_Boiler	1	2	4,297,711
Mining	Fire_Tube_Boiler	1	3	4,688,412
Mining	Fire_Tube_Boiler	2	1	3,125,608
Mining	Fire_Tube_Boiler	2	2	3,438,169
Mining	Fire_Tube_Boiler	2	3	3,750,729
Mining	Water_Tube_Boiler	1	1	38,080
Mining	Water_Tube_Boiler	1	2	41,888
Mining	Water_Tube_Boiler	1	3	45,696
Mining	Water_Tube_Boiler	2	1	30,464
Mining	Water_Tube_Boiler	2	2	33,510
Mining	Water_Tube_Boiler	2	3	36,557
Mining	Space_Heat	1	1	7,306
Mining	Space_Heat	1	2	8,037
Mining	Space_Heat	1	3	8,767
Mining	Space_Heat	2	1	5,845
Mining	Space_Heat	2	2	6,429
Mining	Space_Heat	2	3	7,014
Mining	Water_Heat	1	1	1,868
Mining	Water_Heat	1	2	2,055
Mining	Water_Heat	1	3	2,242
Mining	Water_Heat	2	1	1,494
Mining	Water_Heat	2	2	1,644
Mining	Water_Heat	2	3	1,793
Mining	Dryer	1	1	1,085,678
Mining	Dryer	1	2	1,194,246
Mining	Dryer	1	3	1,302,814
Mining	Dryer	2	1	868,543
Mining	Dryer	2	2	955,397
Mining	Dryer	2	3	1,042,251
Mining	Furnace_Oven_Kiln	1	1	450,129
Mining	Furnace_Oven_Kiln	1	2	495,142
Mining	Furnace_Oven_Kiln	1	3	540,155
Mining	Furnace_Oven_Kiln	2	1	360,104
Mining	Furnace_Oven_Kiln	2	2	396,114
Mining	Furnace_Oven_Kiln	2	3	432,124
Mining	AC	1	1	1,057
Mining	AC	1	2	1,163
Mining	AC	1	3	1,268
Mining	AC	2	1	846
Mining	AC	2	2	930
Mining	AC	2	3	1,015
Mining	Engine	1	1	930,786
Mining	Engine	1	2	1,023,865
Mining	Engine	1	3	1,116,944
Mining	Engine	2	1	744,629
Mining	Engine	2	2	819,092
Mining	Engine	2	3	893,555
Mining	Other	1	1	-
Mining	Other	1	2	-
Mining	Other	1	3	-
Mining	Other	2	1	-
Mining	Other	2	2	-
Mining	Other	2	3	-

Southern California Gas Company
2009 BCAP - Industrial G10
UEC, Equipment Cost and Efficiency Shares

Where Fuel = 1 (gas) and = 2 (electric), and
Efficiency =1 (stock), =2 (standard), =3 (high) and =4 (premium)

Business Type	End Use	Fuel	Efficiency	EQcost
Food	Fire_Tube_Boiler	1	1	303,093
Food	Fire_Tube_Boiler	1	2	333,402
Food	Fire_Tube_Boiler	1	3	363,711
Food	Fire_Tube_Boiler	2	1	242,474
Food	Fire_Tube_Boiler	2	2	266,722
Food	Fire_Tube_Boiler	2	3	290,969
Food	Water_Tube_Boiler	1	1	71,765
Food	Water_Tube_Boiler	1	2	78,941
Food	Water_Tube_Boiler	1	3	86,117
Food	Water_Tube_Boiler	2	1	57,412
Food	Water_Tube_Boiler	2	2	63,153
Food	Water_Tube_Boiler	2	3	68,894
Food	Space_Heat	1	1	23,817
Food	Space_Heat	1	2	26,199
Food	Space_Heat	1	3	28,580
Food	Space_Heat	2	1	19,054
Food	Space_Heat	2	2	20,959
Food	Space_Heat	2	3	22,864
Food	Water_Heat	1	1	6,817
Food	Water_Heat	1	2	7,499
Food	Water_Heat	1	3	8,181
Food	Water_Heat	2	1	5,454
Food	Water_Heat	2	2	5,999
Food	Water_Heat	2	3	6,545
Food	Dryer	1	1	324,623
Food	Dryer	1	2	357,085
Food	Dryer	1	3	389,547
Food	Dryer	2	1	259,698
Food	Dryer	2	2	285,668
Food	Dryer	2	3	311,638
Food	Furnace_Oven_Kiln	1	1	238,684
Food	Furnace_Oven_Kiln	1	2	262,553
Food	Furnace_Oven_Kiln	1	3	286,421
Food	Furnace_Oven_Kiln	2	1	190,948
Food	Furnace_Oven_Kiln	2	2	210,042
Food	Furnace_Oven_Kiln	2	3	229,137
Food	AC	1	1	7,582
Food	AC	1	2	8,340
Food	AC	1	3	9,098
Food	AC	2	1	6,065
Food	AC	2	2	6,672
Food	AC	2	3	7,279
Food	Engine	1	1	355,583
Food	Engine	1	2	391,141
Food	Engine	1	3	426,700
Food	Engine	2	1	284,466
Food	Engine	2	2	312,913
Food	Engine	2	3	341,360
Food	Other	1	1	-
Food	Other	1	2	-
Food	Other	1	3	-
Food	Other	2	1	-
Food	Other	2	2	-
Food	Other	2	3	-

Southern California Gas Company
2009 BCAP - Industrial G10
UEC, Equipment Cost and Efficiency Shares

Where Fuel = 1 (gas) and = 2 (electric), and
Efficiency =1 (stock), =2 (standard), =3 (high) and =4 (premium)

Business Type	End Use	Fuel	Efficiency	EQcost
Textile	Fire_Tube_Boiler	1	1	440,682
Textile	Fire_Tube_Boiler	1	2	484,750
Textile	Fire_Tube_Boiler	1	3	528,818
Textile	Fire_Tube_Boiler	2	1	352,546
Textile	Fire_Tube_Boiler	2	2	387,800
Textile	Fire_Tube_Boiler	2	3	423,055
Textile	Water_Tube_Boiler	1	1	114,505
Textile	Water_Tube_Boiler	1	2	125,956
Textile	Water_Tube_Boiler	1	3	137,406
Textile	Water_Tube_Boiler	2	1	91,604
Textile	Water_Tube_Boiler	2	2	100,765
Textile	Water_Tube_Boiler	2	3	109,925
Textile	Space_Heat	1	1	6,417
Textile	Space_Heat	1	2	7,058
Textile	Space_Heat	1	3	7,700
Textile	Space_Heat	2	1	5,133
Textile	Space_Heat	2	2	5,647
Textile	Space_Heat	2	3	6,160
Textile	Water_Heat	1	1	13,118
Textile	Water_Heat	1	2	14,430
Textile	Water_Heat	1	3	15,742
Textile	Water_Heat	2	1	10,494
Textile	Water_Heat	2	2	11,544
Textile	Water_Heat	2	3	12,593
Textile	Dryer	1	1	1,175,913
Textile	Dryer	1	2	1,293,505
Textile	Dryer	1	3	1,411,096
Textile	Dryer	2	1	940,731
Textile	Dryer	2	2	1,034,804
Textile	Dryer	2	3	1,128,877
Textile	Furnace_Oven_Kiln	1	1	329,898
Textile	Furnace_Oven_Kiln	1	2	362,887
Textile	Furnace_Oven_Kiln	1	3	395,877
Textile	Furnace_Oven_Kiln	2	1	263,918
Textile	Furnace_Oven_Kiln	2	2	290,310
Textile	Furnace_Oven_Kiln	2	3	316,702
Textile	AC	1	1	23,021
Textile	AC	1	2	25,323
Textile	AC	1	3	27,626
Textile	AC	2	1	18,417
Textile	AC	2	2	20,259
Textile	AC	2	3	22,100
Textile	Engine	1	1	-
Textile	Engine	1	2	-
Textile	Engine	1	3	-
Textile	Engine	2	1	-
Textile	Engine	2	2	-
Textile	Engine	2	3	-
Textile	Other	1	1	-
Textile	Other	1	2	-
Textile	Other	1	3	-
Textile	Other	2	1	-
Textile	Other	2	2	-
Textile	Other	2	3	-

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Where Fuel = 1 (gas) and = 2 (electric), and
Efficiency =1 (stock), =2 (standard), =3 (high) and =4 (premium)

Business Type	End Use	Fuel	Efficiency	EQcost
Wood_Paper	Fire_Tube_Boiler	1	1	3,531,505
Wood_Paper	Fire_Tube_Boiler	1	2	3,884,655
Wood_Paper	Fire_Tube_Boiler	1	3	4,237,806
Wood_Paper	Fire_Tube_Boiler	2	1	2,825,204
Wood_Paper	Fire_Tube_Boiler	2	2	3,107,724
Wood_Paper	Fire_Tube_Boiler	2	3	3,390,245
Wood_Paper	Water_Tube_Boiler	1	1	1,159,009
Wood_Paper	Water_Tube_Boiler	1	2	1,274,910
Wood_Paper	Water_Tube_Boiler	1	3	1,390,811
Wood_Paper	Water_Tube_Boiler	2	1	927,207
Wood_Paper	Water_Tube_Boiler	2	2	1,019,928
Wood_Paper	Water_Tube_Boiler	2	3	1,112,649
Wood_Paper	Space_Heat	1	1	15,435
Wood_Paper	Space_Heat	1	2	16,978
Wood_Paper	Space_Heat	1	3	18,522
Wood_Paper	Space_Heat	2	1	12,348
Wood_Paper	Space_Heat	2	2	13,583
Wood_Paper	Space_Heat	2	3	14,817
Wood_Paper	Water_Heat	1	1	1,304
Wood_Paper	Water_Heat	1	2	1,435
Wood_Paper	Water_Heat	1	3	1,565
Wood_Paper	Water_Heat	2	1	1,043
Wood_Paper	Water_Heat	2	2	1,148
Wood_Paper	Water_Heat	2	3	1,252
Wood_Paper	Dryer	1	1	167,147
Wood_Paper	Dryer	1	2	183,861
Wood_Paper	Dryer	1	3	200,576
Wood_Paper	Dryer	2	1	133,717
Wood_Paper	Dryer	2	2	147,089
Wood_Paper	Dryer	2	3	160,461
Wood_Paper	Furnace_Oven_Kiln	1	1	314,913
Wood_Paper	Furnace_Oven_Kiln	1	2	346,404
Wood_Paper	Furnace_Oven_Kiln	1	3	377,896
Wood_Paper	Furnace_Oven_Kiln	2	1	251,931
Wood_Paper	Furnace_Oven_Kiln	2	2	277,124
Wood_Paper	Furnace_Oven_Kiln	2	3	302,317
Wood_Paper	AC	1	1	1,049
Wood_Paper	AC	1	2	1,154
Wood_Paper	AC	1	3	1,258
Wood_Paper	AC	2	1	839
Wood_Paper	AC	2	2	923
Wood_Paper	AC	2	3	1,007
Wood_Paper	Engine	1	1	-
Wood_Paper	Engine	1	2	-
Wood_Paper	Engine	1	3	-
Wood_Paper	Engine	2	1	-
Wood_Paper	Engine	2	2	-
Wood_Paper	Engine	2	3	-
Wood_Paper	Other	1	1	-
Wood_Paper	Other	1	2	-
Wood_Paper	Other	1	3	-
Wood_Paper	Other	2	1	-
Wood_Paper	Other	2	2	-
Wood_Paper	Other	2	3	-

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Where Fuel = 1 (gas) and = 2 (electric), and
Efficiency =1 (stock), =2 (standard), =3 (high) and =4 (premium)

Business Type	End Use	Fuel	Efficiency	EQcost
Chemical	Fire_Tube_Boiler	1	1	374,525
Chemical	Fire_Tube_Boiler	1	2	411,977
Chemical	Fire_Tube_Boiler	1	3	449,430
Chemical	Fire_Tube_Boiler	2	1	299,620
Chemical	Fire_Tube_Boiler	2	2	329,582
Chemical	Fire_Tube_Boiler	2	3	359,544
Chemical	Water_Tube_Boiler	1	1	210,716
Chemical	Water_Tube_Boiler	1	2	231,788
Chemical	Water_Tube_Boiler	1	3	252,859
Chemical	Water_Tube_Boiler	2	1	168,573
Chemical	Water_Tube_Boiler	2	2	185,430
Chemical	Water_Tube_Boiler	2	3	202,287
Chemical	Space_Heat	1	1	11,116
Chemical	Space_Heat	1	2	12,228
Chemical	Space_Heat	1	3	13,339
Chemical	Space_Heat	2	1	8,893
Chemical	Space_Heat	2	2	9,782
Chemical	Space_Heat	2	3	10,672
Chemical	Water_Heat	1	1	8,713
Chemical	Water_Heat	1	2	9,584
Chemical	Water_Heat	1	3	10,456
Chemical	Water_Heat	2	1	6,970
Chemical	Water_Heat	2	2	7,668
Chemical	Water_Heat	2	3	8,365
Chemical	Dryer	1	1	8,457
Chemical	Dryer	1	2	9,303
Chemical	Dryer	1	3	10,148
Chemical	Dryer	2	1	6,766
Chemical	Dryer	2	2	7,442
Chemical	Dryer	2	3	8,119
Chemical	Furnace_Oven_Kiln	1	1	190,020
Chemical	Furnace_Oven_Kiln	1	2	209,022
Chemical	Furnace_Oven_Kiln	1	3	228,024
Chemical	Furnace_Oven_Kiln	2	1	152,016
Chemical	Furnace_Oven_Kiln	2	2	167,218
Chemical	Furnace_Oven_Kiln	2	3	182,419
Chemical	AC	1	1	519
Chemical	AC	1	2	571
Chemical	AC	1	3	622
Chemical	AC	2	1	415
Chemical	AC	2	2	456
Chemical	AC	2	3	498
Chemical	Engine	1	1	236
Chemical	Engine	1	2	260
Chemical	Engine	1	3	284
Chemical	Engine	2	1	189
Chemical	Engine	2	2	208
Chemical	Engine	2	3	227
Chemical	Other	1	1	-
Chemical	Other	1	2	-
Chemical	Other	1	3	-
Chemical	Other	2	1	-
Chemical	Other	2	2	-
Chemical	Other	2	3	-

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Where Fuel = 1 (gas) and = 2 (electric), and
Efficiency =1 (stock), =2 (standard), =3 (high) and =4 (premium)

Business Type	End Use	Fuel	Efficiency	EQcost
Petroleum	Fire_Tube_Boiler	1	1	461,658
Petroleum	Fire_Tube_Boiler	1	2	507,824
Petroleum	Fire_Tube_Boiler	1	3	553,990
Petroleum	Fire_Tube_Boiler	2	1	369,326
Petroleum	Fire_Tube_Boiler	2	2	406,259
Petroleum	Fire_Tube_Boiler	2	3	443,192
Petroleum	Water_Tube_Boiler	1	1	116,411
Petroleum	Water_Tube_Boiler	1	2	128,052
Petroleum	Water_Tube_Boiler	1	3	139,693
Petroleum	Water_Tube_Boiler	2	1	93,129
Petroleum	Water_Tube_Boiler	2	2	102,442
Petroleum	Water_Tube_Boiler	2	3	111,754
Petroleum	Space_Heat	1	1	4,748
Petroleum	Space_Heat	1	2	5,222
Petroleum	Space_Heat	1	3	5,697
Petroleum	Space_Heat	2	1	3,798
Petroleum	Space_Heat	2	2	4,178
Petroleum	Space_Heat	2	3	4,558
Petroleum	Water_Heat	1	1	6,427
Petroleum	Water_Heat	1	2	7,070
Petroleum	Water_Heat	1	3	7,713
Petroleum	Water_Heat	2	1	5,142
Petroleum	Water_Heat	2	2	5,656
Petroleum	Water_Heat	2	3	6,170
Petroleum	Dryer	1	1	4,158,697
Petroleum	Dryer	1	2	4,574,567
Petroleum	Dryer	1	3	4,990,436
Petroleum	Dryer	2	1	3,326,957
Petroleum	Dryer	2	2	3,659,653
Petroleum	Dryer	2	3	3,992,349
Petroleum	Furnace_Oven_Kiln	1	1	18,414
Petroleum	Furnace_Oven_Kiln	1	2	20,256
Petroleum	Furnace_Oven_Kiln	1	3	22,097
Petroleum	Furnace_Oven_Kiln	2	1	14,731
Petroleum	Furnace_Oven_Kiln	2	2	16,205
Petroleum	Furnace_Oven_Kiln	2	3	17,678
Petroleum	AC	1	1	-
Petroleum	AC	1	2	-
Petroleum	AC	1	3	-
Petroleum	AC	2	1	-
Petroleum	AC	2	2	-
Petroleum	AC	2	3	-
Petroleum	Engine	1	1	30,569
Petroleum	Engine	1	2	33,625
Petroleum	Engine	1	3	36,682
Petroleum	Engine	2	1	24,455
Petroleum	Engine	2	2	26,900
Petroleum	Engine	2	3	29,346
Petroleum	Other	1	1	-
Petroleum	Other	1	2	-
Petroleum	Other	1	3	-
Petroleum	Other	2	1	-
Petroleum	Other	2	2	-
Petroleum	Other	2	3	-

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Where Fuel = 1 (gas) and = 2 (electric), and
Efficiency =1 (stock), =2 (standard), =3 (high) and =4 (premium)

Business Type	End Use	Fuel	Efficiency	EQcost
Stone	Fire_Tube_Boiler	1	1	1,591,073
Stone	Fire_Tube_Boiler	1	2	1,750,181
Stone	Fire_Tube_Boiler	1	3	1,909,288
Stone	Fire_Tube_Boiler	2	1	1,272,859
Stone	Fire_Tube_Boiler	2	2	1,400,145
Stone	Fire_Tube_Boiler	2	3	1,527,431
Stone	Water_Tube_Boiler	1	1	316,231
Stone	Water_Tube_Boiler	1	2	347,854
Stone	Water_Tube_Boiler	1	3	379,477
Stone	Water_Tube_Boiler	2	1	252,985
Stone	Water_Tube_Boiler	2	2	278,283
Stone	Water_Tube_Boiler	2	3	303,582
Stone	Space_Heat	1	1	10,255
Stone	Space_Heat	1	2	11,281
Stone	Space_Heat	1	3	12,306
Stone	Space_Heat	2	1	8,204
Stone	Space_Heat	2	2	9,024
Stone	Space_Heat	2	3	9,845
Stone	Water_Heat	1	1	10,249
Stone	Water_Heat	1	2	11,273
Stone	Water_Heat	1	3	12,298
Stone	Water_Heat	2	1	8,199
Stone	Water_Heat	2	2	9,019
Stone	Water_Heat	2	3	9,839
Stone	Dryer	1	1	2,197,157
Stone	Dryer	1	2	2,416,873
Stone	Dryer	1	3	2,636,589
Stone	Dryer	2	1	1,757,726
Stone	Dryer	2	2	1,933,498
Stone	Dryer	2	3	2,109,271
Stone	Furnace_Oven_Kiln	1	1	2,000,409
Stone	Furnace_Oven_Kiln	1	2	2,200,450
Stone	Furnace_Oven_Kiln	1	3	2,400,491
Stone	Furnace_Oven_Kiln	2	1	1,600,327
Stone	Furnace_Oven_Kiln	2	2	1,760,360
Stone	Furnace_Oven_Kiln	2	3	1,920,393
Stone	AC	1	1	12,130
Stone	AC	1	2	13,343
Stone	AC	1	3	14,556
Stone	AC	2	1	9,704
Stone	AC	2	2	10,674
Stone	AC	2	3	11,645
Stone	Engine	1	1	-
Stone	Engine	1	2	-
Stone	Engine	1	3	-
Stone	Engine	2	1	-
Stone	Engine	2	2	-
Stone	Engine	2	3	-
Stone	Other	1	1	-
Stone	Other	1	2	-
Stone	Other	1	3	-
Stone	Other	2	1	-
Stone	Other	2	2	-
Stone	Other	2	3	-

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UEC, Equipment Cost and Efficiency Shares

Where Fuel = 1 (gas) and = 2 (electric), and
Efficiency =1 (stock), =2 (standard), =3 (high) and =4 (premium)

Business Type	End Use	Fuel	Efficiency	EQcost
Prim_Metal	Fire_Tube_Boiler	1	1	54,853
Prim_Metal	Fire_Tube_Boiler	1	2	60,338
Prim_Metal	Fire_Tube_Boiler	1	3	65,823
Prim_Metal	Fire_Tube_Boiler	2	1	43,882
Prim_Metal	Fire_Tube_Boiler	2	2	48,270
Prim_Metal	Fire_Tube_Boiler	2	3	52,658
Prim_Metal	Water_Tube_Boiler	1	1	173,303
Prim_Metal	Water_Tube_Boiler	1	2	190,633
Prim_Metal	Water_Tube_Boiler	1	3	207,963
Prim_Metal	Water_Tube_Boiler	2	1	138,642
Prim_Metal	Water_Tube_Boiler	2	2	152,506
Prim_Metal	Water_Tube_Boiler	2	3	166,371
Prim_Metal	Space_Heat	1	1	17,381
Prim_Metal	Space_Heat	1	2	19,119
Prim_Metal	Space_Heat	1	3	20,857
Prim_Metal	Space_Heat	2	1	13,905
Prim_Metal	Space_Heat	2	2	15,295
Prim_Metal	Space_Heat	2	3	16,685
Prim_Metal	Water_Heat	1	1	4,105
Prim_Metal	Water_Heat	1	2	4,515
Prim_Metal	Water_Heat	1	3	4,926
Prim_Metal	Water_Heat	2	1	3,284
Prim_Metal	Water_Heat	2	2	3,612
Prim_Metal	Water_Heat	2	3	3,941
Prim_Metal	Dryer	1	1	8,022
Prim_Metal	Dryer	1	2	8,825
Prim_Metal	Dryer	1	3	9,627
Prim_Metal	Dryer	2	1	6,418
Prim_Metal	Dryer	2	2	7,060
Prim_Metal	Dryer	2	3	7,701
Prim_Metal	Furnace_Oven_Kiln	1	1	4,379,149
Prim_Metal	Furnace_Oven_Kiln	1	2	4,817,064
Prim_Metal	Furnace_Oven_Kiln	1	3	5,254,978
Prim_Metal	Furnace_Oven_Kiln	2	1	3,503,319
Prim_Metal	Furnace_Oven_Kiln	2	2	3,853,651
Prim_Metal	Furnace_Oven_Kiln	2	3	4,203,983
Prim_Metal	AC	1	1	20,859
Prim_Metal	AC	1	2	22,945
Prim_Metal	AC	1	3	25,031
Prim_Metal	AC	2	1	16,687
Prim_Metal	AC	2	2	18,356
Prim_Metal	AC	2	3	20,025
Prim_Metal	Engine	1	1	-
Prim_Metal	Engine	1	2	-
Prim_Metal	Engine	1	3	-
Prim_Metal	Engine	2	1	-
Prim_Metal	Engine	2	2	-
Prim_Metal	Engine	2	3	-
Prim_Metal	Other	1	1	-
Prim_Metal	Other	1	2	-
Prim_Metal	Other	1	3	-
Prim_Metal	Other	2	1	-
Prim_Metal	Other	2	2	-
Prim_Metal	Other	2	3	-

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Where Fuel = 1 (gas) and = 2 (electric), and
Efficiency =1 (stock), =2 (standard), =3 (high) and =4 (premium)

Business Type	End Use	Fuel	Efficiency	EQcost
Fab_Metal	Fire_Tube_Boiler	1	1	199,496
Fab_Metal	Fire_Tube_Boiler	1	2	219,446
Fab_Metal	Fire_Tube_Boiler	1	3	239,395
Fab_Metal	Fire_Tube_Boiler	2	1	159,597
Fab_Metal	Fire_Tube_Boiler	2	2	175,557
Fab_Metal	Fire_Tube_Boiler	2	3	191,516
Fab_Metal	Water_Tube_Boiler	1	1	194,739
Fab_Metal	Water_Tube_Boiler	1	2	214,212
Fab_Metal	Water_Tube_Boiler	1	3	233,686
Fab_Metal	Water_Tube_Boiler	2	1	155,791
Fab_Metal	Water_Tube_Boiler	2	2	171,370
Fab_Metal	Water_Tube_Boiler	2	3	186,949
Fab_Metal	Space_Heat	1	1	18,226
Fab_Metal	Space_Heat	1	2	20,049
Fab_Metal	Space_Heat	1	3	21,872
Fab_Metal	Space_Heat	2	1	14,581
Fab_Metal	Space_Heat	2	2	16,039
Fab_Metal	Space_Heat	2	3	17,497
Fab_Metal	Water_Heat	1	1	3,994
Fab_Metal	Water_Heat	1	2	4,393
Fab_Metal	Water_Heat	1	3	4,793
Fab_Metal	Water_Heat	2	1	3,195
Fab_Metal	Water_Heat	2	2	3,515
Fab_Metal	Water_Heat	2	3	3,834
Fab_Metal	Dryer	1	1	18,997
Fab_Metal	Dryer	1	2	20,896
Fab_Metal	Dryer	1	3	22,796
Fab_Metal	Dryer	2	1	15,197
Fab_Metal	Dryer	2	2	16,717
Fab_Metal	Dryer	2	3	18,237
Fab_Metal	Furnace_Oven_Kiln	1	1	686,883
Fab_Metal	Furnace_Oven_Kiln	1	2	755,571
Fab_Metal	Furnace_Oven_Kiln	1	3	824,260
Fab_Metal	Furnace_Oven_Kiln	2	1	549,507
Fab_Metal	Furnace_Oven_Kiln	2	2	604,457
Fab_Metal	Furnace_Oven_Kiln	2	3	659,408
Fab_Metal	AC	1	1	1,899
Fab_Metal	AC	1	2	2,089
Fab_Metal	AC	1	3	2,279
Fab_Metal	AC	2	1	1,519
Fab_Metal	AC	2	2	1,671
Fab_Metal	AC	2	3	1,823
Fab_Metal	Engine	1	1	-
Fab_Metal	Engine	1	2	-
Fab_Metal	Engine	1	3	-
Fab_Metal	Engine	2	1	-
Fab_Metal	Engine	2	2	-
Fab_Metal	Engine	2	3	-
Fab_Metal	Other	1	1	-
Fab_Metal	Other	1	2	-
Fab_Metal	Other	1	3	-
Fab_Metal	Other	2	1	-
Fab_Metal	Other	2	2	-
Fab_Metal	Other	2	3	-

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Where Fuel = 1 (gas) and = 2 (electric), and
Efficiency =1 (stock), =2 (standard), =3 (high) and =4 (premium)

Business Type	End Use	Fuel	Efficiency	EQcost
Transport	Fire_Tube_Boiler	1	1	27,156
Transport	Fire_Tube_Boiler	1	2	29,871
Transport	Fire_Tube_Boiler	1	3	32,587
Transport	Fire_Tube_Boiler	2	1	21,724
Transport	Fire_Tube_Boiler	2	2	23,897
Transport	Fire_Tube_Boiler	2	3	26,069
Transport	Water_Tube_Boiler	1	1	15,821
Transport	Water_Tube_Boiler	1	2	17,403
Transport	Water_Tube_Boiler	1	3	18,985
Transport	Water_Tube_Boiler	2	1	12,657
Transport	Water_Tube_Boiler	2	2	13,922
Transport	Water_Tube_Boiler	2	3	15,188
Transport	Space_Heat	1	1	10,868
Transport	Space_Heat	1	2	11,955
Transport	Space_Heat	1	3	13,042
Transport	Space_Heat	2	1	8,694
Transport	Space_Heat	2	2	9,564
Transport	Space_Heat	2	3	10,433
Transport	Water_Heat	1	1	3,231
Transport	Water_Heat	1	2	3,554
Transport	Water_Heat	1	3	3,877
Transport	Water_Heat	2	1	2,585
Transport	Water_Heat	2	2	2,843
Transport	Water_Heat	2	3	3,102
Transport	Dryer	1	1	81,394
Transport	Dryer	1	2	89,533
Transport	Dryer	1	3	97,673
Transport	Dryer	2	1	65,115
Transport	Dryer	2	2	71,627
Transport	Dryer	2	3	78,138
Transport	Furnace_Oven_Kiln	1	1	139,512
Transport	Furnace_Oven_Kiln	1	2	153,464
Transport	Furnace_Oven_Kiln	1	3	167,415
Transport	Furnace_Oven_Kiln	2	1	111,610
Transport	Furnace_Oven_Kiln	2	2	122,771
Transport	Furnace_Oven_Kiln	2	3	133,932
Transport	AC	1	1	518
Transport	AC	1	2	570
Transport	AC	1	3	621
Transport	AC	2	1	414
Transport	AC	2	2	456
Transport	AC	2	3	497
Transport	Engine	1	1	2,575
Transport	Engine	1	2	2,832
Transport	Engine	1	3	3,090
Transport	Engine	2	1	2,060
Transport	Engine	2	2	2,266
Transport	Engine	2	3	2,472
Transport	Other	1	1	-
Transport	Other	1	2	-
Transport	Other	1	3	-
Transport	Other	2	1	-
Transport	Other	2	2	-
Transport	Other	2	3	-

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Where Fuel = 1 (gas) and = 2 (electric), and
Efficiency =1 (stock), =2 (standard), =3 (high) and =4 (premium)

Business Type	End Use	Fuel	Efficiency	EQcost
Misc	Fire_Tube_Boiler	1	1	50,324
Misc	Fire_Tube_Boiler	1	2	55,356
Misc	Fire_Tube_Boiler	1	3	60,388
Misc	Fire_Tube_Boiler	2	1	40,259
Misc	Fire_Tube_Boiler	2	2	44,285
Misc	Fire_Tube_Boiler	2	3	48,311
Misc	Water_Tube_Boiler	1	1	35,392
Misc	Water_Tube_Boiler	1	2	38,931
Misc	Water_Tube_Boiler	1	3	42,470
Misc	Water_Tube_Boiler	2	1	28,313
Misc	Water_Tube_Boiler	2	2	31,145
Misc	Water_Tube_Boiler	2	3	33,976
Misc	Space_Heat	1	1	7,731
Misc	Space_Heat	1	2	8,504
Misc	Space_Heat	1	3	9,277
Misc	Space_Heat	2	1	6,185
Misc	Space_Heat	2	2	6,803
Misc	Space_Heat	2	3	7,422
Misc	Water_Heat	1	1	2,224
Misc	Water_Heat	1	2	2,446
Misc	Water_Heat	1	3	2,669
Misc	Water_Heat	2	1	1,779
Misc	Water_Heat	2	2	1,957
Misc	Water_Heat	2	3	2,135
Misc	Dryer	1	1	61,610
Misc	Dryer	1	2	67,771
Misc	Dryer	1	3	73,932
Misc	Dryer	2	1	49,288
Misc	Dryer	2	2	54,217
Misc	Dryer	2	3	59,145
Misc	Furnace_Oven_Kiln	1	1	341,739
Misc	Furnace_Oven_Kiln	1	2	375,913
Misc	Furnace_Oven_Kiln	1	3	410,087
Misc	Furnace_Oven_Kiln	2	1	273,391
Misc	Furnace_Oven_Kiln	2	2	300,731
Misc	Furnace_Oven_Kiln	2	3	328,070
Misc	AC	1	1	2,879
Misc	AC	1	2	3,167
Misc	AC	1	3	3,455
Misc	AC	2	1	2,303
Misc	AC	2	2	2,534
Misc	AC	2	3	2,764
Misc	Engine	1	1	5,988
Misc	Engine	1	2	6,587
Misc	Engine	1	3	7,186
Misc	Engine	2	1	4,790
Misc	Engine	2	2	5,270
Misc	Engine	2	3	5,749
Misc	Other	1	1	-
Misc	Other	1	2	-
Misc	Other	1	3	-
Misc	Other	2	1	-
Misc	Other	2	2	-
Misc	Other	2	3	-

Southern California Gas Company
2009 BCAP - Industrial G10
Employment Forecast (in thousands)

YEAR	Mining	Food	Textile	Wood_Paper	Chemical	Petroleum	Stone	Primary_Metal	Fabricated_Metal	Transportation	Miscellaneous	Total
2006	18.1767	117.4283	41.0517	28.2992	40.7400	5.8450	27.9258	10.3575	93.0992	85.2350	436.3708	904.5267
2007	19.1992	119.6792	39.1817	27.2117	41.7800	5.8233	27.8675	10.1367	93.7517	84.2092	433.5983	902.4383
2008	19.4258	119.4508	38.4450	26.6400	42.1067	5.7192	27.5975	9.6342	94.1800	83.9950	426.2358	893.4275
2009	18.9383	119.9042	38.2500	26.6992	42.7342	5.6033	27.5433	9.4083	95.0042	83.7892	421.4917	889.3658
2010	18.3033	120.8442	38.3483	27.2383	43.6042	5.5475	27.7458	9.2883	94.9967	83.4917	421.1408	890.5450
2011	17.5425	121.7375	38.0942	27.5908	44.4183	5.4975	27.7942	9.2775	95.2883	82.9783	420.8342	891.0517
2012	16.8408	122.2692	37.4983	27.6317	45.0783	5.4133	27.6717	9.2475	97.0692	82.3792	419.4600	890.5575
2013	16.2267	122.7633	36.8650	27.5975	45.6733	5.3258	27.5017	9.1925	98.3875	81.7783	418.1383	889.4525
2014	15.6575	123.3525	36.3767	27.6258	46.2883	5.2600	27.3817	9.1217	99.5108	81.1850	417.9550	889.7142
2015	15.1308	124.0408	36.0542	27.7842	47.0350	5.2025	27.3208	9.0525	101.1342	80.5542	417.9475	891.2558
2016	14.6758	124.8275	35.8508	27.9942	47.7708	5.1433	27.2733	9.0100	103.1283	79.9458	419.7625	895.3842
2017	14.2725	125.5758	35.8275	28.0950	48.5717	5.0933	27.3233	9.0217	105.2858	79.4708	423.5517	902.0867
2018	13.9183	126.2692	35.8783	28.0900	49.2675	5.0558	27.4450	8.9667	105.9725	79.1750	425.4267	905.4625
2019	13.7075	126.9058	35.8667	27.9492	49.8058	5.0100	27.5667	8.8600	105.7058	78.8542	424.0958	904.3208
2020	13.6617	127.5517	35.8500	27.7892	50.3158	4.9633	27.6008	8.7250	105.0200	78.5925	421.9908	902.0583
2021	13.6567	128.2192	35.8575	27.6992	50.8850	4.9283	27.6017	8.6025	104.5675	78.2067	420.3592	900.5833
2022	13.6483	128.6158	35.8808	27.5642	51.4417	4.9017	27.4967	8.4517	103.5717	77.8950	419.6200	899.0842
2023	13.6458	128.8700	35.7742	27.3858	51.9958	4.8700	27.3042	8.3108	102.7767	77.6850	419.7225	898.3433
2024	13.6450	129.1508	35.6292	27.2550	52.4317	4.8300	27.0008	8.1708	102.0358	77.5625	419.7225	897.4325
2025	13.6483	129.4442	35.5742	27.1892	52.8450	4.7867	26.6775	8.0292	101.1558	77.4433	419.8742	896.6617

Southern California Gas Company
2009 BCAP - Industrial G10
Core Industrial Demand Forecast (MDth)
Average Temperature

Avg	Model Output G10-Ind	EE/DSM	AB970	City of Vernon	Final
2006	23,925.8	0.0	0.0	0.0	23,925.8
2007	23,808.2	391.6	4.0	0.0	23,420.5
2008	23,333.9	852.1	5.9	565.0	21,922.7
2009	23,240.5	1,389.7	126.3	565.0	21,412.1
2010	23,409.0	1,949.0	187.8	565.0	21,082.8
2011	23,579.5	2,540.0	248.7	565.0	20,723.2
2012	23,721.2	3,178.4	250.7	565.0	20,228.5
2013	23,805.5	3,885.9	252.6	565.0	19,607.3
2014	23,902.7	4,593.5	254.6	565.0	18,998.9
2015	24,026.2	5,301.0	256.6	565.0	18,416.7
2016	24,196.8	6,008.6	258.6	565.0	17,881.8
2017	24,310.7	6,716.1	260.6	565.0	17,290.1
2018	24,387.4	7,423.7	260.6	565.0	16,659.2
2019	24,425.6	8,131.2	260.6	565.0	15,989.9
2020	24,388.5	8,590.8	260.6	565.0	15,493.2
2021	24,387.3	8,805.1	260.6	565.0	15,277.8
2022	24,331.4	9,121.0	260.6	565.0	14,905.9
2023	24,275.0	9,368.1	260.6	565.0	14,602.5
2024	24,217.3	9,538.0	260.6	565.0	14,374.9
2025	24,182.8	9,686.3	260.6	565.0	14,192.1

Southern California Gas Company
2009 BCAP - Industrial G10
Core Industrial Demand Forecast (MDth)
Cold Temperature

YEAR	Model Output G10-Ind	EE/DSM	AB970	City of Vernon	Final
2006	24,525.1	0.0	0.0	0.0	24,525.1
2007	24,404.5	401.4	4.0	0.0	24,007.0
2008	23,918.3	873.5	5.9	565.0	22,485.8
2009	23,822.6	1,424.5	126.3	565.0	21,959.4
2010	23,995.3	1,997.8	187.8	565.0	21,620.3
2011	24,170.1	2,603.6	248.7	565.0	21,250.2
2012	24,315.3	3,258.0	250.7	565.0	20,743.0
2013	24,401.8	3,983.2	252.6	565.0	20,106.2
2014	24,501.4	4,708.5	254.6	565.0	19,482.5
2015	24,627.9	5,433.8	256.6	565.0	18,885.7
2016	24,802.8	6,159.1	258.6	565.0	18,337.3
2017	24,919.6	6,884.3	260.6	565.0	17,730.8
2018	24,998.2	7,609.6	260.6	565.0	17,084.1
2019	25,037.4	8,334.9	260.6	565.0	16,398.0
2020	24,999.3	8,806.0	260.6	565.0	15,888.9
2021	24,998.1	9,025.6	260.6	565.0	15,668.1
2022	24,940.8	9,349.5	260.6	565.0	15,286.9
2023	24,883.0	9,602.7	260.6	565.0	14,975.9
2024	24,823.9	9,776.9	260.6	565.0	14,742.5
2025	24,788.5	9,928.9	260.6	565.0	14,555.1

Southern California Gas Company
2009 BCAP - Industrial G10
Core Industrial Demand Forecast (MDth)
Hot Temperature

YEAR	Model Output G10-Ind	EE/DSM	AB970	City of Vernon	Final
2006	23,326.6	0.0	0.0	0.0	23,326.6
2007	23,211.9	381.8	4.0	0.0	22,834.0
2008	22,749.5	830.8	5.9	565.0	21,359.7
2009	22,658.4	1,354.9	126.3	565.0	20,864.8
2010	22,822.7	1,900.2	187.8	565.0	20,545.3
2011	22,989.0	2,476.4	248.7	565.0	20,196.3
2012	23,127.1	3,098.7	250.7	565.0	19,714.0
2013	23,209.3	3,788.6	252.6	565.0	19,108.3
2014	23,304.0	4,478.4	254.6	565.0	18,515.3
2015	23,424.4	5,168.2	256.6	565.0	17,947.7
2016	23,590.7	5,858.1	258.6	565.0	17,426.2
2017	23,701.8	6,547.9	260.6	565.0	16,849.4
2018	23,776.6	7,237.7	260.6	565.0	16,234.4
2019	23,813.8	7,927.6	260.6	565.0	15,581.8
2020	23,777.6	8,375.6	260.6	565.0	15,097.6
2021	23,776.5	8,584.5	260.6	565.0	14,887.5
2022	23,722.0	8,892.6	260.6	565.0	14,525.0
2023	23,667.0	9,133.4	260.6	565.0	14,229.2
2024	23,610.8	9,299.2	260.6	565.0	14,007.2
2025	23,577.1	9,443.7	260.6	565.0	13,829.0

Southern California Gas Company
2009 BCAP - Industrial G10
Core Industrial Demand Forecast (MDth)
Base Temperature

YEAR	Model Output G10-Ind	EE/DSM	AB970	City of Vernon	Final
2006	21,036	0	0	0	21,036
2007	20,933	344	4	0	20,593
2008	20,516	749	6	565	19,208
2009	20,434	1,222	126	565	18,773
2010	20,582	1,714	188	565	18,491
2011	20,732	2,233	249	565	18,182
2012	20,857	2,795	251	565	17,748
2013	20,931	3,417	253	565	17,202
2014	21,016	4,039	255	565	16,667
2015	21,125	4,661	257	565	16,155
2016	21,275	5,283	259	565	15,685
2017	21,375	5,905	261	565	15,165
2018	21,442	6,527	261	565	14,611
2019	21,476	7,149	261	565	14,022
2020	21,443	7,553	261	565	13,585
2021	21,442	7,742	261	565	13,396
2022	21,393	8,020	261	565	13,069
2023	21,343	8,237	261	565	12,802
2024	21,293	8,386	261	565	12,602
2025	21,262	8,517	261	565	12,441

2009 BCAP

SoCalGas Natural Gas Vehicles Demand Forecast
February 2008

Year	SoCalGas								
	Volumetric Growth Rate[1]	Uncompressed			Compressed[4]				
					Total			Public Access Use[5]	
		stations[2]	ccf	therms[3]	stations	ccf	therms	ccf	therms
2006	-	216	75,301,188	77,575,284	20	1,077,838	1,110,388	657,481	677,337
2007	4.5%	229	78,666,869	81,042,608	20	1,088,616	1,121,493	664,056	684,110
2008	12.91%	243	88,822,762	91,505,209	22	1,229,157	1,266,278	1,124,679	1,158,644
2009	12.91%	257	100,289,780	103,318,532	24	1,387,841	1,429,754	1,269,875	1,308,225
2010	12.91%	273	113,237,191	116,656,954	26	1,567,011	1,614,335	1,433,815	1,477,116
2011	12.91%	289	127,856,112	131,717,367	28	1,769,312	1,822,745	1,618,920	1,667,812
2012	12.91%	306	144,362,336	148,722,079	30	1,997,731	2,058,062	1,827,924	1,883,127
2009 - 2011 Average	-	-	113,794,361	117,230,951	-	1,574,721	1,622,278	1,440,870	1,484,384

Footnotes:

1 2007 volumetric growth rate based on year to date trend. 2008 through 2012 volumetric growth rate taken from the "Moderate Case" natural gas transportation fuel use forecast, State Alternative Fuels Plan, CEC-600-2007-011-CTF, Table-4, page 34

2 Uncompressed station growth rate was assumed to be 6% based on actual station growth rate from 2004 through 2006. Compressed station growth rate based on Climate Action Initiative proposal growth plan.

3 Conversion to therms assumes 1.0302 therms per ccf for SoCalGas and 1.0175 therms per ccf for SDG&E.

4 Compressed volume is the total volume at utility-owned CNG stations and is a subset of overall uncompressed volumes.

5 Public access use is that portion of compressed volumes sold to the general public. The % allocated to public access use is based upon actual 2006 volumes. Projections for 2008 through 2012 account for added public access load expected from increased use of natural gas vehicles, which equates to an allocation percentage of 91.5% for SoCalGas and an allocation percentage of 66% for SDG&E.

2006 BCAP

SoCalGas Noncore Commercial & Industrial Demand Forecast
February 2008

Noncore Commercial and Industrial End Use Model

Introduction

The purpose of these workpapers is to document the methodology used to forecast demand for SoCalGas' noncore commercial and industrial markets. The EUforecaster model's market segmentation and end-use modeling framework was used by SoCalGas to assess the impacts of equipment replacement and market scenarios on gas demand and market share. The model segments the noncore commercial and industrial markets into 14 sectors and 11 sectors by type of business activity, respectively. Business activity is determined by the NAICS (North American Industrial Classification System) code on the billing record. The final demand forecast for the noncore commercial and industrial market is taken from output from the EUForecaster and reduced by CPUC-authorized energy efficiency goal.

Data Sources

A. Historical Billing Data

Monthly historical gas usage for the commercial and industrial markets were obtained from SoCalGas' billing records for 2006. The recorded usage was then further disaggregated into the 14 commercial or 11 industrial business sectors.

B. Natural Gas Price

The natural gas prices used to forecast demand were based on the price of gas at the burner-tip in each market segment, which is composed of the gas commodity cost, transportation rate (G-30 tariff rate) and Public Purpose Program surcharge. The weighted average cost of gas (WACOG) was used a proxy for the gas commodity cost. Since the G-30 tariff rate is priced according to tier, calculations were made to arrive at the overall average and marginal transportation rates from historical usage in 2006. The average rate is calculated from the weighted average rate at each tier for each customer; where as the marginal rate is calculated as the rate that was billed at the last volume for each customer.

C. Electricity Price Data

Both average prices (cents/kWh) and marginal prices (cents/kWh) were developed as electricity price inputs. Forecasts for the SCE industrial customer class were developed from the CEC's July 2007 report CEC-200-2007-013-SD, Appendix B: Utility-Specific Retail Price Forecast Tables at page #3 for SCE. The resulting price projections were set to CEC's projections for the industrial class. Prices were developed through 2025. These were the average electricity prices for the noncore industrial market, overall.

The marginal prices were calculated by multiplying each year's respective average price by a ratio. This ratio, 0.705, was estimated from an analysis of the SCE TOU-8 rate schedule, for non-self-generation customers, posted on their web-site in March 2006.

The same set of average and marginal prices were used for each of the noncore Commercial and Industrial markets.

D. Employment

Employment, as a measure of economic activity, is used to drive the noncore commercial and industrial demand forecast models. The employment forecast is based on Global Insight's Spring 2007 (released June 1, 2007) and Regional Forecasts for California and the aggregated six largest counties' Metropolitan Statistical Area (MSA) in SoCalGas' service area for which Global Insight makes regular forecasts. (The six counties – Kern, Los Angeles, Orange, Riverside, San Bernardino, and Ventura – account for 85% of the service area's total population and employment). The historical employment data used was derived from the California Employment Development Department (EDD) for the 12 counties served by SoCalGas. The monthly employment used in the model was generally by summing the weighted employment data over the commercial and industrial NAICS codes.

E. Post-Model Adjustment

Once the EuForecaster end-use model forecast was generated, post-model adjustments were made to account for effects the model is not designed to simulate. Energy goals that were authorized by the CPUC in decision D.04-09-060 and expected load leaving for service by the City of Vernon were subtracted from the model forecast to arrive at final demand forecast for the commercial and industrial markets.

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SOCALGAS NONCORE COMMERCIAL TABLES
FEBRUARY 2008

Noncore Commercial Demand Forecast (Mth)

	Commercial Average Year				Commercial Cold Year			
Date	AvgYr	DSM	Vernon	AvgYrAdj	ColdYr	DSM	Vernon	ColdYrAdj
Jan-06	21,757	0	0	21,757	22,715	0	0	22,715
Feb-06	19,389	0	0	19,389	20,152	0	0	20,152
Mar-06	22,451	0	0	22,451	23,081	0	0	23,081
Apr-06	19,148	0	0	19,148	19,533	0	0	19,533
May-06	17,125	0	0	17,125	17,291	0	0	17,291
Jun-06	15,014	0	0	15,014	15,063	0	0	15,063
Jul-06	16,358	0	0	16,358	16,365	0	0	16,365
Aug-06	17,651	0	0	17,651	17,656	0	0	17,656
Sep-06	18,164	0	0	18,164	18,177	0	0	18,177
Oct-06	19,148	0	0	19,148	19,261	0	0	19,261
Nov-06	17,492	0	0	17,492	17,982	0	0	17,982
Dec-06	21,499	0	0	21,499	22,487	0	0	22,487
Jan-07	21,858	19	0	21,839	22,816	19	0	22,797
Feb-07	19,252	19	0	19,233	20,015	19	0	19,996
Mar-07	20,281	19	0	20,262	20,911	19	0	20,892
Apr-07	18,539	19	0	18,520	18,924	19	0	18,905
May-07	18,046	19	0	18,027	18,213	19	0	18,193
Jun-07	16,925	19	0	16,906	16,975	19	0	16,956
Jul-07	17,273	19	0	17,254	17,280	19	0	17,260
Aug-07	17,266	19	0	17,247	17,271	19	0	17,252
Sep-07	16,750	19	0	16,731	16,764	19	0	16,745
Oct-07	17,788	19	0	17,769	17,901	19	0	17,882
Nov-07	19,049	19	0	19,030	19,539	19	0	19,520
Dec-07	22,004	19	0	21,985	22,991	19	0	22,972
Jan-08	21,742	43	36	21,663	22,700	43	36	22,620
Feb-08	19,147	43	36	19,067	19,910	43	36	19,830
Mar-08	20,165	43	36	20,085	20,795	43	36	20,716
Apr-08	18,427	43	36	18,347	18,811	43	36	18,732
May-08	17,930	43	36	17,850	18,096	43	36	18,017
Jun-08	16,813	43	36	16,733	16,862	43	36	16,783
Jul-08	17,157	43	36	17,077	17,163	43	36	17,084
Aug-08	17,150	43	36	17,070	17,155	43	36	17,075
Sep-08	16,638	43	36	16,558	16,651	43	36	16,572
Oct-08	17,672	43	36	17,592	17,785	43	36	17,706
Nov-08	18,936	43	36	18,857	19,426	43	36	19,347
Dec-08	21,888	43	36	21,808	22,875	43	36	22,796
Jan-09	21,853	72	36	21,745	22,810	72	36	22,702
Feb-09	19,247	72	36	19,139	20,010	72	36	19,902
Mar-09	20,275	72	36	20,168	20,906	72	36	20,798
Apr-09	18,534	72	36	18,426	18,918	72	36	18,811
May-09	18,040	72	36	17,932	18,207	72	36	18,099
Jun-09	16,920	72	36	16,812	16,969	72	36	16,862
Jul-09	17,267	72	36	17,160	17,274	72	36	17,166
Aug-09	17,260	72	36	17,152	17,265	72	36	17,157
Sep-09	16,745	72	36	16,637	16,758	72	36	16,651
Oct-09	17,782	72	36	17,675	17,896	72	36	17,788
Nov-09	19,043	72	36	18,935	19,533	72	36	19,426
Dec-09	21,998	72	36	21,890	22,986	72	36	22,878

File: Workpapers.xls - Output

Noncore Commercial Demand Forecast (Mth)

	Commercial Average Year				Commercial Cold Year			
Date	AvgYr	DSM	Vernon	AvgYrAdj	ColdYr	DSM	Vernon	ColdYrAdj
Jan-10	21,988	101	36	21,851	22,945	101	36	22,808
Feb-10	19,369	101	36	19,232	20,132	101	36	19,995
Mar-10	20,411	101	36	20,273	21,041	101	36	20,904
Apr-10	18,665	101	36	18,528	19,049	101	36	18,912
May-10	18,175	101	36	18,038	18,342	101	36	18,205
Jun-10	17,051	101	36	16,913	17,100	101	36	16,963
Jul-10	17,403	101	36	17,265	17,409	101	36	17,272
Aug-10	17,395	101	36	17,258	17,400	101	36	17,263
Sep-10	16,876	101	36	16,739	16,889	101	36	16,752
Oct-10	17,917	101	36	17,780	18,031	101	36	17,894
Nov-10	19,174	101	36	19,037	19,664	101	36	19,527
Dec-10	22,133	101	36	21,996	23,121	101	36	22,984
Jan-11	22,102	132	36	21,934	23,060	132	36	22,891
Feb-11	19,472	132	36	19,304	20,235	132	36	20,067
Mar-11	20,525	132	36	20,357	21,155	132	36	20,987
Apr-11	18,775	132	36	18,607	19,160	132	36	18,992
May-11	18,290	132	36	18,121	18,456	132	36	18,288
Jun-11	17,161	132	36	16,993	17,211	132	36	17,043
Jul-11	17,517	132	36	17,349	17,523	132	36	17,355
Aug-11	17,510	132	36	17,341	17,515	132	36	17,346
Sep-11	16,986	132	36	16,818	17,000	132	36	16,832
Oct-11	18,032	132	36	17,864	18,145	132	36	17,977
Nov-11	19,285	132	36	19,116	19,775	132	36	19,606
Dec-11	22,248	132	36	22,079	23,235	132	36	23,067
Jan-12	22,102	166	36	21,900	23,060	166	36	22,858
Feb-12	19,472	166	36	19,270	20,235	166	36	20,033
Mar-12	20,525	166	36	20,323	21,155	166	36	20,953
Apr-12	18,775	166	36	18,574	19,160	166	36	18,958
May-12	18,290	166	36	18,088	18,456	166	36	18,255
Jun-12	17,161	166	36	16,959	17,211	166	36	17,009
Jul-12	17,517	166	36	17,315	17,523	166	36	17,322
Aug-12	17,510	166	36	17,308	17,515	166	36	17,313
Sep-12	16,986	166	36	16,785	17,000	166	36	16,798
Oct-12	18,032	166	36	17,830	18,145	166	36	17,943
Nov-12	19,285	166	36	19,083	19,775	166	36	19,573
Dec-12	22,248	166	36	22,046	23,235	166	36	23,033
Jan-13	22,102	203	36	21,863	23,060	203	36	22,821
Feb-13	19,472	203	36	19,233	20,235	203	36	19,996
Mar-13	20,525	203	36	20,286	21,155	203	36	20,916
Apr-13	18,775	203	36	18,536	19,160	203	36	18,921
May-13	18,290	203	36	18,051	18,456	203	36	18,217
Jun-13	17,161	203	36	16,922	17,211	203	36	16,972
Jul-13	17,517	203	36	17,278	17,523	203	36	17,284
Aug-13	17,510	203	36	17,271	17,515	203	36	17,276
Sep-13	16,986	203	36	16,747	17,000	203	36	16,761
Oct-13	18,032	203	36	17,793	18,145	203	36	17,906
Nov-13	19,285	203	36	19,046	19,775	203	36	19,536
Dec-13	22,248	203	36	22,009	23,235	203	36	22,996

Noncore Commercial Demand Forecast (Mth)

	Commercial Average Year				Commercial Cold Year			
Date	AvgYr	DSM	Vernon	AvgYrAdj	ColdYr	DSM	Vernon	ColdYrAdj
Jan-14	22,102	240	36	21,826	23,060	240	36	22,783
Feb-14	19,472	240	36	19,196	20,235	240	36	19,959
Mar-14	20,525	240	36	20,249	21,155	240	36	20,879
Apr-14	18,775	240	36	18,499	19,160	240	36	18,883
May-14	18,290	240	36	18,013	18,456	240	36	18,180
Jun-14	17,161	240	36	16,885	17,211	240	36	16,935
Jul-14	17,517	240	36	17,241	17,523	240	36	17,247
Aug-14	17,510	240	36	17,233	17,515	240	36	17,238
Sep-14	16,986	240	36	16,710	17,000	240	36	16,724
Oct-14	18,032	240	36	17,756	18,145	240	36	17,869
Nov-14	19,285	240	36	19,008	19,775	240	36	19,498
Dec-14	22,248	240	36	21,971	23,235	240	36	22,959
Jan-15	22,102	277	36	21,789	23,060	277	36	22,746
Feb-15	19,472	277	36	19,159	20,235	277	36	19,922
Mar-15	20,525	277	36	20,211	21,155	277	36	20,842
Apr-15	18,775	277	36	18,462	19,160	277	36	18,846
May-15	18,290	277	36	17,976	18,456	277	36	18,143
Jun-15	17,161	277	36	16,848	17,211	277	36	16,897
Jul-15	17,517	277	36	17,203	17,523	277	36	17,210
Aug-15	17,510	277	36	17,196	17,515	277	36	17,201
Sep-15	16,986	277	36	16,673	17,000	277	36	16,686
Oct-15	18,032	277	36	17,718	18,145	277	36	17,832
Nov-15	19,285	277	36	18,971	19,775	277	36	19,461
Dec-15	22,248	277	36	21,934	23,235	277	36	22,922
Jan-16	22,102	315	36	21,752	23,060	315	36	22,709
Feb-16	19,472	315	36	19,121	20,235	315	36	19,884
Mar-16	20,525	315	36	20,174	21,155	315	36	20,804
Apr-16	18,775	315	36	18,425	19,160	315	36	18,809
May-16	18,290	315	36	17,939	18,456	315	36	18,106
Jun-16	17,161	315	36	16,810	17,211	315	36	16,860
Jul-16	17,517	315	36	17,166	17,523	315	36	17,173
Aug-16	17,510	315	36	17,159	17,515	315	36	17,164
Sep-16	16,986	315	36	16,636	17,000	315	36	16,649
Oct-16	18,032	315	36	17,681	18,145	315	36	17,794
Nov-16	19,285	315	36	18,934	19,775	315	36	19,424
Dec-16	22,248	315	36	21,897	23,235	315	36	22,884
Jan-17	22,102	352	36	21,714	23,060	352	36	22,672
Feb-17	19,472	352	36	19,084	20,235	352	36	19,847
Mar-17	20,525	352	36	20,137	21,155	352	36	20,767
Apr-17	18,775	352	36	18,387	19,160	352	36	18,772
May-17	18,290	352	36	17,902	18,456	352	36	18,068
Jun-17	17,161	352	36	16,773	17,211	352	36	16,823
Jul-17	17,517	352	36	17,129	17,523	352	36	17,135
Aug-17	17,510	352	36	17,122	17,515	352	36	17,127
Sep-17	16,986	352	36	16,598	17,000	352	36	16,612
Oct-17	18,032	352	36	17,644	18,145	352	36	17,757
Nov-17	19,285	352	36	18,897	19,775	352	36	19,387
Dec-17	22,248	352	36	21,860	23,235	352	36	22,847

Noncore Commercial Demand Forecast (Mth)

	Commercial Average Year				Commercial Cold Year			
Date	AvgYr	DSM	Vernon	AvgYrAdj	ColdYr	DSM	Vernon	ColdYrAdj
Jan-18	22,102	389	36	21,677	23,060	389	36	22,635
Feb-18	19,472	389	36	19,047	20,235	389	36	19,810
Mar-18	20,525	389	36	20,100	21,155	389	36	20,730
Apr-18	18,775	389	36	18,350	19,160	389	36	18,735
May-18	18,290	389	36	17,864	18,456	389	36	18,031
Jun-18	17,161	389	36	16,736	17,211	389	36	16,786
Jul-18	17,517	389	36	17,092	17,523	389	36	17,098
Aug-18	17,510	389	36	17,085	17,515	389	36	17,089
Sep-18	16,986	389	36	16,561	17,000	389	36	16,575
Oct-18	18,032	389	36	17,607	18,145	389	36	17,720
Nov-18	19,285	389	36	18,859	19,775	389	36	19,350
Dec-18	22,248	389	36	21,822	23,235	389	36	22,810
Jan-19	22,102	426	36	21,640	23,060	426	36	22,597
Feb-19	19,472	426	36	19,010	20,235	426	36	19,773
Mar-19	20,525	426	36	20,062	21,155	426	36	20,693
Apr-19	18,775	426	36	18,313	19,160	426	36	18,697
May-19	18,290	426	36	17,827	18,456	426	36	17,994
Jun-19	17,161	426	36	16,699	17,211	426	36	16,748
Jul-19	17,517	426	36	17,054	17,523	426	36	17,061
Aug-19	17,510	426	36	17,047	17,515	426	36	17,052
Sep-19	16,986	426	36	16,524	17,000	426	36	16,537
Oct-19	18,032	426	36	17,569	18,145	426	36	17,683
Nov-19	19,285	426	36	18,822	19,775	426	36	19,312
Dec-19	22,248	426	36	21,785	23,235	426	36	22,773
Jan-20	22,102	451	36	21,615	23,060	451	36	22,572
Feb-20	19,472	451	36	18,985	20,235	451	36	19,748
Mar-20	20,525	451	36	20,038	21,155	451	36	20,668
Apr-20	18,775	451	36	18,288	19,160	451	36	18,672
May-20	18,290	451	36	17,802	18,456	451	36	17,969
Jun-20	17,161	451	36	16,674	17,211	451	36	16,724
Jul-20	17,517	451	36	17,030	17,523	451	36	17,036
Aug-20	17,510	451	36	17,022	17,515	451	36	17,027
Sep-20	16,986	451	36	16,499	17,000	451	36	16,512
Oct-20	18,032	451	36	17,544	18,145	451	36	17,658
Nov-20	19,285	451	36	18,797	19,775	451	36	19,287
Dec-20	22,248	451	36	21,760	23,235	451	36	22,748
Jan-21	22,102	465	36	21,601	23,060	465	36	22,558
Feb-21	19,472	465	36	18,971	20,235	465	36	19,734
Mar-21	20,525	465	36	20,024	21,155	465	36	20,654
Apr-21	18,775	465	36	18,274	19,160	465	36	18,658
May-21	18,290	465	36	17,788	18,456	465	36	17,955
Jun-21	17,161	465	36	16,660	17,211	465	36	16,710
Jul-21	17,517	465	36	17,016	17,523	465	36	17,022
Aug-21	17,510	465	36	17,008	17,515	465	36	17,013
Sep-21	16,986	465	36	16,485	17,000	465	36	16,498
Oct-21	18,032	465	36	17,531	18,145	465	36	17,644
Nov-21	19,285	465	36	18,783	19,775	465	36	19,273
Dec-21	22,248	465	36	21,746	23,235	465	36	22,734

Noncore Commercial Demand Forecast (Mth)

	Commercial Average Year				Commercial Cold Year			
Date	AvgYr	DSM	Vernon	AvgYrAdj	ColdYr	DSM	Vernon	ColdYrAdj
Jan-22	22,102	483	36	21,583	23,060	483	36	22,540
Feb-22	19,472	483	36	18,953	20,235	483	36	19,716
Mar-22	20,525	483	36	20,005	21,155	483	36	20,636
Apr-22	18,775	483	36	18,256	19,160	483	36	18,640
May-22	18,290	483	36	17,770	18,456	483	36	17,937
Jun-22	17,161	483	36	16,642	17,211	483	36	16,691
Jul-22	17,517	483	36	16,997	17,523	483	36	17,004
Aug-22	17,510	483	36	16,990	17,515	483	36	16,995
Sep-22	16,986	483	36	16,467	17,000	483	36	16,480
Oct-22	18,032	483	36	17,512	18,145	483	36	17,626
Nov-22	19,285	483	36	18,765	19,775	483	36	19,255
Dec-22	22,248	483	36	21,728	23,235	483	36	22,716
Jan-23	22,102	496	36	21,570	23,060	496	36	22,527
Feb-23	19,472	496	36	18,940	20,235	496	36	19,703
Mar-23	20,525	496	36	19,992	21,155	496	36	20,623
Apr-23	18,775	496	36	18,243	19,160	496	36	18,627
May-23	18,290	496	36	17,757	18,456	496	36	17,924
Jun-23	17,161	496	36	16,629	17,211	496	36	16,678
Jul-23	17,517	496	36	16,984	17,523	496	36	16,991
Aug-23	17,510	496	36	16,977	17,515	496	36	16,982
Sep-23	16,986	496	36	16,454	17,000	496	36	16,467
Oct-23	18,032	496	36	17,499	18,145	496	36	17,613
Nov-23	19,285	496	36	18,752	19,775	496	36	19,242
Dec-23	22,248	496	36	21,715	23,235	496	36	22,703
Jan-24	22,102	505	36	21,561	23,060	505	36	22,518
Feb-24	19,472	505	36	18,931	20,235	505	36	19,694
Mar-24	20,525	505	36	19,983	21,155	505	36	20,614
Apr-24	18,775	505	36	18,234	19,160	505	36	18,618
May-24	18,290	505	36	17,748	18,456	505	36	17,915
Jun-24	17,161	505	36	16,620	17,211	505	36	16,669
Jul-24	17,517	505	36	16,975	17,523	505	36	16,982
Aug-24	17,510	505	36	16,968	17,515	505	36	16,973
Sep-24	16,986	505	36	16,445	17,000	505	36	16,458
Oct-24	18,032	505	36	17,490	18,145	505	36	17,604
Nov-24	19,285	505	36	18,743	19,775	505	36	19,233
Dec-24	22,248	505	36	21,706	23,235	505	36	22,694
Jan-25	22,102	513	36	21,553	23,060	513	36	22,510
Feb-25	19,472	513	36	18,923	20,235	513	36	19,686
Mar-25	20,525	513	36	19,976	21,155	513	36	20,606
Apr-25	18,775	513	36	18,226	19,160	513	36	18,611
May-25	18,290	513	36	17,740	18,456	513	36	17,907
Jun-25	17,161	513	36	16,612	17,211	513	36	16,662
Jul-25	17,517	513	36	16,968	17,523	513	36	16,974
Aug-25	17,510	513	36	16,960	17,515	513	36	16,965
Sep-25	16,986	513	36	16,437	17,000	513	36	16,451
Oct-25	18,032	513	36	17,483	18,145	513	36	17,596
Nov-25	19,285	513	36	18,735	19,775	513	36	19,225
Dec-25	22,248	513	36	21,698	23,235	513	36	22,686

File: Workpapers.xls - Output

Noncore Commercial Demand Forecast
Forecast by Sectors from End-Use Model (MDth)

Year	Agri-culture	College	Construc-tion	Govern-ment	Health	Laundry	Lodging	Misc	Office	Restau-rant	Retail	TCU	Ware-house	Grand Total
2006	3,464	1,839	147	3,375	6,438	1,105	1,098	153	1,315	45	148	3,175	68	22,370
2007	3,532	1,845	146	3,380	6,480	1,110	1,103	154	1,321	45	148	3,172	68	22,503
2008	3,517	1,831	143	3,353	6,443	1,098	1,098	152	1,319	45	148	3,151	68	22,366
2009	3,544	1,838	142	3,362	6,479	1,097	1,105	151	1,336	45	148	3,180	68	22,497
2010	3,579	1,848	143	3,383	6,512	1,100	1,114	152	1,353	45	149	3,209	69	22,656
2011	3,610	1,857	143	3,387	6,546	1,104	1,122	152	1,365	46	149	3,241	69	22,790
2012	3,640	1,865	144	3,398	6,587	1,106	1,127	152	1,372	46	149	3,269	69	22,924
2013	3,667	1,871	145	3,405	6,619	1,107	1,131	152	1,378	46	150	3,293	69	23,033
2014	3,694	1,876	146	3,410	6,647	1,108	1,133	152	1,386	46	150	3,316	70	23,133
2015	3,718	1,880	147	3,415	6,676	1,110	1,136	152	1,392	46	150	3,338	70	23,229
2016	3,741	1,884	148	3,420	6,699	1,112	1,139	152	1,398	46	150	3,362	70	23,321
2017	3,757	1,885	149	3,419	6,714	1,112	1,139	152	1,402	46	149	3,382	70	23,377
2018	3,776	1,887	150	3,419	6,738	1,112	1,140	152	1,407	46	149	3,396	70	23,442
2019	3,796	1,889	151	3,420	6,768	1,113	1,144	152	1,414	46	149	3,406	71	23,519
2020	3,815	1,888	152	3,425	6,792	1,114	1,147	152	1,421	46	149	3,415	71	23,586
2021	3,834	1,888	152	3,415	6,823	1,116	1,150	152	1,426	46	149	3,433	71	23,655
2022	3,853	1,886	153	3,410	6,847	1,118	1,152	152	1,433	46	149	3,451	71	23,722
2023	3,872	1,885	153	3,406	6,871	1,120	1,155	152	1,439	46	149	3,469	71	23,788
2024	3,891	1,883	154	3,401	6,892	1,121	1,157	152	1,447	46	149	3,485	72	23,851
2025	3,912	1,883	155	3,399	6,912	1,123	1,160	153	1,455	46	149	3,503	72	23,921

Noncore Commercial Demand Forecast
Gas Price Forecast

Year	Com Price Deflator	Ind Price Deflator	Commercial NonCore Average Price	Commercial NonCore Marginal Price	Industrial NonCore Average Price	Industrial NonCore Marginal Price
2006	100.00	100.00	0.7410	0.7143	0.7204	0.6989
2007	102.48	102.48	0.7747	0.7473	0.7536	0.7315
2008	104.48	104.48	0.9408	0.9124	0.9190	0.8962
2009	106.58	106.58	0.9290	0.9056	0.9119	0.8923
2010	108.84	108.84	0.9011	0.8773	0.8837	0.8638
2011	111.19	111.19	0.8761	0.8518	0.8583	0.8381
2012	113.52	113.52	0.8602	0.8355	0.8421	0.8214
2013	115.77	115.77	0.8588	0.8336	0.8404	0.8193
2014	118.00	118.00	0.8574	0.8317	0.8386	0.8171
2015	120.23	120.23	0.8560	0.8298	0.8369	0.8150
2016	122.47	122.47	0.8547	0.8280	0.8351	0.8128
2017	124.75	124.75	0.8906	0.8634	0.8707	0.8479
2018	127.08	127.08	0.9119	0.8843	0.8917	0.8685
2019	129.41	129.41	0.9175	0.8893	0.8969	0.8733
2020	131.77	131.77	0.9449	0.9162	0.9239	0.8999
2021	134.14	134.14	0.9644	0.9352	0.9430	0.9186
2022	136.57	136.57	0.9973	0.9676	0.9755	0.9507
2023	139.10	139.10	1.0343	1.0040	1.0121	0.9868
2024	141.68	141.68	1.0721	1.0412	1.0495	1.0237
2025	144.36	144.36	1.0988	1.0673	1.0758	1.0495
2026	147.09	147.09	1.1218	1.0901	1.0987	1.0722
2027	149.86	149.86	1.1453	1.1134	1.1221	1.0954
2028	152.64	152.64	1.1693	1.1372	1.1461	1.1190
2029	155.50	155.50	1.1938	1.1615	1.1705	1.1432
2030	158.41	158.41	1.2188	1.1863	1.1955	1.1680

Source: from Loan Nguyen BCAP2009_NonCoreCandI_Rates_ThirdIteration.xls, tab Price.

Noncore Commercial Demand Forecast
Electric Price Forecast

Year	Commercial Non Core Average Price	Commercial Non Core Marginal Price	Industrial Non Core Average Price	Industrial Non Core Marginal Price
2006	11.67	8.23	11.67	8.23
2007	10.74	7.57	10.74	7.57
2008	11.42	8.05	11.42	8.05
2009	11.88	8.38	11.88	8.38
2010	11.67	8.23	11.67	8.23
2011	11.68	8.23	11.68	8.23
2012	11.91	8.39	11.91	8.39
2013	12.02	8.47	12.02	8.47
2014	12.00	8.46	12.00	8.46
2015	12.11	8.53	12.11	8.53
2016	12.08	8.52	12.08	8.52
2017	12.05	8.49	12.05	8.49
2018	12.01	8.47	12.01	8.47
2019	11.97	8.44	11.97	8.44
2020	11.93	8.41	11.93	8.41
2021	11.89	8.38	11.89	8.38
2022	11.85	8.35	11.85	8.35
2023	11.81	8.33	11.81	8.33
2024	11.77	8.30	11.77	8.30
2025	11.74	8.27	11.74	8.27
2026	11.74	8.27	11.74	8.27
2027	11.74	8.27	11.74	8.27
2028	11.74	8.27	11.74	8.27
2029	11.74	8.27	11.74	8.27
2030	11.74	8.27	11.74	8.27

Source: from Bruce Wetzel NonCore_Price_Forecasts(BMW-16Jul2007).xls
Cent/Kwh

Noncore Commercial Demand Forecast
Alternate Fuel (Propane) Price Forecast

Year	Commercial NonCore Average Price	Commercial NonCore Marginal Price	Industrial NonCore Average Price	Industrial NonCore Marginal Price
2006	1.2748	1.2748	1.2748	1.2748
2007	1.3296	1.3296	1.3296	1.3296
2008	1.3835	1.3835	1.3835	1.3835
2009	1.3503	1.3503	1.3503	1.3503
2010	1.3275	1.3275	1.3275	1.3275
2011	1.3090	1.3090	1.3090	1.3090
2012	1.3079	1.3079	1.3079	1.3079
2013	1.3142	1.3142	1.3142	1.3142
2014	1.3195	1.3195	1.3195	1.3195
2015	1.3246	1.3246	1.3246	1.3246
2016	1.3433	1.3433	1.3433	1.3433
2017	1.3818	1.3818	1.3818	1.3818
2018	1.4133	1.4133	1.4133	1.4133
2019	1.4366	1.4366	1.4366	1.4366
2020	1.4715	1.4715	1.4715	1.4715
2021	1.5031	1.5031	1.5031	1.5031
2022	1.5420	1.5420	1.5420	1.5420
2023	1.5841	1.5841	1.5841	1.5841
2024	1.6270	1.6270	1.6270	1.6270
2025	1.6654	1.6654	1.6654	1.6654
2026	1.6893	1.6893	1.6893	1.6893
2027	1.7135	1.7135	1.7135	1.7135
2028	1.7380	1.7380	1.7380	1.7380
2029	1.7629	1.7629	1.7629	1.7629
2030	1.7882	1.7882	1.7882	1.7882

Source: from Loan Nguyen FuelFcstCGR_2006-03-29.xls, Tab Propane($-Dth)_Table
$/therm

Noncore Commercial Demand Forecast
Employment Forecast (Millions)

Year	Office	Restaurant	Retail	Laundry	Warehouse	School	College	Health	Lodging	Misc	Government	TCU	Construction	Agriculture	Total
2006	1.64	0.59	1.01	0.08	0.45	0.61	0.20	0.72	0.10	0.22	0.62	0.57	0.49	0.22	7.50
2007	1.66	0.59	1.01	0.08	0.45	0.62	0.21	0.74	0.10	0.22	0.62	0.57	0.48	0.23	7.59
2008	1.71	0.60	1.03	0.08	0.46	0.63	0.21	0.75	0.10	0.22	0.63	0.57	0.47	0.23	7.68
2009	1.76	0.60	1.04	0.08	0.47	0.63	0.21	0.75	0.10	0.22	0.63	0.59	0.46	0.24	7.79
2010	1.81	0.61	1.05	0.08	0.47	0.64	0.21	0.76	0.10	0.22	0.64	0.60	0.46	0.24	7.89
2011	1.85	0.61	1.05	0.08	0.47	0.64	0.21	0.77	0.10	0.22	0.64	0.61	0.46	0.25	7.97
2012	1.87	0.61	1.05	0.08	0.48	0.65	0.22	0.78	0.10	0.22	0.65	0.62	0.47	0.25	8.05
2013	1.89	0.62	1.06	0.08	0.48	0.66	0.22	0.79	0.11	0.22	0.65	0.63	0.48	0.25	8.12
2014	1.92	0.62	1.06	0.08	0.48	0.66	0.22	0.80	0.11	0.22	0.65	0.64	0.49	0.26	8.20
2015	1.94	0.62	1.06	0.08	0.48	0.66	0.22	0.80	0.11	0.22	0.66	0.65	0.50	0.26	8.27
2016	1.96	0.62	1.06	0.08	0.49	0.67	0.22	0.81	0.11	0.22	0.66	0.66	0.51	0.26	8.33
2017	1.99	0.62	1.06	0.08	0.49	0.67	0.22	0.82	0.11	0.22	0.66	0.67	0.52	0.27	8.40
2018	2.01	0.62	1.06	0.08	0.49	0.68	0.23	0.83	0.11	0.22	0.66	0.68	0.53	0.27	8.47
2019	2.04	0.62	1.07	0.08	0.50	0.68	0.23	0.84	0.11	0.22	0.67	0.69	0.54	0.27	8.53
2020	2.06	0.62	1.07	0.08	0.50	0.68	0.23	0.84	0.11	0.22	0.67	0.69	0.55	0.28	8.61
2021	2.09	0.62	1.07	0.09	0.51	0.68	0.23	0.85	0.11	0.22	0.67	0.70	0.55	0.28	8.68
2022	2.12	0.63	1.08	0.09	0.51	0.68	0.23	0.86	0.11	0.22	0.67	0.71	0.56	0.28	8.75
2023	2.15	0.63	1.08	0.09	0.52	0.68	0.23	0.87	0.11	0.22	0.67	0.72	0.57	0.29	8.83
2024	2.18	0.63	1.09	0.09	0.52	0.69	0.23	0.88	0.11	0.23	0.67	0.73	0.58	0.29	8.91
2025	2.22	0.64	1.09	0.09	0.53	0.69	0.23	0.89	0.11	0.23	0.67	0.74	0.58	0.30	8.99
2026	2.25	0.64	1.10	0.09	0.53	0.69	0.23	0.90	0.12	0.23	0.67	0.75	0.59	0.30	9.08
2027	2.28	0.64	1.10	0.09	0.53	0.69	0.23	0.90	0.12	0.23	0.67	0.76	0.61	0.30	9.16
2028	2.31	0.65	1.11	0.09	0.54	0.69	0.23	0.91	0.12	0.23	0.67	0.78	0.62	0.31	9.24
2029	2.33	0.65	1.12	0.09	0.54	0.69	0.23	0.92	0.12	0.23	0.67	0.79	0.63	0.31	9.32
2030	2.37	0.65	1.12	0.09	0.54	0.69	0.23	0.93	0.12	0.23	0.68	0.80	0.64	0.31	9.41
2031	2.40	0.66	1.13	0.09	0.55	0.69	0.23	0.93	0.12	0.23	0.67	0.81	0.66	0.32	9.49
2032	2.44	0.66	1.14	0.09	0.55	0.69	0.23	0.94	0.12	0.24	0.67	0.82	0.67	0.32	9.58
2033	2.47	0.67	1.14	0.09	0.55	0.69	0.23	0.95	0.12	0.24	0.67	0.83	0.68	0.33	9.67
2034	2.51	0.67	1.15	0.09	0.55	0.69	0.23	0.95	0.12	0.24	0.67	0.84	0.69	0.33	9.76
2035	2.55	0.67	1.16	0.09	0.55	0.69	0.23	0.96	0.13	0.24	0.67	0.85	0.71	0.34	9.84

File: Com_NCore_06_Source_Data.xls - CGR_Employment_Data

Noncore Commercial Demand Forecast
Equipment Installation Year

Sector	Space Heater	Water Heater	Cooktop	Griddle	Fryer	Other Cooking Equipment	Kitchen Equipment	AC	Dryer	Engine	Other
Office	.	.	.	.	.	.	.	.	.	.	1966
Restaurant	1972	.	.	.	.	.	.	.	.	.	1974
Retail											
Laundry	1965	1980	.	.	.	.	.	2001	1983	.	1984
Warehouse	.	.	.	.	.	.	.	.	.	.	.
School	.	.	.	.	.	.	.	.	.	.	.
College	1974	1975	.	.	.	.	1988	1981	.	.	1968
Health	1975	1973	1973	1979	1983	1980	1975	1985	1972	.	1974
Lodging	1985	1978	1990	1986	1986	1990	1990	1953	1989	.	1991
Misc	.	1996	.	.	.	.	.	.	.	.	1991
Government	1979	1980	1976	1982	1979	1979	1982	1987	1980	1965	1976
TCU	1976	1969	.	.	.	.	.	.	.	1975	1977
Construction	.	.	.	.	.	.	.	.	.	.	.
Agriculture	1992	1991	.	.	.	.	1998	.	1970	1975	1992

File: NCoreCom.xls - ComNCoreAvgEQAge

Noncore Commercial Demand Forecast
User per Meter of New Customers (Therms)

Sector	Space Heater	Water Heater	Cooktop	Griddle	Fryer	Other Cooking Equipment	Kitchen Equipment	AC	Dryer	Engine	Other
Office	116,683	694	15,289	78,972	0	31,569	5,828	0	0	0	387,220
Restaurant	73,249	66,537	73,572	43,398	51,347	28,054	48,527	968	0	0	82,753
Retail	47,460	38,772	5,446	1,308	7,696	7,571	35,340	0	28,480	64	0
Laundry	0	1,009	0	0	0	0	0	0	227,980	0	163,468
Warehouse	10,158	15,286	0	17,118	0	0	88,043	0	298,533	0	0
School	0	0	0	0	0	0	0	0	0	0	0
College	292,196	11,727	0	0	0	0	0	0	0	493,859	0
Health	69,976	156,224	16,400	0	6,890	6,513	7,542	0	7,712	0	259,149
Lodging	5,274	30,974	0	2,319	3,055	6,245	177	0	7,460	0	221,221
Misc	59,760	7,117	0	273	0	27	6,001	0	3,040	0	1,062,520
Government	276,235	160,591	14,114	6,955	4,129	11,618	6,302	7,374	3,725	40,799	108,245
TCU	31,708	1,205	0	0	0	0	0	0	0	207,969	220,657
Construction	33,788	10,560	848	5	126	471	289	1,002	6,317	22	49,847
Agriculture	11,693	7,742	0	0	0	0	0	0	0	126,382	243,423

File: NCoreCom.xls - ComNCoreUsePerMeterNew

Noncore Commercial Demand Forecast
User per Meter of Existing Customers (Therms)

Sector	Space Heater	Water Heater	Cooktop	Griddle	Fryer	Other Cooking Equipment	Kitchen Equipment	AC	Dryer	Engine	Other
Office	415,651	172,570	21,048	6,997	5,339	21,771	4,670	7,124	20,719	5,920	414,434
Restaurant	31,646	61,254	102,236	42,058	80,768	89,364	21,760	1,261	564	0	20,083
Retail	169,948	103,225	37,585	6,259	41,864	72,166	44,628	9,902	19,030	1,520	235,491
Laundry	1,786	28,390	233	36	58	337	2	54	285,196	0	265,559
Warehouse	124,189	36,078	5,133	1,430	12,370	14,223	18,184	14,131	41,299	12,268	399,608
School	0	0	0	0	0	0	0	0	0	0	0
College	581,246	287,101	28,047	8,274	14,384	34,525	7,980	36,331	8,811	12,347	395,314
Health	268,161	168,030	26,931	5,216	7,316	20,710	11,714	4,854	36,889	2,751	283,529
Lodging	80,098	163,603	22,582	5,512	7,057	27,499	13,535	1,324	42,623	27	184,912
Misc	277,588	169,535	34,325	6,853	11,296	28,214	9,017	28,582	10,975	2,106	187,349
Government	383,305	222,837	19,584	9,651	5,729	16,121	8,744	10,233	5,169	56,613	150,201
TCU	131,314	47,207	4,158	1,033	1,961	3,641	2,487	6,414	405	206,027	217,810
Construction	481,415	150,456	12,081	71	1,795	6,710	4,116	14,275	90,009	309	710,212
Agriculture	107,804	26,119	4,436	740	9,226	20,515	18,651	253	27,188	178,259	359,938

File: NCoreCom.xls - ComNCoreUsePerMeterAvg

Noncore Commercial Demand Forecast
2006 Historical Data

Segment	2006 Therm Sales	2006 Meter Count	2006 Meter Count, Existing/Old customers	2006 Meter Count New Customers	Avg Use Per Meter Existing Customers	Avg Use Per Meter New Customers	Price Elasticity	Employment Elasticities	MAS SQFT
Office	13,154,935	12	12	0	1,096,245	0	-0.046000	0.410000	3,786,510
Restaurant	450,994	1	1	0	450,994	0	-0.046000	0.410000	317,339
Retail	1,483,235	2	2	0	741,617	0	-0.046000	0.410000	5,707,651
Laundry	11,051,368	19	19	0	581,651	0	-0.046000	0.410000	53,150
Warehouse	678,914	1	1	0	678,914	0	-0.046000	0.410000	3,023,850
School	0	0	0	0	0	0	-0.046000	0.410000	0
College	18,386,685	13	13	0	1,414,360	0	-0.046000	0.410000	4,367,776
Health	64,379,677	78	77	1	836,100	445,625	-0.046000	0.410000	1,707,720
Lodging	10,975,422	20	20	0	548,771	0	-0.046000	0.410000	447,289
Misc	1,531,678	2	2	0	765,839	0	-0.046000	0.410000	8,338,418
Government	33,751,100	38	38	0	888,187	0	-0.046000	0.410000	3,248,578
TCU	31,745,347	51	51	0	622,458	0	-0.046000	0.410000	2,697,060
Construction	1,471,448	1	1	0	1,471,448	0	-0.046000	0.410000	9,284,044
Agriculture	34,643,994	47	46	1	753,130	1,076,817	-0.046000	0.410000	1,625,346

File: NCoreCom.xls - 2006_Historical_Data

Noncore Commercial Demand Forecast
Gas Saturations by Businesses and Equipment Types

Obs	bName	nName	_TYPE_	_FREQ_	saturation
1			0	32,799	0.6197
2		AC_Compressor	1	3,016	0.8472
3		Cook_top	1	2,639	0.2067
4		Cooking	1	754	0.1635
5		Drying	1	1,508	0.9100
6		Engine	1	1,131	0.4167
7		Fryer	1	2,639	0.2037
8		Griddle	1	2,639	0.1816
9		Other	1	5,278	1.0000
10		Other_Cooking	1	2,639	0.2281
11		Space_Heat	1	5,278	0.7643
12		Water_Heat	1	5,278	0.8196
13	Agriculture		2	1,885	0.7820
14	College		2	3,016	0.5239
15	Construction		2	1,131	0.8033
16	Government		2	3,016	0.5305
17	Health		2	3,393	0.5507
18	Laundry		2	1,508	0.9300
19	Lodging		2	3,393	0.5384
20	Misc		2	3,016	0.4000
21	Office		2	1,885	0.7170
22	Restaurant		2	3,016	0.8253
23	Retail		2	1,508	0.6590
24	School		2	3,016	0.5425
25	TCU		2	1,508	0.7275
26	Warehouse		2	1,508	0.5902
27	Agriculture	Drying	3	377	1.0000
28	Agriculture	Engine	3	377	0.5000
29	Agriculture	Other	3	377	1.0000
30	Agriculture	Space_Heat	3	377	0.7200
31	Agriculture	Water_Heat	3	377	0.6900
32	College	AC_Compressor	3	377	0.8850
33	College	Cook_top	3	377	0.1470
34	College	Fryer	3	377	0.1470
35	College	Griddle	3	377	0.1470
36	College	Other	3	377	1.0000
37	College	Other_Cooking	3	377	0.1470
38	College	Space_Heat	3	377	0.7630
39	College	Water_Heat	3	377	0.9550
40	Construction	Other	3	377	1.0000
41	Construction	Space_Heat	3	377	0.7200
42	Construction	Water_Heat	3	377	0.6900
43	Government	AC_Compressor	3	377	0.8880
44	Government	Cook_top	3	377	0.1960
45	Government	Fryer	3	377	0.1960
46	Government	Griddle	3	377	0.1960
47	Government	Other	3	377	1.0000

Noncore Commercial Demand Forecast
Gas Saturations by Businesses and Equipment Types

Obs	bName	nName	_TYPE_	_FREQ_	saturation
48	Government	Other_Cooking	3	377	0.1960
49	Government	Space_Heat	3	377	0.8720
50	Government	Water_Heat	3	377	0.7000
51	Health	AC_Compressor	3	377	0.7920
52	Health	Cook_top	3	377	0.1020
53	Health	Drying	3	377	0.8200
54	Health	Fryer	3	377	0.1020
55	Health	Griddle	3	377	0.1020
56	Health	Other	3	377	1.0000
57	Health	Other_Cooking	3	377	0.1020
58	Health	Space_Heat	3	377	0.9360
59	Health	Water_Heat	3	377	1.0000
60	Laundry	Drying	3	377	1.0000
61	Laundry	Other	3	377	1.0000
62	Laundry	Space_Heat	3	377	0.7200
63	Laundry	Water_Heat	3	377	1.0000
64	Lodging	AC_Compressor	3	377	0.7950
65	Lodging	Cook_top	3	377	0.0840
66	Lodging	Drying	3	377	0.8200
67	Lodging	Fryer	3	377	0.0840
68	Lodging	Griddle	3	377	0.0840
69	Lodging	Other	3	377	1.0000
70	Lodging	Other_Cooking	3	377	0.0840
71	Lodging	Space_Heat	3	377	0.8950
72	Lodging	Water_Heat	3	377	1.0000
73	Misc	AC_Compressor	3	377	0.7310
74	Misc	Cook_top	3	377	0.0210
75	Misc	Fryer	3	377	0.0210
76	Misc	Griddle	3	377	0.0210
77	Misc	Other	3	377	1.0000
78	Misc	Other_Cooking	3	377	0.0210
79	Misc	Space_Heat	3	377	0.6950
80	Misc	Water_Heat	3	377	0.6900
81	Office	AC_Compressor	3	377	0.9310
82	Office	Cooking	3	377	0.0820
83	Office	Other	3	377	1.0000
84	Office	Space_Heat	3	377	0.8720
85	Office	Water_Heat	3	377	0.7000
86	Restaurant	AC_Compressor	3	377	0.8710
87	Restaurant	Cook_top	3	377	0.7500
88	Restaurant	Fryer	3	377	0.7290
89	Restaurant	Griddle	3	377	0.5740
90	Restaurant	Other	3	377	1.0000
91	Restaurant	Other_Cooking	3	377	0.9000
92	Restaurant	Space_Heat	3	377	0.8180
93	Restaurant	Water_Heat	3	377	0.9600
94	Retail	Cooking	3	377	0.2450

Noncore Commercial Demand Forecast
Gas Saturations by Businesses and Equipment Types

Obs	bName	nName	_TYPE_	_FREQ_	saturation
95	Retail	Other	3	377	1.0000
96	Retail	Space_Heat	3	377	0.7710
97	Retail	Water_Heat	3	377	0.6200
98	School	AC_Compressor	3	377	0.8850
99	School	Cook_top	3	377	0.1470
100	School	Fryer	3	377	0.1470
101	School	Griddle	3	377	0.1470
102	School	Other	3	377	1.0000
103	School	Other_Cooking	3	377	0.1470
104	School	Space_Heat	3	377	0.9670
105	School	Water_Heat	3	377	0.9000
106	TCU	Engine	3	377	0.5000
107	TCU	Other	3	377	1.0000
108	TCU	Space_Heat	3	377	0.7200
109	TCU	Water_Heat	3	377	0.6900
110	Warehouse	Engine	3	377	0.2500
111	Warehouse	Other	3	377	1.0000
112	Warehouse	Space_Heat	3	377	0.2310
113	Warehouse	Water_Heat	3	377	0.8800

Noncore Commercial Demand Forecast
Efficiency Shares by End Uses and Fuels

Obs	nName	fName	eName	_TYPE_	_FREQ_	baseAvgEShare
1	All	All	All	0	376	0.4255
2			High	1	42	0.0667
3			Premium	1	42	0.0167
4			Standard	1	132	0.3765
5			Stock	1	160	0.6675
6		Electric		2	160	0.4563
7		Natural_Gas		2	216	0.4028
8		Electric	High	3	14	0.0800
9		Electric	Premium	3	14	0.0200
10		Electric	Standard	3	59	0.3856
11		Electric	Stock	3	73	0.6692
12		Natural_Gas	High	3	28	0.0600
13		Natural_Gas	Premium	3	28	0.0150
14		Natural_Gas	Standard	3	73	0.3692
15		Natural_Gas	Stock	3	87	0.6661
16	AC_Compressor			4	32	0.5000
17	Cook_top			4	28	0.5000
18	Cooking			4	8	0.5000
19	Drying			4	16	0.5000
20	Engine			4	12	0.5000
21	Fryer			4	28	0.5000
22	Griddle			4	28	0.5000
23	Other			4	14	1.0000
24	Other_Cooking			4	28	0.5000
25	Space_Heat			4	70	0.4000
26	Water_Heat			4	112	0.2500
27	AC_Compressor		Standard	5	16	0.3500
28	AC_Compressor		Stock	5	16	0.6500
29	Cook_top		Standard	5	14	0.3500
30	Cook_top		Stock	5	14	0.6500
31	Cooking		Standard	5	4	0.3500
32	Cooking		Stock	5	4	0.6500
33	Drying		Standard	5	8	0.3500
34	Drying		Stock	5	8	0.6500
35	Engine		Standard	5	6	0.3500
36	Engine		Stock	5	6	0.6500
37	Fryer		Standard	5	14	0.3500
38	Fryer		Stock	5	14	0.6500
39	Griddle		Standard	5	14	0.3500
40	Griddle		Stock	5	14	0.6500
41	Other		Stock	5	14	1.0000
42	Other_Cooking		Standard	5	14	0.3500
43	Other_Cooking		Stock	5	14	0.6500
44	Space_Heat		High	5	14	0.0400
45	Space_Heat		Premium	5	14	0.0100
46	Space_Heat		Standard	5	14	0.3000
47	Space_Heat		Stock	5	28	0.8250

Noncore Commercial Demand Forecast
Efficiency Shares by End Uses and Fuels

Obs	nName	fName	eName	_TYPE_	_FREQ_	baseAvgEShare
48	Water_Heat		High	5	28	0.0800
49	Water_Heat		Premium	5	28	0.0200
50	Water_Heat		Standard	5	28	0.5000
51	Water_Heat		Stock	5	28	0.4000
52	AC_Compressor	Electric		6	16	0.5000
53	AC_Compressor	Natural_Gas		6	16	0.5000
54	Cook_top	Electric		6	14	0.5000
55	Cook_top	Natural_Gas		6	14	0.5000
56	Cooking	Electric		6	4	0.5000
57	Cooking	Natural_Gas		6	4	0.5000
58	Drying	Electric		6	8	0.5000
59	Drying	Natural_Gas		6	8	0.5000
60	Engine	Electric		6	6	0.5000
61	Engine	Natural_Gas		6	6	0.5000
62	Fryer	Electric		6	14	0.5000
63	Fryer	Natural_Gas		6	14	0.5000
64	Griddle	Electric		6	14	0.5000
65	Griddle	Natural_Gas		6	14	0.5000
66	Other	Natural_Gas		6	14	1.0000
67	Other_Cooking	Electric		6	14	0.5000
68	Other_Cooking	Natural_Gas		6	14	0.5000
69	Space_Heat	Electric		6	14	1.0000
70	Space_Heat	Natural_Gas		6	56	0.2500
71	Water_Heat	Electric		6	56	0.2500
72	Water_Heat	Natural_Gas		6	56	0.2500
73	AC_Compressor	Electric	Standard	7	8	0.3500
74	AC_Compressor	Electric	Stock	7	8	0.6500
75	AC_Compressor	Natural_Gas	Standard	7	8	0.3500
76	AC_Compressor	Natural_Gas	Stock	7	8	0.6500
77	Cook_top	Electric	Standard	7	7	0.3500
78	Cook_top	Electric	Stock	7	7	0.6500
79	Cook_top	Natural_Gas	Standard	7	7	0.3500
80	Cook_top	Natural_Gas	Stock	7	7	0.6500
81	Cooking	Electric	Standard	7	2	0.3500
82	Cooking	Electric	Stock	7	2	0.6500
83	Cooking	Natural_Gas	Standard	7	2	0.3500
84	Cooking	Natural_Gas	Stock	7	2	0.6500
85	Drying	Electric	Standard	7	4	0.3500
86	Drying	Electric	Stock	7	4	0.6500
87	Drying	Natural_Gas	Standard	7	4	0.3500
88	Drying	Natural_Gas	Stock	7	4	0.6500
89	Engine	Electric	Standard	7	3	0.3500
90	Engine	Electric	Stock	7	3	0.6500
91	Engine	Natural_Gas	Standard	7	3	0.3500
92	Engine	Natural_Gas	Stock	7	3	0.6500
93	Fryer	Electric	Standard	7	7	0.3500
94	Fryer	Electric	Stock	7	7	0.6500

Noncore Commercial Demand Forecast
Efficiency Shares by End Uses and Fuels

Obs	nName	fName	eName	_TYPE_	_FREQ_	baseAvgEShare
95	Fryer	Natural_Gas	Standard	7	7	0.3500
96	Fryer	Natural_Gas	Stock	7	7	0.6500
97	Griddle	Electric	Standard	7	7	0.3500
98	Griddle	Electric	Stock	7	7	0.6500
99	Griddle	Natural_Gas	Standard	7	7	0.3500
100	Griddle	Natural_Gas	Stock	7	7	0.6500
101	Other	Natural_Gas	Stock	7	14	1.0000
102	Other_Cooking	Electric	Standard	7	7	0.3500
103	Other_Cooking	Electric	Stock	7	7	0.6500
104	Other_Cooking	Natural_Gas	Standard	7	7	0.3500
105	Other_Cooking	Natural_Gas	Stock	7	7	0.6500
106	Space_Heat	Electric	Stock	7	14	1.0000
107	Space_Heat	Natural_Gas	High	7	14	0.0400
108	Space_Heat	Natural_Gas	Premium	7	14	0.0100
109	Space_Heat	Natural_Gas	Standard	7	14	0.3000
110	Space_Heat	Natural_Gas	Stock	7	14	0.6500
111	Water_Heat	Electric	High	7	14	0.0800
112	Water_Heat	Electric	Premium	7	14	0.0200
113	Water_Heat	Electric	Standard	7	14	0.5000
114	Water_Heat	Electric	Stock	7	14	0.4000
115	Water_Heat	Natural_Gas	High	7	14	0.0800
116	Water_Heat	Natural_Gas	Premium	7	14	0.0200
117	Water_Heat	Natural_Gas	Standard	7	14	0.5000
118	Water_Heat	Natural_Gas	Stock	7	14	0.4000

Noncore Commercial Demand Forecast
Fuel Shares by Businesses and End Uses

Obs	bName	nName	fName	_TYPE_	_FREQ_	baseAvgFShare
1	All	All	All	0.00	160.00	0.54
2			Electric	1	73	0.5184
3			Natural_Gas	1	87	0.5650
4		AC_Compressor		2	16	0.5000
5		Cook_top		2	14	0.5000
6		Cooking		2	4	0.5000
7		Drying		2	8	0.5000
8		Engine		2	6	0.5000
9		Fryer		2	14	0.5000
10		Griddle		2	14	0.5000
11		Other		2	14	1.0000
12		Other_Cooking		2	14	0.5000
13		Space_Heat		2	28	0.5000
14		Water_Heat		2	28	0.5000
15		AC_Compressor	Electric	3	8	0.9400
16		AC_Compressor	Natural_Gas	3	8	0.0600
17		Cook_top	Electric	3	7	0.4353
18		Cook_top	Natural_Gas	3	7	0.5647
19		Cooking	Electric	3	2	0.9428
20		Cooking	Natural_Gas	3	2	0.0572
21		Drying	Electric	3	4	0.3000
22		Drying	Natural_Gas	3	4	0.7000
23		Engine	Electric	3	3	0.9400
24		Engine	Natural_Gas	3	3	0.0600
25		Fryer	Electric	3	7	0.4661
26		Fryer	Natural_Gas	3	7	0.5339
27		Griddle	Electric	3	7	0.4383
28		Griddle	Natural_Gas	3	7	0.5617
29		Other	Natural_Gas	3	14	1.0000
30		Other_Cooking	Electric	3	7	0.4905
31		Other_Cooking	Natural_Gas	3	7	0.5095
32		Space_Heat	Electric	3	14	0.4194
33		Space_Heat	Natural_Gas	3	14	0.5806
34		Water_Heat	Electric	3	14	0.4095
35		Water_Heat	Natural_Gas	3	14	0.5905
36	Agriculture			4	9	0.5556
37	College			4	15	0.5333
38	Construction			4	5	0.6000
39	Government			4	15	0.5333
40	Health			4	17	0.5294
41	Laundry			4	7	0.5714
42	Lodging			4	17	0.5294
43	Misc			4	15	0.5333
44	Office			4	9	0.5556
45	Restaurant			4	15	0.5333
46	Retail			4	7	0.5714
47	School			4	15	0.5333

Noncore Commercial Demand Forecast
Fuel Shares by Businesses and End Uses

Obs	bName	nName	fName	_TYPE_	_FREQ_	baseAvgFShare
48	TCU			4	7	0.5714
49	Warehouse			4	7	0.5714
50	Agriculture		Electric	5	4	0.4217
51	Agriculture		Natural_Gas	5	5	0.6627
52	College		Electric	5	7	0.8001
53	College		Natural_Gas	5	8	0.2999
54	Construction		Electric	5	2	0.3733
55	Construction		Natural_Gas	5	3	0.7511
56	Government		Electric	5	7	0.3437
57	Government		Natural_Gas	5	8	0.6993
58	Health		Electric	5	8	0.6139
59	Health		Natural_Gas	5	9	0.4543
60	Laundry		Electric	5	3	0.3822
61	Laundry		Natural_Gas	5	4	0.7133
62	Lodging		Electric	5	8	0.5351
63	Lodging		Natural_Gas	5	9	0.5244
64	Misc		Electric	5	7	0.3315
65	Misc		Natural_Gas	5	8	0.7100
66	Office		Electric	5	4	0.7245
67	Office		Natural_Gas	5	5	0.4204
68	Restaurant		Electric	5	7	0.2763
69	Restaurant		Natural_Gas	5	8	0.7582
70	Retail		Electric	5	3	0.6929
71	Retail		Natural_Gas	5	4	0.4803
72	School		Electric	5	7	0.5306
73	School		Natural_Gas	5	8	0.5357
74	TCU		Electric	5	3	0.5622
75	TCU		Natural_Gas	5	4	0.5783
76	Warehouse		Electric	5	3	0.8104
77	Warehouse		Natural_Gas	5	4	0.3922
78	Agriculture	Drying		6	2	0.5000
79	Agriculture	Engine		6	2	0.5000
80	Agriculture	Other		6	1	1.0000
81	Agriculture	Space_Heat		6	2	0.5000
82	Agriculture	Water_Heat		6	2	0.5000
83	College	AC_Compressor		6	2	0.5000
84	College	Cook_top		6	2	0.5000
85	College	Fryer		6	2	0.5000
86	College	Griddle		6	2	0.5000
87	College	Other		6	1	1.0000
88	College	Other_Cooking		6	2	0.5000
89	College	Space_Heat		6	2	0.5000
90	College	Water_Heat		6	2	0.5000
91	Construction	Other		6	1	1.0000
92	Construction	Space_Heat		6	2	0.5000
93	Construction	Water_Heat		6	2	0.5000
94	Government	AC_Compressor		6	2	0.5000

Noncore Commercial Demand Forecast
Fuel Shares by Businesses and End Uses

Obs	bName	nName	fName	_TYPE_	_FREQ_	baseAvgFShare
95	Government	Cook_top		6	2	0.5000
96	Government	Fryer		6	2	0.5000
97	Government	Griddle		6	2	0.5000
98	Government	Other		6	1	1.0000
99	Government	Other_Cooking		6	2	0.5000
100	Government	Space_Heat		6	2	0.5000
101	Government	Water_Heat		6	2	0.5000
102	Health	AC_Compressor		6	2	0.5000
103	Health	Cook_top		6	2	0.5000
104	Health	Drying		6	2	0.5000
105	Health	Fryer		6	2	0.5000
106	Health	Griddle		6	2	0.5000
107	Health	Other		6	1	1.0000
108	Health	Other_Cooking		6	2	0.5000
109	Health	Space_Heat		6	2	0.5000
110	Health	Water_Heat		6	2	0.5000
111	Laundry	Drying		6	2	0.5000
112	Laundry	Other		6	1	1.0000
113	Laundry	Space_Heat		6	2	0.5000
114	Laundry	Water_Heat		6	2	0.5000
115	Lodging	AC_Compressor		6	2	0.5000
116	Lodging	Cook_top		6	2	0.5000
117	Lodging	Drying		6	2	0.5000
118	Lodging	Fryer		6	2	0.5000
119	Lodging	Griddle		6	2	0.5000
120	Lodging	Other		6	1	1.0000
121	Lodging	Other_Cooking		6	2	0.5000
122	Lodging	Space_Heat		6	2	0.5000
123	Lodging	Water_Heat		6	2	0.5000
124	Misc	AC_Compressor		6	2	0.5000
125	Misc	Cook_top		6	2	0.5000
126	Misc	Fryer		6	2	0.5000
127	Misc	Griddle		6	2	0.5000
128	Misc	Other		6	1	1.0000
129	Misc	Other_Cooking		6	2	0.5000
130	Misc	Space_Heat		6	2	0.5000
131	Misc	Water_Heat		6	2	0.5000
132	Office	AC_Compressor		6	2	0.5000
133	Office	Cooking		6	2	0.5000
134	Office	Other		6	1	1.0000
135	Office	Space_Heat		6	2	0.5000
136	Office	Water_Heat		6	2	0.5000
137	Restaurant	AC_Compressor		6	2	0.5000
138	Restaurant	Cook_top		6	2	0.5000
139	Restaurant	Fryer		6	2	0.5000
140	Restaurant	Griddle		6	2	0.5000
141	Restaurant	Other		6	1	1.0000

Noncore Commercial Demand Forecast
Fuel Shares by Businesses and End Uses

Obs	bName	nName	fName	_TYPE_	_FREQ_	baseAvgFShare
142	Restaurant	Other_Cooking		6	2	0.5000
143	Restaurant	Space_Heat		6	2	0.5000
144	Restaurant	Water_Heat		6	2	0.5000
145	Retail	Cooking		6	2	0.5000
146	Retail	Other		6	1	1.0000
147	Retail	Space_Heat		6	2	0.5000
148	Retail	Water_Heat		6	2	0.5000
149	School	AC_Compressor		6	2	0.5000
150	School	Cook_top		6	2	0.5000
151	School	Fryer		6	2	0.5000
152	School	Griddle		6	2	0.5000
153	School	Other		6	1	1.0000
154	School	Other_Cooking		6	2	0.5000
155	School	Space_Heat		6	2	0.5000
156	School	Water_Heat		6	2	0.5000
157	TCU	Engine		6	2	0.5000
158	TCU	Other		6	1	1.0000
159	TCU	Space_Heat		6	2	0.5000
160	TCU	Water_Heat		6	2	0.5000
161	Warehouse	Engine		6	2	0.5000
162	Warehouse	Other		6	1	1.0000
163	Warehouse	Space_Heat		6	2	0.5000
164	Warehouse	Water_Heat		6	2	0.5000
165	Agriculture	Drying	Electric	7	1	0.0000
166	Agriculture	Drying	Natural_Gas	7	1	1.0000
167	Agriculture	Engine	Electric	7	1	0.9400
168	Agriculture	Engine	Natural_Gas	7	1	0.0600
169	Agriculture	Other	Natural_Gas	7	1	1.0000
170	Agriculture	Space_Heat	Electric	7	1	0.4231
171	Agriculture	Space_Heat	Natural_Gas	7	1	0.5769
172	Agriculture	Water_Heat	Electric	7	1	0.3235
173	Agriculture	Water_Heat	Natural_Gas	7	1	0.6765
174	College	AC_Compressor	Electric	7	1	0.9400
175	College	AC_Compressor	Natural_Gas	7	1	0.0600
176	College	Cook_top	Electric	7	1	0.9520
177	College	Cook_top	Natural_Gas	7	1	0.0480
178	College	Fryer	Electric	7	1	0.9520
179	College	Fryer	Natural_Gas	7	1	0.0480
180	College	Griddle	Electric	7	1	0.9520
181	College	Griddle	Natural_Gas	7	1	0.0480
182	College	Other	Natural_Gas	7	1	1.0000
183	College	Other_Cooking	Electric	7	1	0.9520
184	College	Other_Cooking	Natural_Gas	7	1	0.0480
185	College	Space_Heat	Electric	7	1	0.6697
186	College	Space_Heat	Natural_Gas	7	1	0.3303
187	College	Water_Heat	Electric	7	1	0.1832
188	College	Water_Heat	Natural_Gas	7	1	0.8168

Noncore Commercial Demand Forecast
Fuel Shares by Businesses and End Uses

Obs	bName	nName	fName	_TYPE_	_FREQ_	baseAvgFShare
189	Construction	Other	Natural_Gas	7	1	1.0000
190	Construction	Space_Heat	Electric	7	1	0.4231
191	Construction	Space_Heat	Natural_Gas	7	1	0.5769
192	Construction	Water_Heat	Electric	7	1	0.3235
193	Construction	Water_Heat	Natural_Gas	7	1	0.6765
194	Government	AC_Compressor	Electric	7	1	0.9400
195	Government	AC_Compressor	Natural_Gas	7	1	0.0600
196	Government	Cook_top	Electric	7	1	0.0227
197	Government	Cook_top	Natural_Gas	7	1	0.9773
198	Government	Fryer	Electric	7	1	0.0947
199	Government	Fryer	Natural_Gas	7	1	0.9053
200	Government	Griddle	Electric	7	1	0.0296
201	Government	Griddle	Natural_Gas	7	1	0.9704
202	Government	Other	Natural_Gas	7	1	1.0000
203	Government	Other_Cooking	Electric	7	1	0.3400
204	Government	Other_Cooking	Natural_Gas	7	1	0.6600
205	Government	Space_Heat	Electric	7	1	0.1445
206	Government	Space_Heat	Natural_Gas	7	1	0.8555
207	Government	Water_Heat	Electric	7	1	0.8342
208	Government	Water_Heat	Natural_Gas	7	1	0.1658
209	Health	AC_Compressor	Electric	7	1	0.9400
210	Health	AC_Compressor	Natural_Gas	7	1	0.0600
211	Health	Cook_top	Electric	7	1	0.9051
212	Health	Cook_top	Natural_Gas	7	1	0.0949
213	Health	Drying	Electric	7	1	0.4000
214	Health	Drying	Natural_Gas	7	1	0.6000
215	Health	Fryer	Electric	7	1	0.9051
216	Health	Fryer	Natural_Gas	7	1	0.0949
217	Health	Griddle	Electric	7	1	0.9051
218	Health	Griddle	Natural_Gas	7	1	0.0949
219	Health	Other	Natural_Gas	7	1	1.0000
220	Health	Other_Cooking	Electric	7	1	0.3400
221	Health	Other_Cooking	Natural_Gas	7	1	0.6600
222	Health	Space_Heat	Electric	7	1	0.3397
223	Health	Space_Heat	Natural_Gas	7	1	0.6603
224	Health	Water_Heat	Electric	7	1	0.1758
225	Health	Water_Heat	Natural_Gas	7	1	0.8242
226	Laundry	Drying	Electric	7	1	0.4000
227	Laundry	Drying	Natural_Gas	7	1	0.6000
228	Laundry	Other	Natural_Gas	7	1	1.0000
229	Laundry	Space_Heat	Electric	7	1	0.4231
230	Laundry	Space_Heat	Natural_Gas	7	1	0.5769
231	Laundry	Water_Heat	Electric	7	1	0.3235
232	Laundry	Water_Heat	Natural_Gas	7	1	0.6765
233	Lodging	AC_Compressor	Electric	7	1	0.9400
234	Lodging	AC_Compressor	Natural_Gas	7	1	0.0600
235	Lodging	Cook_top	Electric	7	1	0.5504

Noncore Commercial Demand Forecast
Fuel Shares by Businesses and End Uses

Obs	bName	nName	fName	_TYPE_	_FREQ_	baseAvgFShare
236	Lodging	Cook_top	Natural_Gas	7	1	0.4496
237	Lodging	Drying	Electric	7	1	0.4000
238	Lodging	Drying	Natural_Gas	7	1	0.6000
239	Lodging	Fryer	Electric	7	1	0.5504
240	Lodging	Fryer	Natural_Gas	7	1	0.4496
241	Lodging	Griddle	Electric	7	1	0.5504
242	Lodging	Griddle	Natural_Gas	7	1	0.4496
243	Lodging	Other	Natural_Gas	7	1	1.0000
244	Lodging	Other_Cooking	Electric	7	1	0.5504
245	Lodging	Other_Cooking	Natural_Gas	7	1	0.4496
246	Lodging	Space_Heat	Electric	7	1	0.7285
247	Lodging	Space_Heat	Natural_Gas	7	1	0.2715
248	Lodging	Water_Heat	Electric	7	1	0.0105
249	Lodging	Water_Heat	Natural_Gas	7	1	0.9895
250	Misc	AC_Compressor	Electric	7	1	0.9400
251	Misc	AC_Compressor	Natural_Gas	7	1	0.0600
252	Misc	Cook_top	Electric	7	1	0.0227
253	Misc	Cook_top	Natural_Gas	7	1	0.9773
254	Misc	Fryer	Electric	7	1	0.0947
255	Misc	Fryer	Natural_Gas	7	1	0.9053
256	Misc	Griddle	Electric	7	1	0.0296
257	Misc	Griddle	Natural_Gas	7	1	0.9704
258	Misc	Other	Natural_Gas	7	1	1.0000
259	Misc	Other_Cooking	Electric	7	1	0.3400
260	Misc	Other_Cooking	Natural_Gas	7	1	0.6600
261	Misc	Space_Heat	Electric	7	1	0.4504
262	Misc	Space_Heat	Natural_Gas	7	1	0.5496
263	Misc	Water_Heat	Electric	7	1	0.4431
264	Misc	Water_Heat	Natural_Gas	7	1	0.5569
265	Office	AC_Compressor	Electric	7	1	0.9400
266	Office	AC_Compressor	Natural_Gas	7	1	0.0600
267	Office	Cooking	Electric	7	1	0.9793
268	Office	Cooking	Natural_Gas	7	1	0.0207
269	Office	Other	Natural_Gas	7	1	1.0000
270	Office	Space_Heat	Electric	7	1	0.1445
271	Office	Space_Heat	Natural_Gas	7	1	0.8555
272	Office	Water_Heat	Electric	7	1	0.8342
273	Office	Water_Heat	Natural_Gas	7	1	0.1658
274	Restaurant	AC_Compressor	Electric	7	1	0.9400
275	Restaurant	AC_Compressor	Natural_Gas	7	1	0.0600
276	Restaurant	Cook_top	Electric	7	1	0.0227
277	Restaurant	Cook_top	Natural_Gas	7	1	0.9773
278	Restaurant	Fryer	Electric	7	1	0.0947
279	Restaurant	Fryer	Natural_Gas	7	1	0.9053
280	Restaurant	Griddle	Electric	7	1	0.0296
281	Restaurant	Griddle	Natural_Gas	7	1	0.9704
282	Restaurant	Other	Natural_Gas	7	1	1.0000

Noncore Commercial Demand Forecast
Fuel Shares by Businesses and End Uses

Obs	bName	nName	fName	_TYPE_	_FREQ_	baseAvgFShare
283	Restaurant	Other_Cooking	Electric	7	1	0.3400
284	Restaurant	Other_Cooking	Natural_Gas	7	1	0.6600
285	Restaurant	Space_Heat	Electric	7	1	0.4095
286	Restaurant	Space_Heat	Natural_Gas	7	1	0.5905
287	Restaurant	Water_Heat	Electric	7	1	0.0980
288	Restaurant	Water_Heat	Natural_Gas	7	1	0.9020
289	Retail	Cooking	Electric	7	1	0.9063
290	Retail	Cooking	Natural_Gas	7	1	0.0937
291	Retail	Other	Natural_Gas	7	1	1.0000
292	Retail	Space_Heat	Electric	7	1	0.4825
293	Retail	Space_Heat	Natural_Gas	7	1	0.5175
294	Retail	Water_Heat	Electric	7	1	0.6899
295	Retail	Water_Heat	Natural_Gas	7	1	0.3101
296	School	AC_Compressor	Electric	7	1	0.9400
297	School	AC_Compressor	Natural_Gas	7	1	0.0600
298	School	Cook_top	Electric	7	1	0.5714
299	School	Cook_top	Natural_Gas	7	1	0.4286
300	School	Fryer	Electric	7	1	0.5714
301	School	Fryer	Natural_Gas	7	1	0.4286
302	School	Griddle	Electric	7	1	0.5714
303	School	Griddle	Natural_Gas	7	1	0.4286
304	School	Other	Natural_Gas	7	1	1.0000
305	School	Other_Cooking	Electric	7	1	0.5714
306	School	Other_Cooking	Natural_Gas	7	1	0.4286
307	School	Space_Heat	Electric	7	1	0.2472
308	School	Space_Heat	Natural_Gas	7	1	0.7528
309	School	Water_Heat	Electric	7	1	0.2416
310	School	Water_Heat	Natural_Gas	7	1	0.7584
311	TCU	Engine	Electric	7	1	0.9400
312	TCU	Engine	Natural_Gas	7	1	0.0600
313	TCU	Other	Natural_Gas	7	1	1.0000
314	TCU	Space_Heat	Electric	7	1	0.4231
315	TCU	Space_Heat	Natural_Gas	7	1	0.5769
316	TCU	Water_Heat	Electric	7	1	0.3235
317	TCU	Water_Heat	Natural_Gas	7	1	0.6765
318	Warehouse	Engine	Electric	7	1	0.9400
319	Warehouse	Engine	Natural_Gas	7	1	0.0600
320	Warehouse	Other	Natural_Gas	7	1	1.0000
321	Warehouse	Space_Heat	Electric	7	1	0.5628
322	Warehouse	Space_Heat	Natural_Gas	7	1	0.4372
323	Warehouse	Water_Heat	Electric	7	1	0.9284
324	Warehouse	Water_Heat	Natural_Gas	7	1	0.0716

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SOCALGAS NONCORE INDUSTRIAL TABLES
FEBRUARY 2008

Noncore Industrial Demand Forecast (Mth)

	Industrial - All Temperature Years			
Date	IndModel	DSM	Vernon	Ind-All
Jan-06	53,459	0	0	53,459
Feb-06	49,856	0	0	49,856
Mar-06	56,891	0	0	56,891
Apr-06	54,080	0	0	54,080
May-06	55,136	0	0	55,136
Jun-06	52,104	0	0	52,104
Jul-06	52,225	0	0	52,225
Aug-06	58,809	0	0	58,809
Sep-06	54,184	0	0	54,184
Oct-06	52,877	0	0	52,877
Nov-06	48,538	0	0	48,538
Dec-06	46,286	0	0	46,286
Jan-07	53,562	44	259	53,258
Feb-07	48,378	44	259	48,075
Mar-07	53,562	44	259	53,258
Apr-07	51,834	44	313	51,476
May-07	53,562	44	313	53,204
Jun-07	51,834	44	313	51,476
Jul-07	53,562	44	313	53,204
Aug-07	53,562	44	313	53,204
Sep-07	51,834	44	313	51,476
Oct-07	53,562	44	985	52,532
Nov-07	51,834	44	985	50,804
Dec-07	53,562	44	985	52,532
Jan-08	52,528	101	3,161	49,266
Feb-08	47,444	101	3,161	44,182
Mar-08	52,528	101	3,161	49,266
Apr-08	50,833	101	3,161	47,571
May-08	52,528	101	3,161	49,266
Jun-08	50,833	101	3,161	47,571
Jul-08	52,528	101	3,161	49,266
Aug-08	52,528	101	3,161	49,266
Sep-08	50,833	101	3,161	47,571
Oct-08	52,528	101	3,161	49,266
Nov-08	50,833	101	3,161	47,571
Dec-08	52,528	101	3,161	49,266
Jan-09	52,498	167	3,161	49,170
Feb-09	47,418	167	3,161	44,090
Mar-09	52,498	167	3,161	49,170
Apr-09	50,805	167	3,161	47,477
May-09	52,498	167	3,161	49,170
Jun-09	50,805	167	3,161	47,477
Jul-09	52,498	167	3,161	49,170
Aug-09	52,498	167	3,161	49,170
Sep-09	50,805	167	3,161	47,477
Oct-09	52,498	167	3,161	49,170
Nov-09	50,805	167	3,161	47,477
Dec-09	52,498	167	3,161	49,170

Noncore Industrial Demand Forecast (Mth)

	Industrial - All Temperature Years			
Date	IndModel	DSM	Vernon	Ind-All
Jan-10	52,719	236	3,161	49,322
Feb-10	47,617	236	3,161	44,220
Mar-10	52,719	236	3,161	49,322
Apr-10	51,018	236	3,161	47,621
May-10	52,719	236	3,284	49,199
Jun-10	51,018	236	3,284	47,498
Jul-10	52,719	236	3,327	49,156
Aug-10	52,719	236	3,327	49,156
Sep-10	51,018	236	3,327	47,456
Oct-10	52,719	236	3,327	49,156
Nov-10	51,018	236	3,327	47,456
Dec-10	52,719	236	3,327	49,156
Jan-11	52,897	308	3,327	49,262
Feb-11	47,778	308	3,327	44,143
Mar-11	52,897	308	3,327	49,262
Apr-11	51,190	308	3,327	47,556
May-11	52,897	308	3,327	49,262
Jun-11	51,190	308	3,327	47,556
Jul-11	52,897	308	3,327	49,262
Aug-11	52,897	308	3,327	49,262
Sep-11	51,190	308	3,327	47,556
Oct-11	52,897	308	3,327	49,262
Nov-11	51,190	308	3,327	47,556
Dec-11	52,897	308	3,327	49,262
Jan-12	52,897	387	3,327	49,184
Feb-12	47,778	387	3,327	44,064
Mar-12	52,897	387	3,327	49,184
Apr-12	51,190	387	3,327	47,477
May-12	52,897	387	3,327	49,184
Jun-12	51,190	387	3,327	47,477
Jul-12	52,897	387	3,327	49,184
Aug-12	52,897	387	3,327	49,184
Sep-12	51,190	387	3,327	47,477
Oct-12	52,897	387	3,327	49,184
Nov-12	51,190	387	3,327	47,477
Dec-12	52,897	387	3,327	49,184
Jan-13	52,897	473	3,327	49,097
Feb-13	47,778	473	3,327	43,978
Mar-13	52,897	473	3,327	49,097
Apr-13	51,190	473	3,327	47,390
May-13	52,897	473	3,327	49,097
Jun-13	51,190	473	3,327	47,390
Jul-13	52,897	473	3,327	49,097
Aug-13	52,897	473	3,327	49,097
Sep-13	51,190	473	3,327	47,390
Oct-13	52,897	473	3,327	49,097
Nov-13	51,190	473	3,327	47,390
Dec-13	52,897	473	3,327	49,097

Noncore Industrial Demand Forecast (Mth)

	Industrial - All Temperature Years			
Date	IndModel	DSM	Vernon	Ind-All
Jan-14	52,897	560	3,327	49,010
Feb-14	47,778	560	3,327	43,891
Mar-14	52,897	560	3,327	49,010
Apr-14	51,190	560	3,327	47,303
May-14	52,897	560	3,327	49,010
Jun-14	51,190	560	3,327	47,303
Jul-14	52,897	560	3,327	49,010
Aug-14	52,897	560	3,327	49,010
Sep-14	51,190	560	3,327	47,303
Oct-14	52,897	560	3,327	49,010
Nov-14	51,190	560	3,327	47,303
Dec-14	52,897	560	3,327	49,010
Jan-15	52,897	647	3,327	48,923
Feb-15	47,778	647	3,327	43,804
Mar-15	52,897	647	3,327	48,923
Apr-15	51,190	647	3,327	47,217
May-15	52,897	647	3,327	48,923
Jun-15	51,190	647	3,327	47,217
Jul-15	52,897	647	3,327	48,923
Aug-15	52,897	647	3,327	48,923
Sep-15	51,190	647	3,327	47,217
Oct-15	52,897	647	3,327	48,923
Nov-15	51,190	647	3,327	47,217
Dec-15	52,897	647	3,327	48,923
Jan-16	52,897	734	3,327	48,836
Feb-16	47,778	734	3,327	43,717
Mar-16	52,897	734	3,327	48,836
Apr-16	51,190	734	3,327	47,130
May-16	52,897	734	3,327	48,836
Jun-16	51,190	734	3,327	47,130
Jul-16	52,897	734	3,327	48,836
Aug-16	52,897	734	3,327	48,836
Sep-16	51,190	734	3,327	47,130
Oct-16	52,897	734	3,327	48,836
Nov-16	51,190	734	3,327	47,130
Dec-16	52,897	734	3,327	48,836
Jan-17	52,897	821	3,327	48,749
Feb-17	47,778	821	3,327	43,630
Mar-17	52,897	821	3,327	48,749
Apr-17	51,190	821	3,327	47,043
May-17	52,897	821	3,327	48,749
Jun-17	51,190	821	3,327	47,043
Jul-17	52,897	821	3,327	48,749
Aug-17	52,897	821	3,327	48,749
Sep-17	51,190	821	3,327	47,043
Oct-17	52,897	821	3,327	48,749
Nov-17	51,190	821	3,327	47,043
Dec-17	52,897	821	3,327	48,749

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Noncore Industrial Demand Forecast (Mth)

	Industrial - All Temperature Years			
Date	IndModel	DSM	Vernon	Ind-All
Jan-18	52,897	908	3,327	48,662
Feb-18	47,778	908	3,327	43,543
Mar-18	52,897	908	3,327	48,662
Apr-18	51,190	908	3,327	46,956
May-18	52,897	908	3,327	48,662
Jun-18	51,190	908	3,327	46,956
Jul-18	52,897	908	3,327	48,662
Aug-18	52,897	908	3,327	48,662
Sep-18	51,190	908	3,327	46,956
Oct-18	52,897	908	3,327	48,662
Nov-18	51,190	908	3,327	46,956
Dec-18	52,897	908	3,327	48,662
Jan-19	52,897	995	3,327	48,575
Feb-19	47,778	995	3,327	43,456
Mar-19	52,897	995	3,327	48,575
Apr-19	51,190	995	3,327	46,869
May-19	52,897	995	3,327	48,575
Jun-19	51,190	995	3,327	46,869
Jul-19	52,897	995	3,327	48,575
Aug-19	52,897	995	3,327	48,575
Sep-19	51,190	995	3,327	46,869
Oct-19	52,897	995	3,327	48,575
Nov-19	51,190	995	3,327	46,869
Dec-19	52,897	995	3,327	48,575
Jan-20	52,897	1,053	3,327	48,517
Feb-20	47,778	1,053	3,327	43,398
Mar-20	52,897	1,053	3,327	48,517
Apr-20	51,190	1,053	3,327	46,811
May-20	52,897	1,053	3,327	48,517
Jun-20	51,190	1,053	3,327	46,811
Jul-20	52,897	1,053	3,327	48,517
Aug-20	52,897	1,053	3,327	48,517
Sep-20	51,190	1,053	3,327	46,811
Oct-20	52,897	1,053	3,327	48,517
Nov-20	51,190	1,053	3,327	46,811
Dec-20	52,897	1,053	3,327	48,517
Jan-21	52,897	1,085	3,327	48,485
Feb-21	47,778	1,085	3,327	43,366
Mar-21	52,897	1,085	3,327	48,485
Apr-21	51,190	1,085	3,327	46,778
May-21	52,897	1,085	3,327	48,485
Jun-21	51,190	1,085	3,327	46,778
Jul-21	52,897	1,085	3,327	48,485
Aug-21	52,897	1,085	3,327	48,485
Sep-21	51,190	1,085	3,327	46,778
Oct-21	52,897	1,085	3,327	48,485
Nov-21	51,190	1,085	3,327	46,778
Dec-21	52,897	1,085	3,327	48,485

Noncore Industrial Demand Forecast (Mth)

	Industrial - All Temperature Years			
Date	IndModel	DSM	Vernon	Ind-All
Jan-22	52,897	1,128	3,327	48,442
Feb-22	47,778	1,128	3,327	43,323
Mar-22	52,897	1,128	3,327	48,442
Apr-22	51,190	1,128	3,327	46,736
May-22	52,897	1,128	3,327	48,442
Jun-22	51,190	1,128	3,327	46,736
Jul-22	52,897	1,128	3,327	48,442
Aug-22	52,897	1,128	3,327	48,442
Sep-22	51,190	1,128	3,327	46,736
Oct-22	52,897	1,128	3,327	48,442
Nov-22	51,190	1,128	3,327	46,736
Dec-22	52,897	1,128	3,327	48,442
Jan-23	52,897	1,158	3,327	48,412
Feb-23	47,778	1,158	3,327	43,293
Mar-23	52,897	1,158	3,327	48,412
Apr-23	51,190	1,158	3,327	46,706
May-23	52,897	1,158	3,327	48,412
Jun-23	51,190	1,158	3,327	46,706
Jul-23	52,897	1,158	3,327	48,412
Aug-23	52,897	1,158	3,327	48,412
Sep-23	51,190	1,158	3,327	46,706
Oct-23	52,897	1,158	3,327	48,412
Nov-23	51,190	1,158	3,327	46,706
Dec-23	52,897	1,158	3,327	48,412
Jan-24	52,897	1,179	3,327	48,391
Feb-24	47,778	1,179	3,327	43,272
Mar-24	52,897	1,179	3,327	48,391
Apr-24	51,190	1,179	3,327	46,685
May-24	52,897	1,179	3,327	48,391
Jun-24	51,190	1,179	3,327	46,685
Jul-24	52,897	1,179	3,327	48,391
Aug-24	52,897	1,179	3,327	48,391
Sep-24	51,190	1,179	3,327	46,685
Oct-24	52,897	1,179	3,327	48,391
Nov-24	51,190	1,179	3,327	46,685
Dec-24	52,897	1,179	3,327	48,391
Jan-25	52,897	1,197	3,327	48,373
Feb-25	47,778	1,197	3,327	43,254
Mar-25	52,897	1,197	3,327	48,373
Apr-25	51,190	1,197	3,327	46,667
May-25	52,897	1,197	3,327	48,373
Jun-25	51,190	1,197	3,327	46,667
Jul-25	52,897	1,197	3,327	48,373
Aug-25	52,897	1,197	3,327	48,373
Sep-25	51,190	1,197	3,327	46,667
Oct-25	52,897	1,197	3,327	48,373
Nov-25	51,190	1,197	3,327	46,667
Dec-25	52,897	1,197	3,327	48,373

Noncore Industrial Demand Forecast
Forecast by Sectors from End-Use Model (MDth)

Year	Chemical	Fab_Metal	Food	Mining	Misc	Petroleum	Prim_Metal	Stone	Textile	Transport	Wood_Paper	Grand Total
2006	2,109	4,973	17,894	2,972	3,866	9,571	4,333	6,045	4,144	1,200	6,110	63,215
2007	2,126	4,974	17,987	3,030	3,847	9,535	4,286	6,025	4,059	1,191	6,003	63,064
2008	2,100	4,906	17,705	2,998	3,764	9,320	4,137	5,909	3,970	1,172	5,866	61,847
2009	2,115	4,929	17,753	2,970	3,752	9,258	4,106	5,912	3,967	1,172	5,877	61,812
2010	2,141	4,947	17,871	2,941	3,764	9,256	4,101	5,950	3,985	1,175	5,943	62,072
2011	2,164	4,969	17,981	2,901	3,774	9,253	4,112	5,973	3,987	1,176	5,992	62,282
2012	2,182	5,018	18,052	2,863	3,778	9,220	4,116	5,976	3,972	1,175	6,008	62,359
2013	2,196	5,050	18,096	2,825	3,776	9,171	4,110	5,967	3,949	1,172	6,010	62,322
2014	2,210	5,077	18,145	2,791	3,778	9,135	4,101	5,961	3,933	1,170	6,016	62,318
2015	2,227	5,115	18,199	2,758	3,781	9,104	4,093	5,960	3,922	1,167	6,034	62,361
2016	2,244	5,161	18,259	2,731	3,789	9,071	4,089	5,960	3,916	1,165	6,056	62,442
2017	2,255	5,195	18,263	2,698	3,794	9,017	4,081	5,950	3,907	1,159	6,051	62,371
2018	2,267	5,204	18,286	2,672	3,797	8,982	4,067	5,954	3,904	1,156	6,044	62,335
2019	2,279	5,199	18,328	2,659	3,793	8,954	4,050	5,966	3,905	1,155	6,033	62,320
2020	2,286	5,177	18,341	2,652	3,780	8,910	4,021	5,960	3,898	1,152	6,011	62,188
2021	2,296	5,163	18,367	2,649	3,771	8,880	3,997	5,955	3,895	1,148	5,998	62,120
2022	2,304	5,133	18,360	2,643	3,762	8,845	3,965	5,935	3,889	1,145	5,976	61,958
2023	2,311	5,106	18,341	2,638	3,755	8,808	3,934	5,907	3,878	1,141	5,950	61,768
2024	2,315	5,081	18,324	2,632	3,748	8,765	3,903	5,869	3,864	1,138	5,928	61,568
2025	2,322	5,057	18,323	2,630	3,745	8,727	3,875	5,836	3,858	1,136	5,916	61,424

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Noncore Industrial Demand Forecast
Employment Forecast (000's)

YEAR	Mining	Food	Textile	Wood-Paper	Chem-ical	Petro-leum	Stone	Prim-Metal	Fab-Metal	Trans-port	Misc	Total
2006	18.18	117.43	41.05	28.30	40.74	5.84	27.93	10.36	93.10	85.24	436.37	904.53
2007	19.20	119.68	39.18	27.21	41.78	5.82	27.87	10.14	93.75	84.21	433.60	902.44
2008	19.43	119.45	38.44	26.64	42.11	5.72	27.60	9.64	94.18	84.00	426.24	893.43
2009	18.94	119.90	38.25	26.70	42.73	5.60	27.54	9.41	95.00	83.79	421.49	889.37
2010	18.30	120.84	38.35	27.24	43.60	5.55	27.74	9.29	95.00	83.49	421.14	890.55
2011	17.54	121.74	38.09	27.59	44.42	5.50	27.79	9.28	95.29	82.98	420.83	891.05
2012	16.84	122.27	37.50	27.63	45.08	5.41	27.67	9.25	97.07	82.38	419.46	890.56
2013	16.23	122.76	36.86	27.60	45.67	5.33	27.50	9.19	98.39	81.78	418.14	889.45
2014	15.66	123.35	36.38	27.63	46.29	5.26	27.38	9.12	99.51	81.18	417.96	889.71
2015	15.13	124.04	36.05	27.78	47.03	5.20	27.32	9.05	101.14	80.55	417.95	891.25
2016	14.68	124.83	35.85	27.99	47.77	5.14	27.28	9.01	103.13	79.95	419.76	895.38
2017	14.27	125.57	35.83	28.09	48.57	5.09	27.32	9.02	105.28	79.47	423.55	902.09
2018	13.92	126.27	35.88	28.09	49.27	5.06	27.45	8.97	105.97	79.17	425.43	905.46
2019	13.71	126.90	35.87	27.95	49.81	5.01	27.57	8.86	105.71	78.85	424.09	904.32
2020	13.66	127.55	35.85	27.79	50.31	4.96	27.60	8.72	105.02	78.59	421.99	902.06
2021	13.66	128.22	35.86	27.70	50.89	4.93	27.60	8.60	104.57	78.21	420.36	900.58
2022	13.65	128.62	35.88	27.56	51.44	4.90	27.50	8.45	103.57	77.89	419.62	899.09
2023	13.65	128.87	35.77	27.39	52.00	4.87	27.30	8.31	102.78	77.69	419.72	898.34
2024	13.65	129.15	35.63	27.25	52.43	4.83	27.00	8.17	102.04	77.56	419.72	897.43
2025	13.65	129.44	35.57	27.19	52.84	4.79	26.68	8.03	101.16	77.44	419.87	896.66
2026	13.64	129.80	35.59	27.13	53.34	4.75	26.35	7.89	100.49	77.29	420.64	896.91
2027	13.64	130.12	35.57	27.00	53.93	4.71	26.04	7.78	100.37	77.02	422.07	898.26
2028	13.66	130.33	35.42	26.76	54.50	4.68	25.70	7.65	99.76	76.65	423.72	898.84
2029	13.68	130.56	35.22	26.55	55.07	4.64	25.32	7.51	98.05	76.30	424.85	897.76
2030	13.71	130.83	35.10	26.41	55.59	4.61	24.91	7.35	96.15	76.08	425.64	896.38

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Noncore Industrial Demand Forecast
User per Meter of Existing Customers (Therms)

Segment	Fire_Tube_ Boil	Wat_Tube_ Boil	Space_ Heat	Water_ Heat	Dryer	Furnace_ Oven_Kiln	AC	Engine	Misc_ Other	Total
Mining	121,773	482,056	6,266	3,732	323,588	848,035	0	35,170	16,905	1,837,525
Food	877,470	237,481	9,495	12,370	326,190	80,003	903	2,635	62,830	1,609,377
Textile	671,072	92,352	5,541	17,626	306,895	97,234	0	10,164	41,405	1,242,289
Wood_Paper	295,798	742,807	126	518	110,446	63,472	0	0	46,193	1,259,359
Chemical	440,748	137,939	3,096	2,152	0	21,330	7,088	0	257,217	869,571
Petroleum	137,757	0	61,828	4,768	521,906	1,660,918	0	0	171,922	2,559,100
Stone	108,027	0	16,745	3,031	68,020	2,816,023	0	0	135,820	3,147,666
Prim_Metal	23,861	85,636	2,689	309	28,264	1,056,093	97	0	101,950	1,298,899
Fab_Metal	124,061	13,032	16,874	1,751	2,742	740,464	56	1,031	146,734	1,046,746
Transport	84,983	127,432	25,881	2,710	1,511	711,758	200	0	124,809	1,079,285
Misc	357,457	118,468	14,503	15,168	26,570	246,296	5	0	227,959	1,006,425

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Noncore Industrial Demand Forecast
Saturation

Segment	Fire_Tube_ Boil	Wat_Tube_ Boil	Space_ Heat	Water_ Heat	Dryer	Furnace_ Oven_Kiln	AC	Engine	Misc_ Other
Mining	0.01	0.01	0.73	0.73	0.03	0.06	0.64	0.87	1.00
Food	0.45	0.45	0.60	0.85	0.12	0.33	0.73	0.70	1.00
Textile	0.26	0.26	0.70	0.71	0.14	0.09	0.72	0.46	1.00
Wood_Paper	0.01	0.01	0.62	0.77	0.09	0.07	0.71	0.50	1.00
Chemical	0.14	0.14	0.73	0.73	0.12	0.10	0.74	0.70	1.00
Petroleum	0.14	0.14	0.73	0.73	0.12	0.10	0.74	0.70	1.00
Stone	0.01	0.01	0.73	0.73	0.03	0.06	0.64	0.87	1.00
Prim_Metal	0.07	0.07	0.73	0.76	0.15	0.10	0.68	0.86	1.00
Fab_Metal	0.07	0.07	0.73	0.76	0.15	0.10	0.68	0.86	1.00
Transport	0.14	0.14	0.73	0.73	0.12	0.10	0.74	0.70	1.00
Misc	0.14	0.14	0.73	0.73	0.12	0.10	0.74	0.70	1.00

Noncore Industrial Demand Forecast
Gas Unit Energy Consumption

Segment	Fire_Tube_ Boil	Wat_Tube_ Boil	Space_ Heat	Water_ Heat	Dryer	Furnace_ Oven_Kiln	AC	Engine	Misc_ Other
Mining	15,197,607	60,162,069	12,984	7,981	31,551,928	34,672,498	0	3,748,606	15,676
Food	2,019,797	546,644	19,869	18,855	6,599,447	493,600	8,815	289,660	48,356
Textile	3,108,844	427,834	11,556	37,402	6,188,629	2,557,853	0	1,977,498	37,055
Wood_Paper	38,981,557	97,890,377	324	1,108	3,790,529	2,348,782	0	0	45,230
Chemical	3,457,019	1,081,930	5,644	4,049	0	460,401	72,363	0	209,860
Petroleum	1,031,793	0	107,646	8,566	10,689,246	34,233,510	0	0	133,945
Stone	13,851,560	0	35,651	6,660	6,814,194	118,290,626	0	0	129,396
Prim_Metal	338,405	1,214,539	4,432	505	438,453	20,608,729	969	0	75,202
Fab_Metal	1,904,588	200,068	30,108	3,097	46,052	15,640,956	609	95,727	117,161
Transport	813,269	1,219,491	57,573	6,221	39,541	18,743,866	2,495	0	124,241
Misc	2,821,763	935,185	26,612	28,723	573,541	5,350,309	51	0	187,184

Noncore Industrial Demand Forecast
Gas Unit Energy Consumption

Segment	Fire_ Tube_ Boil	Wat_ Tube_ Boil	Space_ Heat	Water_ Heat	Dryer	Furnace_ Oven_ Kiln	AC	Engine	Misc_ Other
Mining	0.75	0.75	0.61	0.59	0.32	0.62	0.11	0.01	1.00
Food	0.79	0.79	0.61	0.59	0.32	0.62	0.11	0.01	1.00
Textile	0.79	0.79	0.61	0.59	0.32	0.62	0.11	0.01	1.00
Wood_Paper	0.75	0.75	0.61	0.59	0.32	0.62	0.11	0.01	1.00
Chemical	0.79	0.79	0.61	0.59	0.32	0.62	0.11	0.01	1.00
Petroleum	0.79	0.79	0.61	0.59	0.32	0.62	0.11	0.01	1.00
Stone	0.79	0.79	0.61	0.59	0.32	0.62	0.11	0.01	1.00
Prim_Metal	0.79	0.79	0.61	0.59	0.32	0.62	0.11	0.01	1.00
Fab_Metal	0.79	0.79	0.61	0.59	0.32	0.62	0.11	0.01	1.00
Transport	0.75	0.75	0.61	0.59	0.32	0.62	0.11	0.01	1.00
Misc	0.79	0.79	0.61	0.59	0.32	0.62	0.11	0.01	1.00

Gas share unadjusted	Fire_ Tube_ Boil	Wat_ Tube_ Boil	Space_ Heat	Water_ Heat	Dryer	Furnace_ Oven_ Kiln	AC	Engine	Misc_ Other
Mining	75%	75%	65%	60%	33%	65%	11%	1%	100%
Food	75%	75%	65%	60%	33%	65%	11%	1%	100%
Textile	75%	75%	65%	60%	33%	65%	11%	1%	100%
Wood_Paper	75%	75%	65%	60%	33%	65%	11%	1%	100%
Chemical	75%	75%	65%	60%	33%	65%	11%	1%	100%
Petroleum	75%	75%	65%	60%	33%	65%	11%	1%	100%
Stone	75%	75%	65%	60%	33%	65%	11%	1%	100%
Prim_Metal	75%	75%	65%	60%	33%	65%	11%	1%	100%
Fab_Metal	75%	75%	65%	60%	33%	65%	11%	1%	100%
Transport	75%	75%	65%	60%	33%	65%	11%	1%	100%
Misc	75%	75%	65%	60%	33%	65%	11%	1%	100%

Electric share unadjusted	Fire_ Tube_ Boil	Wat_ Tube_ Boil	Space_ Heat	Water_ Heat	Dryer	Furnace_ Oven_ Kiln	AC	Engine	Misc_ Other
Mining	25%	25%	41%	41%	71%	40%	91%	99%	100%
Food	20%	20%	41%	41%	71%	40%	91%	99%	100%
Textile	20%	20%	41%	41%	71%	40%	91%	99%	100%
Wood_Paper	25%	25%	41%	41%	71%	40%	91%	99%	100%
Chemical	20%	20%	41%	41%	71%	40%	91%	99%	100%
Petroleum	20%	20%	41%	41%	71%	40%	91%	99%	100%
Stone	20%	20%	41%	41%	71%	40%	91%	99%	100%
Prim_Metal	20%	20%	41%	41%	71%	40%	91%	99%	100%
Fab_Metal	20%	20%	41%	41%	71%	40%	91%	99%	100%
Transport	25%	25%	41%	41%	71%	40%	91%	99%	100%
Misc	20%	20%	41%	41%	71%	40%	91%	99%	100%

Noncore Industrial Demand Forecast
Electric Unit Energy Consumption

Segment	Fire_Tube_ Boil	Wat_Tube_ Boil	Space_Heat	Water_Heat	Dryer	Furnace_ Oven_Kiln	AC	Engine
Mining	311,700,114	1,233,912,930	266,299	116,921	647,124,219	711,126,534	0	76,883,217
Food	41,425,664	11,211,568	407,510	276,223	135,353,440	10,123,645	180,794	5,940,873
Textile	63,761,817	8,774,796	237,011	547,934	126,927,638	52,461,093	0	40,558,119
Wood_Paper	799,504,539	2,007,713,563	6,645	16,232	77,743,050	48,173,085	0	0
Chemical	70,902,822	22,190,185	115,757	59,317	0	9,442,740	1,484,152	0
Petroleum	21,161,884	0	2,207,800	125,491	219,234,462	702,122,971	0	0
Stone	284,092,939	0	731,195	97,568	139,757,861	2,426,118,904	0	0
Prim_Metal	6,940,624	24,909,971	90,900	7,398	8,992,590	422,681,228	19,874	0
Fab_Metal	39,062,748	4,103,358	617,510	45,371	944,518	320,793,120	12,490	1,963,343
Transport	16,679,997	25,011,535	1,180,812	91,137	810,979	384,433,232	51,172	0
Misc	57,873,838	19,180,472	545,807	420,788	11,763,220	109,733,850	1,046	0

Relative Efficiency Gas to Electric	Fire_Tube_ Boil	Wat_Tube_ Boil	Space_Heat	Water_Heat	Dryer	Furnace_ Oven_Kiln	AC	Engine
Mining	70%	70%	70%	50%	70%	70%	70%	70%
Food	70%	70%	70%	50%	70%	70%	70%	70%
Textile	70%	70%	70%	50%	70%	70%	70%	70%
Wood_Paper	70%	70%	70%	50%	70%	70%	70%	70%
Chemical	70%	70%	70%	50%	70%	70%	70%	70%
Petroleum	70%	70%	70%	50%	70%	70%	70%	70%
Stone	70%	70%	70%	50%	70%	70%	70%	70%
Prim_Metal	70%	70%	70%	50%	70%	70%	70%	70%
Fab_Metal	70%	70%	70%	50%	70%	70%	70%	70%
Transport	70%	70%	70%	50%	70%	70%	70%	70%
Misc	70%	70%	70%	50%	70%	70%	70%	70%

Noncore Commercial Demand Forecast
Equipment Installation Year

Segment	Fire_Tube_ Boil	Wat_Tube_ Boil	Space_ Heat	Water_ Heat	Dryer	Furnace_ Oven_Kiln	AC	Engine	Misc_ Other
Mining	1978.50	1976.00	1971.00	1989.00	1972.60	1971.75	.	1984.50	1971.50
Food	1981.14	1979.00	1978.44	1979.54	1983.50	1977.64	1998.50	1988.50	1976.33
Textile	1977.00	1975.25	.	1980.00	1988.00	1975.00	1990.00	.	1971.00
Wood_Paper	1979.60	1974.64	1975.00	1975.00	1981.40	1977.00	.	1968.00	1980.80
Chemical	1985.20	1976.00	1978.14	1985.00	1986.00	1979.00	1996.00	.	1983.21
Petroleum	1970.00	.	1980.25	1981.50	1967.87	1988.00	.	.	1967.86
Stone	1976.00	.	1984.33	1982.00	1978.25	1975.50	.	.	1966.50
Prim_Metal	1989.50	1974.83	1974.20	1982.88	1988.50	1982.13	1975.00	.	1978.73
Fab_Metal	1973.50	1972.00	1975.50	1981.33	1976.00	1980.05	1998.00	.	1978.05
Transport	1976.50	1989.00	1970.33	1976.00	.	1981.20	1976.00	.	1982.00
Misc	1979.92	1978.00	1978.31	1981.80	1984.33	1979.77	.	.	1983.71

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Noncore Industrial Demand Forecast
2006 Historical Data

Segment	2006 Therm Sales	2006 Meter Count	2006 Meter Count, Existing/Old customers	2006 Meter Count New Customers	Avg Use Per Meter Existing Customers	Avg Use Per Meter New Customers	Price Elasticity	Emp Elasticity	EMPL ADJ
Mining	29,716,964	16	16	0	1,837,525	.	-0.071000	0.410000	7.955099
Food	178,937,656	112	112	0	1,609,377	.	-0.071000	0.410000	11.484615
Textile	41,436,960	33	33	0	1,242,289	.	-0.071000	0.410000	12.027193
Wood_Paper	61,100,136	48	48	0	1,259,359	.	-0.071000	0.410000	9.160389
Chemical	21,094,422	24	24	0	869,571	.	-0.071000	0.410000	16.014667
Petroleum	95,706,233	38	38	0	2,559,100	.	-0.071000	0.410000	8.25876
Stone	60,449,624	19	19	0	3,147,666	.	-0.071000	0.410000	7.170988
Prim_Metal	43,325,191	33	33	0	1,298,899	.	-0.071000	0.410000	9.385893
Fab_Metal	49,726,788	47	47	0	1,046,746	.	-0.071000	0.410000	9.185678
Transport	11,999,967	11	11	0	1,079,285	.	-0.071000	0.410000	7.450008
Misc	38,655,959	38	38	0	1,006,425	.	-0.071000	0.410000	12.632784

Noncore Industrial Demand Forecast
Gas Saturations by Businesses and Equipment Types

Obs	bName	nName	_TYPE_	_FREQ_	saturation
1	All	All	0	35438	0.4736
2		AC	1	3770	0.7020
3		Dryer	1	4147	0.1082
4		Engine	1	2639	0.7471
5		Fire_Tube_Boiler	1	4147	0.1309
6		Furnace_Oven_Kiln	1	4147	0.1100
7		Other	1	4147	1.0000
8		Space_Heat	1	4147	0.7055
9		Water_Heat	1	4147	0.7482
10		Water_Tube_Boiler	1	4147	0.1309
11	Chemical		2	3393	0.4889
12	Fab_Metal		2	3393	0.4911
13	Food		2	3393	0.5811
14	Mining		2	3393	0.4533
15	Misc		2	3393	0.4889
16	Petroleum		2	3016	0.4575
17	Prim_Metal		2	3016	0.4450
18	Stone		2	3016	0.4012
19	Textile		2	3016	0.4850
20	Transport		2	3393	0.4889
21	Wood_Paper		2	3016	0.4100
22	Chemical	AC	3	377	0.7400
23	Chemical	Dryer	3	377	0.1200
24	Chemical	Engine	3	377	0.7000
25	Chemical	Fire_Tube_Boiler	3	377	0.1400
26	Chemical	Furnace_Oven_Kiln	3	377	0.1000
27	Chemical	Other	3	377	1.0000
28	Chemical	Space_Heat	3	377	0.7300
29	Chemical	Water_Heat	3	377	0.7300
30	Chemical	Water_Tube_Boiler	3	377	0.1400
31	Fab_Metal	AC	3	377	0.6800
32	Fab_Metal	Dryer	3	377	0.1500
33	Fab_Metal	Engine	3	377	0.8600
34	Fab_Metal	Fire_Tube_Boiler	3	377	0.0700
35	Fab_Metal	Furnace_Oven_Kiln	3	377	0.1000
36	Fab_Metal	Other	3	377	1.0000
37	Fab_Metal	Space_Heat	3	377	0.7300
38	Fab_Metal	Water_Heat	3	377	0.7600
39	Fab_Metal	Water_Tube_Boiler	3	377	0.0700
40	Food	AC	3	377	0.7300
41	Food	Dryer	3	377	0.1200
42	Food	Engine	3	377	0.7000
43	Food	Fire_Tube_Boiler	3	377	0.4500
44	Food	Furnace_Oven_Kiln	3	377	0.3300
45	Food	Other	3	377	1.0000
46	Food	Space_Heat	3	377	0.6000
47	Food	Water_Heat	3	377	0.8500
48	Food	Water_Tube_Boiler	3	377	0.4500

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Noncore Industrial Demand Forecast
Gas Saturations by Businesses and Equipment Types

Obs	bName	nName	_TYPE_	_FREQ_	saturation
49	Mining	AC	3	377	0.6400
50	Mining	Dryer	3	377	0.0300
51	Mining	Engine	3	377	0.8700
52	Mining	Fire_Tube_Boiler	3	377	0.0100
53	Mining	Furnace_Oven_Kiln	3	377	0.0600
54	Mining	Other	3	377	1.0000
55	Mining	Space_Heat	3	377	0.7300
56	Mining	Water_Heat	3	377	0.7300
57	Mining	Water_Tube_Boiler	3	377	0.0100
58	Misc	AC	3	377	0.7400
59	Misc	Dryer	3	377	0.1200
60	Misc	Engine	3	377	0.7000
61	Misc	Fire_Tube_Boiler	3	377	0.1400
62	Misc	Furnace_Oven_Kiln	3	377	0.1000
63	Misc	Other	3	377	1.0000
64	Misc	Space_Heat	3	377	0.7300
65	Misc	Water_Heat	3	377	0.7300
66	Misc	Water_Tube_Boiler	3	377	0.1400
67	Petroleum	Dryer	3	377	0.1200
68	Petroleum	Engine	3	377	0.7000
69	Petroleum	Fire_Tube_Boiler	3	377	0.1400
70	Petroleum	Furnace_Oven_Kiln	3	377	0.1000
71	Petroleum	Other	3	377	1.0000
72	Petroleum	Space_Heat	3	377	0.7300
73	Petroleum	Water_Heat	3	377	0.7300
74	Petroleum	Water_Tube_Boiler	3	377	0.1400
75	Prim_Metal	AC	3	377	0.6800
76	Prim_Metal	Dryer	3	377	0.1500
77	Prim_Metal	Fire_Tube_Boiler	3	377	0.0700
78	Prim_Metal	Furnace_Oven_Kiln	3	377	0.1000
79	Prim_Metal	Other	3	377	1.0000
80	Prim_Metal	Space_Heat	3	377	0.7300
81	Prim_Metal	Water_Heat	3	377	0.7600
82	Prim_Metal	Water_Tube_Boiler	3	377	0.0700
83	Stone	AC	3	377	0.6400
84	Stone	Dryer	3	377	0.0300
85	Stone	Fire_Tube_Boiler	3	377	0.0100
86	Stone	Furnace_Oven_Kiln	3	377	0.0600
87	Stone	Other	3	377	1.0000
88	Stone	Space_Heat	3	377	0.7300
89	Stone	Water_Heat	3	377	0.7300
90	Stone	Water_Tube_Boiler	3	377	0.0100
91	Textile	AC	3	377	0.7200
92	Textile	Dryer	3	377	0.1400
93	Textile	Fire_Tube_Boiler	3	377	0.2600
94	Textile	Furnace_Oven_Kiln	3	377	0.0900
95	Textile	Other	3	377	1.0000
96	Textile	Space_Heat	3	377	0.7000

Noncore Industrial Demand Forecast
Gas Saturations by Businesses and Equipment Types

Obs	bName	nName	_TYPE_	_FREQ_	saturation
97	Textile	Water_Heat	3	377	0.7100
98	Textile	Water_Tube_Boiler	3	377	0.2600
99	Transport	AC	3	377	0.7400
100	Transport	Dryer	3	377	0.1200
101	Transport	Engine	3	377	0.7000
102	Transport	Fire_Tube_Boiler	3	377	0.1400
103	Transport	Furnace_Oven_Kiln	3	377	0.1000
104	Transport	Other	3	377	1.0000
105	Transport	Space_Heat	3	377	0.7300
106	Transport	Water_Heat	3	377	0.7300
107	Transport	Water_Tube_Boiler	3	377	0.1400
108	Wood_Paper	AC	3	377	0.7100
109	Wood_Paper	Dryer	3	377	0.0900
110	Wood_Paper	Fire_Tube_Boiler	3	377	0.0100
111	Wood_Paper	Furnace_Oven_Kiln	3	377	0.0700
112	Wood_Paper	Other	3	377	1.0000
113	Wood_Paper	Space_Heat	3	377	0.6200
114	Wood_Paper	Water_Heat	3	377	0.7700
115	Wood_Paper	Water_Tube_Boiler	3	377	0.0100

Noncore Industrial Demand Forecast
Efficiency Shares by End Uses and Fuels

Obs	nName	fName	eName	_TYPE_	_FREQ_	baseAvgEShare
1				0	343	0.5160
2			High	1	83	0.0300
3			Low	1	177	0.8453
4			Standard	1	83	0.3000
5		Electric		2	83	1.0000
6		Natural_Gas		2	260	0.3615
7		Electric	Low	3	83	1.0000
8		Natural_Gas	High	3	83	0.0300
9		Natural_Gas	Low	3	94	0.7086
10		Natural_Gas	Standard	3	83	0.3000
11	AC			4	40	0.5000
12	Dryer			4	44	0.5000
13	Engine			4	28	0.5000
14	Fire_Tube_Boiler			4	44	0.5000
15	Furnace_Oven_Kiln			4	44	0.5000
16	Other			4	11	1.0000
17	Space_Heat			4	44	0.5000
18	Water_Heat			4	44	0.5000
19	Water_Tube_Boiler			4	44	0.5000
20	AC		High	5	10	0.0300
21	AC		Low	5	20	0.8350
22	AC		Standard	5	10	0.3000
23	Dryer		High	5	11	0.0300
24	Dryer		Low	5	22	0.8350
25	Dryer		Standard	5	11	0.3000
26	Engine		High	5	7	0.0300
27	Engine		Low	5	14	0.8350
28	Engine		Standard	5	7	0.3000
29	Fire_Tube_Boiler		High	5	11	0.0300
30	Fire_Tube_Boiler		Low	5	22	0.8350
31	Fire_Tube_Boiler		Standard	5	11	0.3000
32	Furnace_Oven_Kiln		High	5	11	0.0300
33	Furnace_Oven_Kiln		Low	5	22	0.8350
34	Furnace_Oven_Kiln		Standard	5	11	0.3000
35	Other		Low	5	11	1.0000
36	Space_Heat		High	5	11	0.0300
37	Space_Heat		Low	5	22	0.8350
38	Space_Heat		Standard	5	11	0.3000
39	Water_Heat		High	5	11	0.0300
40	Water_Heat		Low	5	22	0.8350
41	Water_Heat		Standard	5	11	0.3000
42	Water_Tube_Boiler		High	5	11	0.0300
43	Water_Tube_Boiler		Low	5	22	0.8350
44	Water_Tube_Boiler		Standard	5	11	0.3000
45	AC	Electric		6	10	1.0000
46	AC	Natural_Gas		6	30	0.3333
47	Dryer	Electric		6	11	1.0000
48	Dryer	Natural_Gas		6	33	0.3333

Noncore Industrial Demand Forecast
Efficiency Shares by End Uses and Fuels

Obs	nName	fName	eName	_TYPE_	_FREQ_	baseAvgEShare
49	Engine	Electric		6	7	1.0000
50	Engine	Natural_Gas		6	21	0.3333
51	Fire_Tube_Boiler	Electric		6	11	1.0000
52	Fire_Tube_Boiler	Natural_Gas		6	33	0.3333
53	Furnace_Oven_Kiln	Electric		6	11	1.0000
54	Furnace_Oven_Kiln	Natural_Gas		6	33	0.3333
55	Other	Natural_Gas		6	11	1.0000
56	Space_Heat	Electric		6	11	1.0000
57	Space_Heat	Natural_Gas		6	33	0.3333
58	Water_Heat	Electric		6	11	1.0000
59	Water_Heat	Natural_Gas		6	33	0.3333
60	Water_Tube_Boiler	Electric		6	11	1.0000
61	Water_Tube_Boiler	Natural_Gas		6	33	0.3333
62	AC	Electric	Low	7	10	1.0000
63	AC	Natural_Gas	High	7	10	0.0300
64	AC	Natural_Gas	Low	7	10	0.6700
65	AC	Natural_Gas	Standard	7	10	0.3000
66	Dryer	Electric	Low	7	11	1.0000
67	Dryer	Natural_Gas	High	7	11	0.0300
68	Dryer	Natural_Gas	Low	7	11	0.6700
69	Dryer	Natural_Gas	Standard	7	11	0.3000
70	Engine	Electric	Low	7	7	1.0000
71	Engine	Natural_Gas	High	7	7	0.0300
72	Engine	Natural_Gas	Low	7	7	0.6700
73	Engine	Natural_Gas	Standard	7	7	0.3000
74	Fire_Tube_Boiler	Electric	Low	7	11	1.0000
75	Fire_Tube_Boiler	Natural_Gas	High	7	11	0.0300
76	Fire_Tube_Boiler	Natural_Gas	Low	7	11	0.6700
77	Fire_Tube_Boiler	Natural_Gas	Standard	7	11	0.3000
78	Furnace_Oven_Kiln	Electric	Low	7	11	1.0000
79	Furnace_Oven_Kiln	Natural_Gas	High	7	11	0.0300
80	Furnace_Oven_Kiln	Natural_Gas	Low	7	11	0.6700
81	Furnace_Oven_Kiln	Natural_Gas	Standard	7	11	0.3000
82	Other	Natural_Gas	Low	7	11	1.0000
83	Space_Heat	Electric	Low	7	11	1.0000
84	Space_Heat	Natural_Gas	High	7	11	0.0300
85	Space_Heat	Natural_Gas	Low	7	11	0.6700
86	Space_Heat	Natural_Gas	Standard	7	11	0.3000
87	Water_Heat	Electric	Low	7	11	1.0000
88	Water_Heat	Natural_Gas	High	7	11	0.0300
89	Water_Heat	Natural_Gas	Low	7	11	0.6700
90	Water_Heat	Natural_Gas	Standard	7	11	0.3000
91	Water_Tube_Boiler	Electric	Low	7	11	1.0000
92	Water_Tube_Boiler	Natural_Gas	High	7	11	0.0300
93	Water_Tube_Boiler	Natural_Gas	Low	7	11	0.6700
94	Water_Tube_Boiler	Natural_Gas	Standard	7	11	0.3000

Noncore Industrial Demand Forecast
Fuel Shares by Businesses and End Uses

Obs	bName	nName	fName	_TYPE_	_FREQ_	baseAvgFShare
1	All	All	All	0	177	0.5311
2			Electric	1	83	0.4958
3			Natural_Gas	1	94	0.5622
4		AC		2	20	0.5000
5		Dryer		2	22	0.5000
6		Engine		2	14	0.5000
7		Fire_Tube_Boiler		2	22	0.5000
8		Furnace_Oven_Kiln		2	22	0.5000
9		Other		2	11	1.0000
10		Space_Heat		2	22	0.5000
11		Water_Heat		2	22	0.5000
12		Water_Tube_Boiler		2	22	0.5000
13		AC	Electric	3	10	0.8900
14		AC	Natural_Gas	3	10	0.1100
15		Dryer	Electric	3	11	0.6800
16		Dryer	Natural_Gas	3	11	0.3200
17		Engine	Electric	3	7	0.9900
18		Engine	Natural_Gas	3	7	0.0100
19		Fire_Tube_Boiler	Electric	3	11	0.2209
20		Fire_Tube_Boiler	Natural_Gas	3	11	0.7791
21		Furnace_Oven_Kiln	Electric	3	11	0.3800
22		Furnace_Oven_Kiln	Natural_Gas	3	11	0.6200
23		Other	Natural_Gas	3	11	1.0000
24		Space_Heat	Electric	3	11	0.3900
25		Space_Heat	Natural_Gas	3	11	0.6100
26		Water_Heat	Electric	3	11	0.4100
27		Water_Heat	Natural_Gas	3	11	0.5900
28		Water_Tube_Boiler	Electric	3	11	0.2209
29		Water_Tube_Boiler	Natural_Gas	3	11	0.7791
30	Chemical			4	17	0.5294
31	Fab_Metal			4	17	0.5294
32	Food			4	17	0.5294
33	Mining			4	17	0.5294
34	Misc			4	17	0.5294
35	Petroleum			4	15	0.5333
36	Prim_Metal			4	15	0.5333
37	Stone			4	15	0.5333
38	Textile			4	15	0.5333
39	Transport			4	17	0.5294
40	Wood_Paper			4	15	0.5333
41	Chemical		Electric	5	8	0.5200
42	Chemical		Natural_Gas	5	9	0.5378
43	Fab_Metal		Electric	5	8	0.5200
44	Fab_Metal		Natural_Gas	5	9	0.5378
45	Food		Electric	5	8	0.5200
46	Food		Natural_Gas	5	9	0.5378
47	Mining		Electric	5	8	0.5300
48	Mining		Natural_Gas	5	9	0.5289

Noncore Industrial Demand Forecast
Fuel Shares by Businesses and End Uses

Obs	bName	nName	fName	_TYPE_	_FREQ_	baseAvgFShare
49	Misc		Electric	5	8	0.5200
50	Misc		Natural_Gas	5	9	0.5378
51	Petroleum		Electric	5	7	0.4671
52	Petroleum		Natural_Gas	5	8	0.5913
53	Prim_Metal		Electric	5	7	0.4529
54	Prim_Metal		Natural_Gas	5	8	0.6038
55	Stone		Electric	5	7	0.4529
56	Stone		Natural_Gas	5	8	0.6038
57	Textile		Electric	5	7	0.4529
58	Textile		Natural_Gas	5	8	0.6038
59	Transport		Electric	5	8	0.5300
60	Transport		Natural_Gas	5	9	0.5289
61	Wood_Paper		Electric	5	7	0.4643
62	Wood_Paper		Natural_Gas	5	8	0.5938
63	Chemical	AC		6	2	0.5000
64	Chemical	Dryer		6	2	0.5000
65	Chemical	Engine		6	2	0.5000
66	Chemical	Fire_Tube_Boiler		6	2	0.5000
67	Chemical	Furnace_Oven_Kiln		6	2	0.5000
68	Chemical	Other		6	1	1.0000
69	Chemical	Space_Heat		6	2	0.5000
70	Chemical	Water_Heat		6	2	0.5000
71	Chemical	Water_Tube_Boiler		6	2	0.5000
72	Fab_Metal	AC		6	2	0.5000
73	Fab_Metal	Dryer		6	2	0.5000
74	Fab_Metal	Engine		6	2	0.5000
75	Fab_Metal	Fire_Tube_Boiler		6	2	0.5000
76	Fab_Metal	Furnace_Oven_Kiln		6	2	0.5000
77	Fab_Metal	Other		6	1	1.0000
78	Fab_Metal	Space_Heat		6	2	0.5000
79	Fab_Metal	Water_Heat		6	2	0.5000
80	Fab_Metal	Water_Tube_Boiler		6	2	0.5000
81	Food	AC		6	2	0.5000
82	Food	Dryer		6	2	0.5000
83	Food	Engine		6	2	0.5000
84	Food	Fire_Tube_Boiler		6	2	0.5000
85	Food	Furnace_Oven_Kiln		6	2	0.5000
86	Food	Other		6	1	1.0000
87	Food	Space_Heat		6	2	0.5000
88	Food	Water_Heat		6	2	0.5000
89	Food	Water_Tube_Boiler		6	2	0.5000
90	Mining	AC		6	2	0.5000
91	Mining	Dryer		6	2	0.5000
92	Mining	Engine		6	2	0.5000
93	Mining	Fire_Tube_Boiler		6	2	0.5000
94	Mining	Furnace_Oven_Kiln		6	2	0.5000
95	Mining	Other		6	1	1.0000
96	Mining	Space_Heat		6	2	0.5000

Noncore Industrial Demand Forecast
Fuel Shares by Businesses and End Uses

Obs	bName	nName	fName	_TYPE_	_FREQ_	baseAvgFShare
97	Mining	Water_Heat		6	2	0.5000
98	Mining	Water_Tube_Boiler		6	2	0.5000
99	Misc	AC		6	2	0.5000
100	Misc	Dryer		6	2	0.5000
101	Misc	Engine		6	2	0.5000
102	Misc	Fire_Tube_Boiler		6	2	0.5000
103	Misc	Furnace_Oven_Kiln		6	2	0.5000
104	Misc	Other		6	1	1.0000
105	Misc	Space_Heat		6	2	0.5000
106	Misc	Water_Heat		6	2	0.5000
107	Misc	Water_Tube_Boiler		6	2	0.5000
108	Petroleum	Dryer		6	2	0.5000
109	Petroleum	Engine		6	2	0.5000
110	Petroleum	Fire_Tube_Boiler		6	2	0.5000
111	Petroleum	Furnace_Oven_Kiln		6	2	0.5000
112	Petroleum	Other		6	1	1.0000
113	Petroleum	Space_Heat		6	2	0.5000
114	Petroleum	Water_Heat		6	2	0.5000
115	Petroleum	Water_Tube_Boiler		6	2	0.5000
116	Prim_Metal	AC		6	2	0.5000
117	Prim_Metal	Dryer		6	2	0.5000
118	Prim_Metal	Fire_Tube_Boiler		6	2	0.5000
119	Prim_Metal	Furnace_Oven_Kiln		6	2	0.5000
120	Prim_Metal	Other		6	1	1.0000
121	Prim_Metal	Space_Heat		6	2	0.5000
122	Prim_Metal	Water_Heat		6	2	0.5000
123	Prim_Metal	Water_Tube_Boiler		6	2	0.5000
124	Stone	AC		6	2	0.5000
125	Stone	Dryer		6	2	0.5000
126	Stone	Fire_Tube_Boiler		6	2	0.5000
127	Stone	Furnace_Oven_Kiln		6	2	0.5000
128	Stone	Other		6	1	1.0000
129	Stone	Space_Heat		6	2	0.5000
130	Stone	Water_Heat		6	2	0.5000
131	Stone	Water_Tube_Boiler		6	2	0.5000
132	Textile	AC		6	2	0.5000
133	Textile	Dryer		6	2	0.5000
134	Textile	Fire_Tube_Boiler		6	2	0.5000
135	Textile	Furnace_Oven_Kiln		6	2	0.5000
136	Textile	Other		6	1	1.0000
137	Textile	Space_Heat		6	2	0.5000
138	Textile	Water_Heat		6	2	0.5000
139	Textile	Water_Tube_Boiler		6	2	0.5000
140	Transport	AC		6	2	0.5000
141	Transport	Dryer		6	2	0.5000
142	Transport	Engine		6	2	0.5000
143	Transport	Fire_Tube_Boiler		6	2	0.5000
144	Transport	Furnace_Oven_Kiln		6	2	0.5000

Noncore Industrial Demand Forecast
Fuel Shares by Businesses and End Uses

Obs	bName	nName	fName	_TYPE_	_FREQ_	baseAvgFShare
145	Transport	Other		6	1	1.0000
146	Transport	Space_Heat		6	2	0.5000
147	Transport	Water_Heat		6	2	0.5000
148	Transport	Water_Tube_Boiler		6	2	0.5000
149	Wood_Paper	AC		6	2	0.5000
150	Wood_Paper	Dryer		6	2	0.5000
151	Wood_Paper	Fire_Tube_Boiler		6	2	0.5000
152	Wood_Paper	Furnace_Oven_Kiln		6	2	0.5000
153	Wood_Paper	Other		6	1	1.0000
154	Wood_Paper	Space_Heat		6	2	0.5000
155	Wood_Paper	Water_Heat		6	2	0.5000
156	Wood_Paper	Water_Tube_Boiler		6	2	0.5000
157	Chemical	AC	Electric	7	1	0.8900
158	Chemical	AC	Natural_Gas	7	1	0.1100
159	Chemical	Dryer	Electric	7	1	0.6800
160	Chemical	Dryer	Natural_Gas	7	1	0.3200
161	Chemical	Engine	Electric	7	1	0.9900
162	Chemical	Engine	Natural_Gas	7	1	0.0100
163	Chemical	Fire_Tube_Boiler	Electric	7	1	0.2100
164	Chemical	Fire_Tube_Boiler	Natural_Gas	7	1	0.7900
165	Chemical	Furnace_Oven_Kiln	Electric	7	1	0.3800
166	Chemical	Furnace_Oven_Kiln	Natural_Gas	7	1	0.6200
167	Chemical	Other	Natural_Gas	7	1	1.0000
168	Chemical	Space_Heat	Electric	7	1	0.3900
169	Chemical	Space_Heat	Natural_Gas	7	1	0.6100
170	Chemical	Water_Heat	Electric	7	1	0.4100
171	Chemical	Water_Heat	Natural_Gas	7	1	0.5900
172	Chemical	Water_Tube_Boiler	Electric	7	1	0.2100
173	Chemical	Water_Tube_Boiler	Natural_Gas	7	1	0.7900
174	Fab_Metal	AC	Electric	7	1	0.8900
175	Fab_Metal	AC	Natural_Gas	7	1	0.1100
176	Fab_Metal	Dryer	Electric	7	1	0.6800
177	Fab_Metal	Dryer	Natural_Gas	7	1	0.3200
178	Fab_Metal	Engine	Electric	7	1	0.9900
179	Fab_Metal	Engine	Natural_Gas	7	1	0.0100
180	Fab_Metal	Fire_Tube_Boiler	Electric	7	1	0.2100
181	Fab_Metal	Fire_Tube_Boiler	Natural_Gas	7	1	0.7900
182	Fab_Metal	Furnace_Oven_Kiln	Electric	7	1	0.3800
183	Fab_Metal	Furnace_Oven_Kiln	Natural_Gas	7	1	0.6200
184	Fab_Metal	Other	Natural_Gas	7	1	1.0000
185	Fab_Metal	Space_Heat	Electric	7	1	0.3900
186	Fab_Metal	Space_Heat	Natural_Gas	7	1	0.6100
187	Fab_Metal	Water_Heat	Electric	7	1	0.4100
188	Fab_Metal	Water_Heat	Natural_Gas	7	1	0.5900
189	Fab_Metal	Water_Tube_Boiler	Electric	7	1	0.2100
190	Fab_Metal	Water_Tube_Boiler	Natural_Gas	7	1	0.7900
191	Food	AC	Electric	7	1	0.8900
192	Food	AC	Natural_Gas	7	1	0.1100

Noncore Industrial Demand Forecast
Fuel Shares by Businesses and End Uses

Obs	bName	nName	fName	_TYPE_	_FREQ_	baseAvgFShare
193	Food	Dryer	Electric	7	1	0.6800
194	Food	Dryer	Natural_Gas	7	1	0.3200
195	Food	Engine	Electric	7	1	0.9900
196	Food	Engine	Natural_Gas	7	1	0.0100
197	Food	Fire_Tube_Boiler	Electric	7	1	0.2100
198	Food	Fire_Tube_Boiler	Natural_Gas	7	1	0.7900
199	Food	Furnace_Oven_Kiln	Electric	7	1	0.3800
200	Food	Furnace_Oven_Kiln	Natural_Gas	7	1	0.6200
201	Food	Other	Natural_Gas	7	1	1.0000
202	Food	Space_Heat	Electric	7	1	0.3900
203	Food	Space_Heat	Natural_Gas	7	1	0.6100
204	Food	Water_Heat	Electric	7	1	0.4100
205	Food	Water_Heat	Natural_Gas	7	1	0.5900
206	Food	Water_Tube_Boiler	Electric	7	1	0.2100
207	Food	Water_Tube_Boiler	Natural_Gas	7	1	0.7900
208	Mining	AC	Electric	7	1	0.8900
209	Mining	AC	Natural_Gas	7	1	0.1100
210	Mining	Dryer	Electric	7	1	0.6800
211	Mining	Dryer	Natural_Gas	7	1	0.3200
212	Mining	Engine	Electric	7	1	0.9900
213	Mining	Engine	Natural_Gas	7	1	0.0100
214	Mining	Fire_Tube_Boiler	Electric	7	1	0.2500
215	Mining	Fire_Tube_Boiler	Natural_Gas	7	1	0.7500
216	Mining	Furnace_Oven_Kiln	Electric	7	1	0.3800
217	Mining	Furnace_Oven_Kiln	Natural_Gas	7	1	0.6200
218	Mining	Other	Natural_Gas	7	1	1.0000
219	Mining	Space_Heat	Electric	7	1	0.3900
220	Mining	Space_Heat	Natural_Gas	7	1	0.6100
221	Mining	Water_Heat	Electric	7	1	0.4100
222	Mining	Water_Heat	Natural_Gas	7	1	0.5900
223	Mining	Water_Tube_Boiler	Electric	7	1	0.2500
224	Mining	Water_Tube_Boiler	Natural_Gas	7	1	0.7500
225	Misc	AC	Electric	7	1	0.8900
226	Misc	AC	Natural_Gas	7	1	0.1100
227	Misc	Dryer	Electric	7	1	0.6800
228	Misc	Dryer	Natural_Gas	7	1	0.3200
229	Misc	Engine	Electric	7	1	0.9900
230	Misc	Engine	Natural_Gas	7	1	0.0100
231	Misc	Fire_Tube_Boiler	Electric	7	1	0.2100
232	Misc	Fire_Tube_Boiler	Natural_Gas	7	1	0.7900
233	Misc	Furnace_Oven_Kiln	Electric	7	1	0.3800
234	Misc	Furnace_Oven_Kiln	Natural_Gas	7	1	0.6200
235	Misc	Other	Natural_Gas	7	1	1.0000
236	Misc	Space_Heat	Electric	7	1	0.3900
237	Misc	Space_Heat	Natural_Gas	7	1	0.6100
238	Misc	Water_Heat	Electric	7	1	0.4100
239	Misc	Water_Heat	Natural_Gas	7	1	0.5900
240	Misc	Water_Tube_Boiler	Electric	7	1	0.2100

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Noncore Industrial Demand Forecast
Fuel Shares by Businesses and End Uses

Obs	bName	nName	fName	_TYPE_	_FREQ_	baseAvgFShare
241	Misc	Water_Tube_Boiler	Natural_Gas	7	1	0.7900
242	Petroleum	Dryer	Electric	7	1	0.6800
243	Petroleum	Dryer	Natural_Gas	7	1	0.3200
244	Petroleum	Engine	Electric	7	1	0.9900
245	Petroleum	Engine	Natural_Gas	7	1	0.0100
246	Petroleum	Fire_Tube_Boiler	Electric	7	1	0.2100
247	Petroleum	Fire_Tube_Boiler	Natural_Gas	7	1	0.7900
248	Petroleum	Furnace_Oven_Kiln	Electric	7	1	0.3800
249	Petroleum	Furnace_Oven_Kiln	Natural_Gas	7	1	0.6200
250	Petroleum	Other	Natural_Gas	7	1	1.0000
251	Petroleum	Space_Heat	Electric	7	1	0.3900
252	Petroleum	Space_Heat	Natural_Gas	7	1	0.6100
253	Petroleum	Water_Heat	Electric	7	1	0.4100
254	Petroleum	Water_Heat	Natural_Gas	7	1	0.5900
255	Petroleum	Water_Tube_Boiler	Electric	7	1	0.2100
256	Petroleum	Water_Tube_Boiler	Natural_Gas	7	1	0.7900
257	Prim_Metal	AC	Electric	7	1	0.8900
258	Prim_Metal	AC	Natural_Gas	7	1	0.1100
259	Prim_Metal	Dryer	Electric	7	1	0.6800
260	Prim_Metal	Dryer	Natural_Gas	7	1	0.3200
261	Prim_Metal	Fire_Tube_Boiler	Electric	7	1	0.2100
262	Prim_Metal	Fire_Tube_Boiler	Natural_Gas	7	1	0.7900
263	Prim_Metal	Furnace_Oven_Kiln	Electric	7	1	0.3800
264	Prim_Metal	Furnace_Oven_Kiln	Natural_Gas	7	1	0.6200
265	Prim_Metal	Other	Natural_Gas	7	1	1.0000
266	Prim_Metal	Space_Heat	Electric	7	1	0.3900
267	Prim_Metal	Space_Heat	Natural_Gas	7	1	0.6100
268	Prim_Metal	Water_Heat	Electric	7	1	0.4100
269	Prim_Metal	Water_Heat	Natural_Gas	7	1	0.5900
270	Prim_Metal	Water_Tube_Boiler	Electric	7	1	0.2100
271	Prim_Metal	Water_Tube_Boiler	Natural_Gas	7	1	0.7900
272	Stone	AC	Electric	7	1	0.8900
273	Stone	AC	Natural_Gas	7	1	0.1100
274	Stone	Dryer	Electric	7	1	0.6800
275	Stone	Dryer	Natural_Gas	7	1	0.3200
276	Stone	Fire_Tube_Boiler	Electric	7	1	0.2100
277	Stone	Fire_Tube_Boiler	Natural_Gas	7	1	0.7900
278	Stone	Furnace_Oven_Kiln	Electric	7	1	0.3800
279	Stone	Furnace_Oven_Kiln	Natural_Gas	7	1	0.6200
280	Stone	Other	Natural_Gas	7	1	1.0000
281	Stone	Space_Heat	Electric	7	1	0.3900
282	Stone	Space_Heat	Natural_Gas	7	1	0.6100
283	Stone	Water_Heat	Electric	7	1	0.4100
284	Stone	Water_Heat	Natural_Gas	7	1	0.5900
285	Stone	Water_Tube_Boiler	Electric	7	1	0.2100
286	Stone	Water_Tube_Boiler	Natural_Gas	7	1	0.7900
287	Textile	AC	Electric	7	1	0.8900
288	Textile	AC	Natural_Gas	7	1	0.1100

Noncore Industrial Demand Forecast
Fuel Shares by Businesses and End Uses

Obs	bName	nName	fName	_TYPE_	_FREQ_	baseAvgFShare
289	Textile	Dryer	Electric	7	1	0.6800
290	Textile	Dryer	Natural_Gas	7	1	0.3200
291	Textile	Fire_Tube_Boiler	Electric	7	1	0.2100
292	Textile	Fire_Tube_Boiler	Natural_Gas	7	1	0.7900
293	Textile	Furnace_Oven_Kiln	Electric	7	1	0.3800
294	Textile	Furnace_Oven_Kiln	Natural_Gas	7	1	0.6200
295	Textile	Other	Natural_Gas	7	1	1.0000
296	Textile	Space_Heat	Electric	7	1	0.3900
297	Textile	Space_Heat	Natural_Gas	7	1	0.6100
298	Textile	Water_Heat	Electric	7	1	0.4100
299	Textile	Water_Heat	Natural_Gas	7	1	0.5900
300	Textile	Water_Tube_Boiler	Electric	7	1	0.2100
301	Textile	Water_Tube_Boiler	Natural_Gas	7	1	0.7900
302	Transport	AC	Electric	7	1	0.8900
303	Transport	AC	Natural_Gas	7	1	0.1100
304	Transport	Dryer	Electric	7	1	0.6800
305	Transport	Dryer	Natural_Gas	7	1	0.3200
306	Transport	Engine	Electric	7	1	0.9900
307	Transport	Engine	Natural_Gas	7	1	0.0100
308	Transport	Fire_Tube_Boiler	Electric	7	1	0.2500
309	Transport	Fire_Tube_Boiler	Natural_Gas	7	1	0.7500
310	Transport	Furnace_Oven_Kiln	Electric	7	1	0.3800
311	Transport	Furnace_Oven_Kiln	Natural_Gas	7	1	0.6200
312	Transport	Other	Natural_Gas	7	1	1.0000
313	Transport	Space_Heat	Electric	7	1	0.3900
314	Transport	Space_Heat	Natural_Gas	7	1	0.6100
315	Transport	Water_Heat	Electric	7	1	0.4100
316	Transport	Water_Heat	Natural_Gas	7	1	0.5900
317	Transport	Water_Tube_Boiler	Electric	7	1	0.2500
318	Transport	Water_Tube_Boiler	Natural_Gas	7	1	0.7500
319	Wood_Paper	AC	Electric	7	1	0.8900
320	Wood_Paper	AC	Natural_Gas	7	1	0.1100
321	Wood_Paper	Dryer	Electric	7	1	0.6800
322	Wood_Paper	Dryer	Natural_Gas	7	1	0.3200
323	Wood_Paper	Fire_Tube_Boiler	Electric	7	1	0.2500
324	Wood_Paper	Fire_Tube_Boiler	Natural_Gas	7	1	0.7500
325	Wood_Paper	Furnace_Oven_Kiln	Electric	7	1	0.3800
326	Wood_Paper	Furnace_Oven_Kiln	Natural_Gas	7	1	0.6200
327	Wood_Paper	Other	Natural_Gas	7	1	1.0000
328	Wood_Paper	Space_Heat	Electric	7	1	0.3900
329	Wood_Paper	Space_Heat	Natural_Gas	7	1	0.6100
330	Wood_Paper	Water_Heat	Electric	7	1	0.4100
331	Wood_Paper	Water_Heat	Natural_Gas	7	1	0.5900
332	Wood_Paper	Water_Tube_Boiler	Electric	7	1	0.2500
333	Wood_Paper	Water_Tube_Boiler	Natural_Gas	7	1	0.7500

2009 BCAP

SOCALGAS REFINERY SEGMENT DEMAND FORECAST
FEBRUARY 2008

Southern California Gas Company
Refinery Segment Gas Demand Forecast
Workpaper in Support of 2009 BCAP

I. OVERVIEW

These workpapers document the forecasting methodology for refinery segment gas demand. SoCalGas' refinery segment consists of 17 petroleum refining customers classified in SIC2911, 10 refinery-related cogenerators, 3 hydrogen producers and 1 petroleum refined product transporters. . These customers are characterized by a complex interaction of refinery operations, on-site generation of alternate fuels, and changing regulatory requirements impacting the production of petroleum products. Therefore, the demand forecasts for the refinery market incorporate factors such as refinery operations, alternate fuels competition and gasoline regulations.

II. FORECASTING METHODOLOGY FOR REFINERY SEGMENT GAS DEMAND

The refinery segment gas demand forecast is developed by the following procedures.

A). Develop an econometric model to forecast total gas demand for refinery segment customers.

B). Incorporate the savings from both Commission-mandated energy efficiency programs and other refinery process related energy efficient improvements that are not eligible for SoCalGas' Energy Efficiency programs.

C). Break the final gas demand forecast by G-30 and EG rate class categories.

A) ECONOMETRIC MODEL

1. Introduction

The refinery market is first forecasted by an econometric model with monthly historic data. The refinery segment gas demand model is a multiple log-linear regression model. The model includes a binary variable to reflect increased noncore demand beginning November 1999 due to one additional customer coming on line.

The refinery segment demand forecast model is developed using historical data from January 1998 through July 2007. The forecast period is from January 2009 through

December 2012. Section 2 provides an overview of the input data sets. Section 3 describes the formulation and estimation results of the model. Section 4 shows the econometric forecast result for the BCAP period and comparison with the historic data from January 1998 through July 2007.

2. Input Data

The refinery segment gas demand model is calibrated using monthly data from the historical database for the period January 1998 through July 2007. The endogenous (dependent variable) variable is the total refinery segment gas usage. The exogenous variables are monthly gas prices, butane prices and a binary variable. Descriptions for each of these data components are listed below. The input data are listed in Appendix A.

* Historic Gas Usage

Historic monthly gas usage data for refinery segment customers are obtained from SoCalGas Customer Billing Records for the period January 1998 through July 2007. The monthly usage data are then further divided by the number of days for each month to come up with the average daily usage by month.

* Gas Prices

The gas prices are the burner tip gas prices which consist of gas cost, transportation rate, municipal surcharge and PPP (Public Purpose Programs) surcharge. The California Border Spot Prices (CBSP) prepared by witness Herb Emmerich are used as a proxy for gas cost. The monthly transportation rates for the historic period are generated by taking the monthly recorded revenues divided by the actual throughput. For the forecast period, the forecast weighted average tariff rate is used as transportation rate. The weights are derived from historical usage data by rate category for period June 2000 to July 2007. The municipal surcharges are 2% of the gas cost for customers located in the city of Los Angeles and 1.48% for those in other cities.

* One Binary Variable

A binary variable is used in the model. The binary variable, NEW, which equals one for November, 1999 forward, and zero otherwise is designed to reflect the addition of one new customer in November 1999.

3. Model Specification and Estimation Results

* Specification of Equation

A single equation is estimated for the refinery segment gas demand forecast.

The equation is in the following form:

$$\ln(USE\_Day_t) = a + b * \ln(GAS/BUTANE) + c * NEW_t + E_t$$

Where:

t = Month, for January 1998, $t = 1$;

$\ln(USE\_Day_t)$ = Natural logarithm of the average daily refinery load (Mdth/day) in month t;

$\ln(GAS/BUTANE)$ = Natural logarithm of the ratio of burner tip gas prices to butane prices in month t. The gas and butane prices are the average prices of the month t and month t-1;

NEW_t = New customer dummy variable, for November 1999 and after, NEW=1; otherwise NEW=0;

E_t = Error term

The estimated parameters are the lower case letters a, b, and c.

* Estimation Results

The equation is estimated using EXCEL function LINEST for multiple linear regression. The results of the regression are shown in Table I below. All the coefficients are statistically significant with correct signs. The overall R-squared value equals 0.753. The coefficient b represents the effect of the ratio of gas to butane prices on gas demand. The coefficient c reflects the effect of new customers on gas demand.

Table I. Econometric Model Estimation Results

Parameter	Variable	Parameter Estimate	Standard Error	P Value
a	Intercept	5.222	0.012	0.0001
b	LN(GAS/BUTANE)	-0.143	0.016	0.0050
c	NEW	0.1901	0.013	0.0001

R^2 = 0.753

F = 170.9; SE (y) =0.055

df = 112

4. Comparison of Forecast vs. Actual Usage

Table II shows the actual gas usage, predicted gas demand and percentage error for years 1998 through July 2007.

Table II. Econometric Model Results - Actual and Predicted Usage

Year	Actual Mdth	Predicted Mdth	Percent Error
1998	67,363	66,413	-1.4 %
1999	69,306	70,766	2.1 %
2000	79,524	81,773	2.8 %
2001	74,607	78,037	4.6 %
2002	85,093	81,349	- 4.4 %
2003	84,477	80,821	- 4.3 %
2004	84,540	83,597	- 1.1 %
2005	83,607	83,496	-0.1 %
2006	85,627	86,374	0.9 %
2007 Jan - Jul	49,033	49,518	1.0 %

For the forecast period 2009 through 2012, total refinery gas demand derived from the econometric model is forecast to be 83,854 Mdth , 83,991 Mdth and 84,113 Mdth, 84,272 Mdth, respectively.

B). ENERGY EFFICIENCY SAVINGS

The forecast volumes derived from the econometric model do not account for the potential savings due to both Commission-mandated energy efficiency programs and other refinery process related energy efficient improvements that are not eligible for SoCalGas' Energy Efficiency programs.

To support the Energy Action Plan II (EAP) which was endorsed by Governor Schwarzenegger, the Commission adopted aggressive energy efficiency goals for SoCalGas customers in D.04-09-060. The forecasted savings due to Commission-mandated energy efficiency programs for years 2009 to 2012 are 409 Mdth, 577 Mdth, 755 Mdth, 947 Mdth, respectively.

In addition, there are potential energy savings that are not eligible for the Commission-mandated energy programs but are forecasted to be implemented by two customers. Their projected energy efficiency savings are 1,584 Mdth per year for years 2009 to 2012.

For the forecast period, total final refinery gas demand after adjusting for expected energy efficiency savings are forecasted to be 81,862, 81,830 Mdth and 81,774 Mdth, 81,741 Mdth, respectively.

C). BREAK THE REFINERY GAS DEMAND FORECAST BY G-30 AND EG RATE-CLASS

The refinery G-30 and refinery-related EG forecast volumes were developed by taking the total refinery gas demand multiplying by the percent of G-30 volumes relative to total refinery volumes based on refinery billing records for the months of June 2000 through June 2007. These percentages, 78% and 22%, are reasonably predictive of the allocation of refinery gas volumes for rate-class G-30 and EG customers for the forecast period. The forecast of refinery segment gas demand by G-30 and EG rate-class is shown in Table III below.

Table III. Forecast of Refinery G-30 and EG Gas Demand - Mdth

	2009	2010	2011	2012
Refinery G-30 Gas Demand	63,732	63,671	63,588	63,521
Refinery-Related EG Demand	18,130	18,159	18,185	18,220
Total Refinery	81,862	81,830	81,774	81,741

III. COLD YEAR DEMAND

Refinery gas demand is not weather sensitive. Therefore, the cold year demand is the same as the average year demand.

Appendix A

Econometric Model Input Data

Section I: Model Inputs
2009 BCAP - Refinery Segment Econometric Model

			LN (lag)	
Year	**Month**	**LN(Use/Day)**	**Lag LN(Gas/Butane)**	**New**
1998	Jan	5.257	(0.446)	0
1998	Feb	5.293	(0.298)	0
1998	Mar	5.304	0.001	0
1998	Apr	5.271	0.321	0
1998	May	5.235	0.348	0
1998	Jun	5.181	0.176	0
1998	Jul	5.183	0.285	0
1998	Aug	5.127	0.419	0
1998	Sep	5.102	0.382	0
1998	Oct	5.142	0.276	0
1998	Nov	5.244	0.104	0
1998	Dec	5.258	(0.028)	0
1999	Jan	5.240	(0.098)	0
1999	Feb	5.237	(0.106)	0
1999	Mar	5.166	(0.039)	0
1999	Apr	5.227	0.095	0
1999	May	5.171	0.192	0
1999	Jun	5.245	0.165	0
1999	Jul	5.203	0.059	0
1999	Aug	5.043	0.016	0
1999	Sep	5.211	(0.003)	0
1999	Oct	5.300	(0.146)	0
1999	Nov	5.456	(0.344)	1
1999	Dec	5.399	(0.534)	1
2000	Jan	5.434	(0.642)	1
2000	Feb	5.483	(0.606)	1
2000	Mar	5.365	(0.425)	1
2000	Apr	5.383	(0.143)	1

Year	Month	LN(Use/Day)	Lag LN(Gas/Butane)	New
2000	May	5.377	0.118	1
2000	Jun	5.341	0.220	1
2000	Jul	5.382	0.123	1
2000	Aug	5.389	0.093	1
2000	Sep	5.384	0.215	1
2000	Oct	5.398	0.229	1
2000	Nov	5.452	0.277	1
2000	Dec	5.161	0.890	1
2001	Jan	5.150	0.913	1
2001	Feb	5.312	0.803	1
2001	Mar	5.253	0.959	1
2001	Apr	5.294	0.847	1
2001	May	5.282	0.817	1
2001	Jun	5.259	0.565	1
2001	Jul	5.307	0.277	1
2001	Aug	5.366	0.089	1
2001	Sep	5.365	(0.224)	1
2001	Oct	5.391	(0.384)	1
2001	Nov	5.404	(0.313)	1
2001	Dec	5.426	(0.173)	1
2002	Jan	5.481	(0.111)	1
2002	Feb	5.445	(0.148)	1
2002	Mar	5.457	(0.001)	1
2002	Apr	5.468	0.171	1
2002	May	5.443	0.213	1
2002	Jun	5.455	0.191	1
2002	Jul	5.429	0.156	1
2002	Aug	5.407	0.095	1
2002	Sep	5.445	0.094	1
2002	Oct	5.438	0.069	1
2002	Nov	5.415	(0.096)	1

Year	Month	LN(Use/Day)	Lag LN(Gas/Butane)	New
2002	Dec	5.530	(0.191)	1
2003	Jan	5.473	(0.190)	1
2003	Feb	5.425	(0.118)	1
2003	Mar	5.451	0.046	1
2003	Apr	5.489	0.145	1
2003	May	5.428	0.267	1
2003	Jun	5.389	0.407	1
2003	Jul	5.379	0.347	1
2003	Aug	5.418	0.252	1
2003	Sep	5.439	0.152	1
2003	Oct	5.433	0.041	1
2003	Nov	5.484	(0.137)	1
2003	Dec	5.514	(0.206)	1
2004	Jan	5.432	(0.183)	1
2004	Feb	5.443	(0.181)	1
2004	Mar	5.448	(0.063)	1
2004	Apr	5.398	0.086	1
2004	May	5.358	0.117	1
2004	Jun	5.402	0.079	1
2004	Jul	5.364	0.034	1
2004	Aug	5.471	(0.078)	1
2004	Sep	5.408	(0.262)	1
2004	Oct	5.403	(0.375)	1
2004	Nov	5.561	(0.400)	1
2004	Dec	5.590	(0.370)	1
2005	Jan	5.507	(0.356)	1
2005	Feb	5.515	(0.360)	1
2005	Mar	5.409	(0.238)	1
2005	Apr	5.452	(0.135)	1
2005	May	5.452	(0.146)	1
2005	Jun	5.442	(0.123)	1

Year	Month	LN(Use/Day)	Lag LN(Gas/Butane)	New
2005	Jul	5.387	(0.083)	1
2005	Aug	5.429	(0.007)	1
2005	Sep	5.439	0.057	1
2005	Oct	5.330	0.004	1
2005	Nov	5.445	(0.183)	1
2005	Dec	5.395	(0.182)	1
2006	Jan	5.488	(0.242)	1
2006	Feb	5.451	(0.469)	1
2006	Mar	5.441	(0.413)	1
2006	Apr	5.438	(0.351)	1
2006	May	5.429	(0.419)	1
2006	Jun	5.440	(0.436)	1
2006	Jul	5.456	(0.395)	1
2006	Aug	5.427	(0.363)	1
2006	Sep	5.438	(0.434)	1
2006	Oct	5.482	(0.465)	1
2006	Nov	5.448	(0.302)	1
2006	Dec	5.547	(0.311)	1
2007	Jan	5.490	(0.350)	1
2007	Feb	5.377	(0.311)	1
2007	Mar	5.509	(0.317)	1
2007	Apr	5.512	(0.297)	1
2007	May	5.468	(0.237)	1
2007	Jun	5.333	(0.247)	1
2007	Jul	5.394	(0.284)	1

Section II: Gas Usage, Natural Gas and Butane Prices

						No Lag	
			(a)	(b)	(c)	(d)=(a)+(b) + (c)	
Year	Month	Usage Mdth	CBSP $/Dth	Ave Transp Rate $/Dth	Other Surcharges $/Dth	Burner Tip Gas Prices $/Dth	Butane Price $/Dth
1998	Jan	5,951	2.246	0.452	0.117	2.81	4.37
1998	Feb	5,569	2.241	0.480	0.120	2.84	3.25
1998	Mar	6,235	2.368	0.455	0.121	2.94	2.52
1998	Apr	5,836	2.515	0.441	0.124	3.08	1.84
1998	May	5,818	2.197	0.450	0.120	2.77	2.28
1998	Jun	5,334	2.039	0.461	0.115	2.62	2.23
1998	Jul	5,527	2.362	0.456	0.119	2.94	1.94
1998	Aug	5,226	2.245	0.459	0.116	2.82	1.84
1998	Sep	4,930	2.141	0.470	0.115	2.73	1.94
1998	Oct	5,304	2.211	0.446	0.117	2.77	2.23
1998	Nov	5,681	2.379	0.438	0.120	2.94	2.91
1998	Dec	5,953	2.112	0.452	0.115	2.68	2.86
1999	Jan	5,847	1.906	0.431	0.091	2.43	2.77
1999	Feb	5,265	1.826	0.417	0.092	2.34	2.53
1999	Mar	5,431	1.718	0.416	0.090	2.22	2.21
1999	Apr	5,589	2.097	0.415	0.095	2.61	2.18
1999	May	5,458	2.228	0.417	0.095	2.74	2.23
1999	Jun	5,690	2.301	0.393	0.097	2.79	2.46
1999	Jul	5,636	2.356	0.396	0.099	2.85	2.86
1999	Aug	4,803	2.729	0.393	0.105	3.23	3.13
1999	Sep	5,497	2.701	0.380	0.107	3.19	3.31
1999	Oct	6,208	2.958	0.397	0.109	3.46	4.39
1999	Nov	7,028	2.653	0.395	0.105	3.15	4.94
1999	Dec	6,855	2.476	0.389	0.101	2.97	5.49
2000	Jan	7,104	2.424	0.420	0.097	2.94	5.73
2000	Feb	6,973	2.621	0.417	0.105	3.14	5.43
2000	Mar	6,628	2.853	0.419	0.107	3.38	4.55

			(a)	(b)	(c)	(d)=(a)+(b) + (c)	
Year	Month	Usage Mdth	CBSP $/Dth	Ave Transp Rate $/Dth	Other Surcharges $/Dth	Burner Tip Gas Prices $/Dth	Butane Price $/Dth
2000	Apr	6,530	3.028	0.417	0.110	3.56	3.45
2000	May	6,710	3.601	0.417	0.120	4.14	3.39
2000	Jun	6,262	4.678	0.294	0.084	5.06	3.99
2000	Jul	6,739	4.640	0.287	0.083	5.01	4.91
2000	Aug	6,790	5.249	0.278	0.092	5.62	4.78
2000	Sep	6,536	6.057	0.288	0.105	6.45	4.95
2000	Oct	6,847	5.616	0.285	0.099	6.00	4.95
2000	Nov	6,998	9.485	0.271	0.159	9.91	7.11
2000	Dec	5,406	25.710	0.284	0.411	26.41	7.81
2001	Jan	5,344	12.675	0.186	0.216	13.08	8.04
2001	Feb	5,677	19.108	0.182	0.320	19.61	6.60
2001	Mar	5,928	14.303	0.176	0.243	14.72	6.56
2001	Apr	5,971	13.830	0.172	0.235	14.24	5.86
2001	May	6,097	12.004	0.171	0.208	12.38	5.91
2001	Jun	5,767	6.648	0.175	0.121	6.94	5.08
2001	Jul	6,253	4.375	0.172	0.085	4.63	3.69
2001	Aug	6,633	3.265	0.170	0.067	3.50	3.75
2001	Sep	6,415	2.114	0.153	0.049	2.32	3.53
2001	Oct	6,804	2.347	0.147	0.053	2.55	3.61
2001	Nov	6,669	2.380	0.147	0.054	2.58	3.40
2001	Dec	7,048	2.578	0.163	0.056	2.80	2.99
2002	Jan	7,440	2.210	0.145	0.172	2.53	2.96
2002	Feb	6,485	2.253	0.147	0.171	2.57	2.95
2002	Mar	7,263	2.987	0.143	0.186	3.32	2.95
2002	Apr	7,107	3.239	0.140	0.192	3.57	2.86
2002	May	7,169	3.118	0.146	0.188	3.45	2.82
2002	Jun	7,014	3.049	0.143	0.184	3.38	2.82
2002	Jul	7,063	3.028	0.147	0.184	3.36	2.94
2002	Aug	6,913	2.844	0.140	0.180	3.16	2.99

			(a)	(b)	(c)	(d)=(a)+(b) + (c)	
Year	Month	Usage Mdth	CBSP $/Dth	Ave Transp Rate $/Dth	Other Surcharges $/Dth	Burner Tip Gas Prices $/Dth	Butane Price $/Dth
2002	Sep	6,949	3.234	0.154	0.186	3.57	3.14
2002	Oct	7,131	3.726	0.154	0.198	4.08	4.00
2002	Nov	6,742	3.873	0.158	0.196	4.23	5.14
2002	Dec	7,817	4.453	0.152	0.207	4.81	5.81
2003	Jan	7,385	4.764	0.213	0.148	5.12	6.21
2003	Feb	6,358	5.956	0.215	0.168	6.34	6.69
2003	Mar	7,226	6.065	0.214	0.168	6.45	5.52
2003	Apr	7,259	4.963	0.209	0.153	5.32	4.66
2003	May	7,056	5.354	0.213	0.157	5.72	3.80
2003	Jun	6,568	5.424	0.215	0.158	5.80	3.87
2003	Jul	6,719	4.990	0.216	0.149	5.35	4.01
2003	Aug	6,989	4.904	0.219	0.148	5.27	4.25
2003	Sep	6,905	4.561	0.213	0.143	4.92	4.50
2003	Oct	7,096	4.571	0.211	0.144	4.93	4.94
2003	Nov	7,227	4.378	0.214	0.140	4.73	6.13
2003	Dec	7,690	5.578	0.212	0.160	5.95	6.99
2004	Jan	7,090	5.662	0.237	0.234	6.13	7.51
2004	Feb	6,704	5.022	0.235	0.226	5.48	6.41
2004	Mar	7,201	5.016	0.234	0.227	5.48	5.27
2004	Apr	6,632	5.427	0.249	0.228	5.90	5.17
2004	May	6,580	5.952	0.248	0.238	6.44	5.80
2004	Jun	6,658	5.825	0.252	0.232	6.31	5.98
2004	Jul	6,620	5.749	0.249	0.232	6.23	6.14
2004	Aug	7,365	5.375	0.245	0.226	5.85	6.92
2004	Sep	6,697	4.759	0.249	0.217	5.23	7.48
2004	Oct	6,885	5.621	0.250	0.233	6.10	9.00
2004	Nov	7,806	6.160	0.244	0.245	6.65	10.02
2004	Dec	8,303	6.402	0.242	0.251	6.89	9.57
2005	Jan	7,642	5.710	0.295	0.235	6.24	9.17
2005	Feb	6,958	5.733	0.293	0.236	6.26	8.75

			(a)	(b)	(c)	(d)=(a)+(b) + (c)	
Year	**Month**	**Usage Mdth**	**CBSP $/Dth**	**Ave Transp Rate $/Dth**	**Other Surcharges $/Dth**	**Burner Tip Gas Prices $/Dth**	**Butane Price $/Dth**
2005	**Mar**	**6,924**	**6.497**	**0.294**	**0.250**	**7.04**	**8.13**
2005	Apr	6,998	6.718	0.292	0.250	7.26	8.24
2005	May	7,231	5.916	0.289	0.239	6.44	7.62
2005	Jun	6,926	6.165	0.298	0.239	6.70	7.25
2005	Jul	6,775	6.747	0.303	0.246	7.30	7.96
2005	Aug	7,068	8.012	0.299	0.269	8.58	8.02
2005	Sep	6,903	9.723	0.299	0.297	10.32	9.83
2005	Oct	6,400	11.040	0.304	0.315	11.66	12.06
2005	Nov	6,949	7.867	0.300	0.265	8.43	12.06
2005	Dec	6,832	11.570	0.297	0.328	12.20	12.67
2006	Jan	7,497	7.713	0.319	0.392	8.42	13.59
2006	Feb	6,523	6.816	0.328	0.377	7.52	11.89
2006	Mar	7,147	5.922	0.325	0.359	6.61	9.47
2006	Apr	6,899	6.069	0.334	0.351	6.75	9.51
2006	May	7,068	5.415	0.332	0.346	6.09	10.01
2006	Jun	6,913	5.795	0.335	0.338	6.47	9.41
2006	Jul	7,257	5.970	0.332	0.343	6.64	10.06
2006	Aug	7,052	6.750	0.332	0.355	7.44	10.18
2006	Sep	6,899	4.803	0.336	0.320	5.46	9.73
2006	Oct	7,447	5.472	0.332	0.332	6.14	8.74
2006	Nov	6,971	6.445	0.337	0.348	7.13	9.21
2006	Dec	7,954	6.848	0.327	0.361	7.53	10.81
2007	Jan	7,513	6.455	0.280	0.327	7.06	9.90
2007	Feb	6,057	7.195	0.292	0.335	7.82	10.40
2007	Mar	7,653	6.229	0.284	0.315	6.83	9.72
2007	Apr	7,426	6.994	0.286	0.325	7.61	9.71
2007	May	7,346	7.175	0.286	0.335	7.80	9.82
2007	Jun	6,212	6.880	0.296	0.320	7.50	9.75
2007	Jul	6,826	6.015	0.292	0.304	6.61	8.98

Section III: Forecast Results
Refinery Segment

Year	Month	G-30 Mdth	EG Mdth	Total Mdth		Year	Month	G-30 Mdth	EG Mdth	Total Mdth
2009	Jan	5,276	1,502	6,778		2011	Jan	5,246	1,502	6,748
2009	Feb	4,954	1,409	6,362		2011	Feb	4,941	1,412	6,353
2009	Mar	5,384	1,532	6,916		2011	Mar	5,370	1,536	6,906
2009	Apr	5,154	1,467	6,621		2011	Apr	5,145	1,472	6,617
2009	May	5,342	1,520	6,862		2011	May	5,338	1,527	6,865
2009	Jun	5,173	1,472	6,645		2011	Jun	5,168	1,479	6,647
2009	Jul	5,341	1,520	6,861		2011	Jul	5,336	1,527	6,862
2009	Aug	5,352	1,523	6,874		2011	Aug	5,347	1,530	6,876
2009	Sep	5,218	1,484	6,702		2011	Sep	5,214	1,491	6,705
2009	Oct	5,490	1,561	7,051		2011	Oct	5,486	1,568	7,054
2009	Nov	5,412	1,538	6,950		2011	Nov	5,394	1,541	6,935
2009	Dec	5,638	1,602	7,240		2011	Dec	5,605	1,601	7,206
	2009	63,732	18,130	81,862			2011	63,588	18,185	81,774
2010	Jan	5,261	1,502	6,763		2012	Jan	5,230	1,502	6,732
2010	Feb	4,942	1,409	6,352		2012	Feb	4,928	1,413	6,341
2010	Mar	5,372	1,532	6,904		2012	Mar	5,355	1,536	6,892
2010	Apr	5,147	1,469	6,616		2012	Apr	5,136	1,474	6,610
2010	May	5,340	1,524	6,863		2012	May	5,335	1,531	6,866
2010	Jun	5,171	1,475	6,646		2012	Jun	5,166	1,482	6,648
2010	Jul	5,339	1,523	6,862		2012	Jul	5,333	1,530	6,863
2010	Aug	5,349	1,526	6,876		2012	Aug	5,344	1,533	6,877
2010	Sep	5,216	1,488	6,704		2012	Sep	5,210	1,495	6,705
2010	Oct	5,488	1,564	7,053		2012	Oct	5,481	1,571	7,053
2010	Nov	5,410	1,541	6,951		2012	Nov	5,394	1,545	6,939
2010	Dec	5,635	1,605	7,240		2012	Dec	5,610	1,607	7,216
	2010	63,671	18,159	81,830			2012	63,521	18,220	81,741

2009 BCAP

SoCalGas EOR-Steaming and Cogeneration Demand Forecast
February 2008

ENHANCED OIL RECOVERY FORECASTING METHODOLOGY

Southern California Gas' ("SoCalGas") forecasts of enhanced oil recovery ("EOR") steaming and cogeneration gas requirements as filed in its 2009 Biennial Cost Allocation Proceeding ("BCAP") Application are based on customer-specific historical data and market analysis. The major steps in developing these forecasts are outlined below and described in detail in the following pages.

- Analyze Historical Gas Demand
- Evaluate Market Potential
- Consider the Effect of Bypass
- Allocate Gas Requirements to Type of Service Line

A. Analyze Historical Gas Demand

Historical customer gas demand data for the period 2005 through 2007 was analyzed in order to determine typical throughput volumes over the past few years. FERC reports from the Kern River and Mojave Interstate Pipeline ("Kern/Mojave"), Format NO. FERC 567, from the same time period were studied in order to determine bypass trends.

B. Evaluate Market Potential

Potential EOR gas demand was determined by considering market information given the following assumptions:

1. Oil prices are high enough for EOR production to be economically desirable.
2. SoCalGas has no capacity or supply constraints.
3. Air quality regulations will either require or encourage the use of gas, rather than oil, in all areas.

Since the BCAP oil price scenario is favorable for EOR production, the historical gas demand was combined with potential gas demand to become the base load for the EOR forecast. The EOR steaming forecast includes some additional load expected to come on line as a result of the expansion of oil production operations in existing fields that are not already interconnected with other gas pipelines. No new EOR cogeneration projects have been scheduled to start up during the BCAP period.

C. Consider the Effect of Bypass

Kern/Mojave began operating in February, 1992. At that time, many of SoCalGas' customers began taking service directly from the pipeline, thereby bypassing SoCalGas' distribution system.

Several factors were taken into consideration in order to forecast future bypass volumes. These factors were: the customer's geographical location, the amount of natural gas a customer has contracted to move on Kern/Mojave; the quantities of gas the customer has under its long-term contract with SoCalGas; the amount of Kern/Mojave gas available from marketers who have no designated end-users; and the amount of gas currently bypassing SoCalGas' distribution system.

Based on these considerations, the following assumptions were made:

1. EOR demand for customers located in the Los Angeles Basin and Santa Barbara and Ventura areas will not bypass SoCalGas' distribution system.
2. Customers who have already bypassed SoCalGas' system will continue to bypass at their historical levels.
3. Customers located in the San Joaquin Valley with long-term contracts with SoCalGas will increase their level of bypass when their contracts expire during 2008 and 2009.

The load that is forecast to stay on SoCalGas' system is shown in Table I .

D. <u>Allocate Gas Requirements to Type of Service Line</u>

To support the "close the regulatory gap" rate design proposed in this BCAP, the forecasted load for the EOR market was split into load directly connected to transmission service lines and load connected to distribution service lines.

The final forecasts for EOR steaming and EOR cogeneration are shown in Table II and Table III, respectively. Table IV shows the Total EOR load split by type of service line connection.

TABLE I

2009 BCAP--GAS REQUIREMENTS SERVED BY SOCALGAS TO EOR CUSTOMERS

CONTRACT TYPE	CUSTOMER	GAS REQUIREMENTS (2009 - 2012)		% OF LOAD CONNECTED TO SERVICE LINE TYPE*		
		Cogen Load (MMcfd)	Steaming Load (MMcfd)	Cogen T (%)	Steaming T (%)	Steaming D (%)
LONG-TERM	1	50.000		100.0		
SHORT-TERM	1	0.100	6.560	100.0	56.4	43.6
	2	10.000	3.000	100.0	100.0	0.0
	3		0.005		0.0	100.0
	4		0.750		0.0	100.0
	5		2.400		0.0	100.0
	6		0.010		0.0	100.0
	7		0.700		0.0	100.0
	8		0.900		0.0	100.0
	9		0.150		0.0	100.0
	10		0.150		0.0	100.0
	11		10.000		0.0	100.0
	12		0.010		100.0	0.0
	13		0.000		50.0	50.0
	14		1.700		8.3	91.7
	15		1.600		0.0	100.0
TOTAL SYSTEM-MMcfd		10.100 **	27.935			
TOTAL SYSTEM-MDTH/d		10.605	29.332			

* T = Transmission Service Line; D = Distribution Service Line

** Total does not include the long-term customer who is forecast to be on the system only the first two months of 2009.

TABLE II

2009 BCAP EOR FORECAST--STEAMING
(MDTH)

YEAR	TYPE	PRIORITY	AREA	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
2009	TRANS-ST	P5	LA	98	88	98	95	98	95	98	98	95	98	95	98	1,154
2009	TRANS-ST	P5	SJ	125	113	125	121	125	121	125	125	121	125	121	125	1,472
2009	TRANS-SD	P5	LA	0	0	0	0	0	0	0	0	0	0	0	0	0
2009	TRANS-SD	P5	CT	126	113	126	122	126	122	126	126	122	126	122	126	1,483
2009	TRANS-SD	P5	SJ	561	506	561	543	561	543	561	561	543	561	543	561	6,605
	TOTAL SYSTEM			910	820	910	881	910	881	910	910	881	910	881	910	10,714
2010	TRANS-ST	P5	LA	98	88	98	95	98	95	98	98	95	98	95	98	1,154
2010	TRANS-ST	P5	SJ	125	113	125	121	125	121	125	125	121	125	121	125	1,472
2010	TRANS-SD	P5	LA	0	0	0	0	0	0	0	0	0	0	0	0	0
2010	TRANS-SD	P5	CT	126	113	126	122	126	122	126	126	122	126	122	126	1,483
2010	TRANS-SD	P5	SJ	561	506	561	543	561	543	561	561	543	561	543	561	6,605
	TOTAL SYSTEM			910	820	910	881	910	881	910	910	881	910	881	910	10,714
2011	TRANS-ST	P5	LA	98	88	98	95	98	95	98	98	95	98	95	98	1,154
2011	TRANS-ST	P5	SJ	125	113	125	121	125	121	125	125	121	125	121	125	1,472
2011	TRANS-SD	P5	LA	0	0	0	0	0	0	0	0	0	0	0	0	0
2011	TRANS-SD	P5	CT	126	113	126	122	126	122	126	126	122	126	122	126	1,483
2011	TRANS-SD	P5	SJ	561	506	561	543	561	543	561	561	543	561	543	561	6,605
	TOTAL SYSTEM			910	820	910	881	910	881	910	910	881	910	881	910	10,714
2012	TRANS-ST	P5	LA	98	91	98	95	98	95	98	98	95	98	95	98	1,157
2012	TRANS-ST	P5	SJ	125	117	125	121	125	121	125	125	121	125	121	125	1,476
2012	TRANS-SD	P5	LA	0	1	0	0	0	0	0	0	0	0	0	0	1
2012	TRANS-SD	P5	CT	126	118	126	122	126	122	126	126	122	126	122	126	1,488
2012	TRANS-SD	P5	SJ	561	525	561	543	561	543	561	561	543	561	543	561	6,624
	TOTAL SYSTEM			910	852	910	881	910	881	910	910	881	910	881	910	10,746

LA: LOS ANGELES BASIN
CT: NORTH COASTAL
SJ: SAN JOAQUIN VALLEY (KERN CO.)

TABLE III

2009 BCAP EOR FORECAST--COGEN
(MDTH)

YEAR	TYPE	PRIORITY	AREA	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
2009	TRANS-LT	P3A	SJ	1,628	1,470											3,098
2009	TRANS-ST	P3A	LA	326	294	326	315	326	315	326	326	315	326	315	326	3,836
2009	TRANS-ST	P3A	SJ	3	3	3	3	3	3	3	3	3	3	3	3	36
	TOTAL SYSTEM			1,957	1,767	329	318	329	318	329	329	318	329	318	329	6,970
2010	TRANS-ST	P3A	LA	326	294	326	315	326	315	326	326	315	326	315	326	3,836
2010	TRANS-ST	P3A	SJ	3	3	3	3	3	3	3	3	3	3	3	3	36
	TOTAL SYSTEM			329	297	329	318	329	318	329	329	318	329	318	329	3,872
2011	TRANS-ST	P3A	LA	326	294	326	315	326	315	326	326	315	326	315	326	3,836
2011	TRANS-ST	P3A	SJ	3	3	3	3	3	3	3	3	3	3	3	3	36
	TOTAL SYSTEM			329	297	329	318	329	318	329	329	318	329	318	329	3,872
2012	TRANS-ST	P3A	LA	326	305	326	315	326	315	326	326	315	326	315	326	3,847
2012	TRANS-ST	P3A	SJ	3	3	3	3	3	3	3	3	3	3	3	3	36
	TOTAL SYSTEM			329	308	329	318	329	318	329	329	318	329	318	329	3,883

LA: LOS ANGELES BASIN
SJ: SAN JOAQUIN VALLEY (KERN CO.)

TABLE IV

2009 BCAP EOR FORECAST-TOTAL
(MDTH)

YEAR	TYPE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
2009	TRANS-T	2,180	1,968	552	534	552	534	552	552	534	552	534	552	9,596
2009	TRANS-D	687	619	687	665	687	665	687	687	665	687	665	687	8,088
	TOTAL EOR	2,867	2,587	1,239	1,199	1,239	1,199	1,239	1,239	1,199	1,239	1,199	1,239	17,684
2010	TRANS-T	552	498	552	534	552	534	552	552	534	552	534	552	6,498
2010	TRANS-D	687	619	687	665	687	665	687	687	665	687	665	687	8,088
	TOTAL EOR	1,239	1,117	1,239	1,199	1,239	1,199	1,239	1,239	1,199	1,239	1,199	1,239	14,586
2011	TRANS-T	552	498	552	534	552	534	552	552	534	552	534	552	6,498
2011	TRANS-D	687	619	687	665	687	665	687	687	665	687	665	687	8,088
	TOTAL EOR	1,239	1,117	1,239	1,199	1,239	1,199	1,239	1,239	1,199	1,239	1,199	1,239	14,586
2012	TRANS-T	552	516	552	534	552	534	552	552	534	552	534	552	6,516
2012	TRANS-D	687	644	687	665	687	665	687	687	665	687	665	687	8,113
	TOTAL EOR	1,239	1,160	1,239	1,199	1,239	1,199	1,239	1,239	1,199	1,239	1,199	1,239	14,629

TRANS-T: Load connected to a Transmission Service Line
TRANS-D: Load connected to a Distribution Service Line

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SoCalGas Industrial/Commercial Cogeneration < 20MW
February 2008

Southern California Gas Company
Small Electric Generation Gas Demand Forecast
2009 BCAP

Overview

The small electric generation (Cogen) demand forecast described in this workpaper is for those electric generation customers that have installed equipment primarily to generate electricity for their own use rather than to sell the power to an electric utility. These customers are smaller than those forecasted by witness Rob Anderson.

For the BCAP period, covering January 1, 2009 through December 31, 2011, the average gas demand forecast for this market segment is 18,668 Mdth. The table below exhibits the forecast gas demand for the calendar year 2006 compared against the gas demand for the period 2009-2011.

Table 1 Cogen Gas Demand

Year	Volume (Mdth)
2006	19,318
2009	18,532
2010	18,683
2011	18,788

Forecast Methodology

Demand is determined as the total demand for each existing individual facility taking into account historical operational characteristics and any anticipated future additions or operational changes.

A. Demand Forecast for Small EG (NON SGIP)

The demand forecast for the small EG (non-SGIP) load is estimated on an individual customer basis. Demand for each customer is projected to grow from the previous year's level by the anticipated employment growth of the business. The employment growth for each business sector is classified by the North American Industry Classification System (NAICS) code. These data were obtained by Global Insight's Winter 2006/2007 Projection.

$$\text{Use}_{\text{(year, NAICS)}} = \text{Use}_{\text{(year -1, NAICS)}} * \text{Growth}_{\text{(year, NAICS)}}$$

Table 2 shows the monthly demand forecast for the small EG (non-SGIP) to 2012.

Table 2 provides a month-by-month summation of the current and expected demand changes for the customers based on an analysis of historical operation characteristics and taking into account any anticipated future additions or changes. Except for some relatively minor changes discussed below, overall demand within this market segment is expected to be mostly constant and stable.

Historical load information runs through April 2007. Between January 2005 and December 2006, a total of 23 new customers were added to this group and 32 existing customers changed (discontinued) their service. The forecast below also includes an adjustment due to the expected migration of approximately 14-27 noncore customers to core subscription beginning in September 2009. The overall load transferred by 2011 will be 3,700,000 therms but the load will have shifted gradually over the 2009-2011 time frame. When the EG customers' current 2 year GT-F contracts expire and/or when the marketer gas contracts expire, we will begin to observe the transfers. Beginning in September 2009, we expect 1,850,000 therms to transfer to core subscription. In 2010, an additional 925,000 therms will transfer to core so that the total transfer reaches 2,775,000 therms. By 2011, the full 3,700,000 therms will have transferred from noncore to core. Of the total, 64% of the transfers are expected from industrial customers and 36% of the transfers are expected from commercial customers.

Table 2 Summary of Total Small Cogen
Historical and Forecast Load

Date	Number of Customers	Tier 1 (Mdth)	Tier 2 (Mdth)	Total Usage (Mdth)
Jan 06	185	334	1066	1,400
Feb 06	184	349	951	1,300
Mar 06	182	439	1,089	1,529
Apr 06	180	493	1,106	1,599
May 06	180	539	1,110	1,649
Jun 06	179	611	1,179	1,789
Jul 06	174	633	1,227	1,860
Aug 06	174	555	1,141	1,696
Sep 06	174	518	1,169	1,687
Oct 06	174	509	1,205	1,715
Nov 06	174	457	1,108	1,564
Dec 06	174	402	1,129	1,531
Jan 07	169	416	1,096	1,511
Feb 07	169	361	951	1,312
Mar 07	169	411	1,083	1,494
Apr 07	169	401	1,056	1,457

Date	Number of Customers	Tier 1 (Mdth)	Tier 2 (Mdth)	Total Usage (Mdth)
May 07	169	425	1,121	1,546
Jun 07	169	447	1,178	1,625
Jul 07	169	465	1,226	1,691
Aug 07	169	471	1,242	1,714
Sep 07	169	435	1,148	1,523
Oct 07	169	417	1,099	1,515
Nov 07	169	381	1,005	1,386
Dec 07	169	398	1,049	1,447
Jan 08	156	418	1,101	1,519
Feb 08	156	363	955	1,318
Mar 08	156	413	1088	1501
Apr 08	156	403	1061	1464
May 08	156	427	1126	1553
Jun 08	156	449	1184	1633
Jul 08	156	468	1232	1700
Aug 08	156	474	1248	1722
Sep 08	156	438	1153	1591
Oct 08	156	419	1104	1523
Nov 08	156	383	1010	1393
Dec 08	156			
Jan 09	156	421	1111	1532
Feb 09	156	365	964	1330
Mar 09	156	416	1098	1514
Apr 09	156	406	1071	1477
May 09	156	431	1136	1567
Jun 09	156	453	1195	1648
Jul 09	156	471	1243	1714
Aug 09	156	477	1260	1737
Sep 09	156	441	1114	1536
Oct 09	156	422	1114	1536
Nov 09	156	386	1019	1405
Dec 09	156	403	1064	1467
Jan 10	149	424	1121	1545
Feb 10	149	368	973	1340
Mar 10	149	419	1108	1527
Apr 10	149	408	1080	1489
May 10	149	433	1146	1580
Jun 10	149	456	1206	1661

Date	Number of Customers	Tier 1 (Mdth)	Tier 2 (Mdth)	Total Usage (Mdth)
Jul 10	149	474	1254	1728
Aug 10	149	480	1271	1751
Sep 10	149	444	1174	1618
Oct 10	149	425	1124	1549
Nov 10	149	389	1028	1417
Dec 10	149	406	1074	1479
Jan 11	142	426	1128	1553
Feb 11	142	369	979	1348
Mar 11	142	421	1115	1535
Apr 11	142	410	1087	1497
May 11	142	435	1153	1589
Jun 11	142	458	1213	1671
Jul 11	142	476	1262	1738
Aug 11	142	483	1279	1761
Sep 11	142	446	1181	1627
Oct 11	142	427	1131	1558
Nov 11	142	390	1034	1425
Dec 11	142	408	1080	1488
Jan 12	142	406	1133	1540
Feb 12	142	353	984	1363
Mar 12	142	402	1120	1522
Apr 12	142	392	1092	1484
May 12	142	416	1159	1575
Jun 12	142	437	1219	1656
Jul 12	142	455	1268	1723
Aug 12	142	461	1285	1746
Sep 12	142	426	1187	1613
Oct 12	142	408	1137	1544
Nov 12	142	373	1040	1412
Dec 12	142	389	1085	1475

Table 3 shows the annual, long term cogen forecast to year 2025.

B. Demand Forecast for SGIP

The Self-Generation Incentive Program (SGIP) is the successor of the AB970 program that was signed into law on September 6, 2000. It required the CPUC to initiate activities for load control and distributed generation. The CPUC Decision D.-01-03-073 authorized self generation incentive program to be applied across utility service areas. The term self generation refers to distributed generation technologies that consist of small gas turbines, internal combustion engines, wind turbines, photovoltaics and fuel cells. The technologies are designated to provide a portion of the customer's entire electric load and for those using natural gas waste heat recovery from the electric power generation system is required. SoCalGas launched its portion of the program on July 2001.

In determining the amount of added load from the SGIP, SoCalGas calculated the average of the added load from 2004 and 2005, and projected that the same amount of added load gain to take place each year until 2017. Note that the current assumption for funding is due to expire until the year 2017. Based on historical data, only 3 gas fuel using SGIP projects were completed in 2003, 2 were completed in 2004 and only 1 was completed in 2005. After 2017, the amount of added load is expected to remain constant. The forecast for SGIP under the G50 rate is included in the large EG forecast and the SGIP forecast under the G10 rate is included in the core commercial and industrial forecast. The 2007-2025 SGIP added load for the small commercial and industrial market segment is depicted in Table 4.

Table 3. **Small Cogen Demand Forecast 2007 - 2025**
(in Mdth)

	EG< 3MM Therms		EG>=3MM Therms		EG Total
	Distribution	Transmission	Distribution	Transmission	T & D
2007	4,725	12,456	301	797	18,279
2008	4,750	12,514	305	802	18,371
2009	4,790	12,648	302	793	18,532
2010	4,828	12,781	296	777	18,683
2011	4,859	12,880	289	760	18,788
2012	4,888	12,967	283	743	18,880
2013	4,918	13,062	277	726	18,984
2014	4,948	13,151	272	710	19,082
2015	4,979	13,235	267	694	19,175
2016	5,013	13,321	263	681	19,279
2017	5,053	13,414	260	671	19,399
2018	5,086	13,472	258	662	19,478
2019	5,116	13,515	257	655	19,543
2020	5,153	13,598	258	651	19,659
2021	5,191	13,659	259	648	19,757
2022	5,232	13,743	261	644	19,880
2023	5,275	13,828	263	640	20,006
2024	5,317	13,909	264	636	20,127
2025	5,359	13,993	266	632	20,250

Table 4 Small Generation Demand Forecast for the Self-Generation Incentive Program in Mdth

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2007 Z	0.56	1.13	1.69	2.26	2.82	3.38	3.95	4.51	5.08	5.64	6.21	6.77	44
2008 Z	0.85	1.69	2.54	3.38	4.23	5.08	5.92	6.77	7.62	8.46	9.31	10.15	66
2009 Z	1.13	2.26	3.38	4.51	5.64	6.77	7.9	9.03	10.15	11.28	12.41	13.54	88
2010 Z	1.41	2.82	4.23	5.64	7.05	8.46	9.87	11.28	12.69	14.1	15.51	16.92	110
2011 Z	1.69	3.38	5.08	6.77	8.46	10.15	11.85	13.54	15.23	16.92	18.62	20.31	132
2012 Z	1.97	3.95	5.92	7.9	9.87	11.85	13.82	15.79	17.77	19.74	21.72	23.69	154
2013 Z	2.26	4.51	6.77	9.03	11.28	13.54	15.79	18.05	20.31	22.56	24.82	27.08	176
2014 Z	2.54	5.08	7.62	10.15	12.69	15.23	17.77	20.31	22.85	25.38	27.92	30.46	198
2015 Z	2.82	5.64	8.46	11.28	14.1	16.92	19.74	22.56	25.38	28.21	31.03	33.85	220
2016 Z	3.1	6.21	9.31	12.41	15.51	18.62	21.72	24.82	27.92	31.03	34.13	37.23	242
2017 Z	3.38	6.77	10.15	13.54	16.92	20.31	23.69	27.08	30.46	33.85	37.23	40.62	264
2018 Z	3.38	6.77	10.15	13.54	16.92	20.31	23.69	27.08	30.46	33.85	37.23	40.62	264
2019 Z	3.38	6.77	10.15	13.54	16.92	20.31	23.69	27.08	30.46	33.85	37.23	40.62	264
2020 Z	3.38	6.77	10.15	13.54	16.92	20.31	23.69	27.08	30.46	33.85	37.23	40.62	264
2021 Z	3.38	6.77	10.15	13.54	16.92	20.31	23.69	27.08	30.46	33.85	37.23	40.62	264
2022 Z	3.38	6.77	10.15	13.54	16.92	20.31	23.69	27.08	30.46	33.85	37.23	40.62	264
2023 Z	3.38	6.77	10.15	13.54	16.92	20.31	23.69	27.08	30.46	33.85	37.23	40.62	264
2024 Z	3.38	6.77	10.15	13.54	16.92	20.31	23.69	27.08	30.46	33.85	37.23	40.62	264
2025 Z	3.38	6.77	10.15	13.54	16.92	20.31	23.69	27.08	30.46	33.85	37.23	40.62	264

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SoCalGas Exchange Demand Forecast
February 2008

Interutility Exchange Forecasting Methodology
2009 BCAP

A. Overview

The interutility exchange is comprised of the net revenues or costs for exchange service provided by Southern California Gas Company (SoCalGas) and Pacific Gas and Electric Company (PG&E) under two interutility exchange agreements: The Master Exchange Agreement (MEA) and the Southwest Exchange Gas Delivery Agreement (SEGDA). SEGDA is not expected to be renewed at the time of this BCAP filing and will therefore not be discussed in this workpaper. Section B below presents the forecasting methodology for interutility exchange gas demand. Section C describes the forecasting methodology for interutility exchange revenues.

B. Interutility Exchange Demand Forecasts

The exchange of gas between SoCalGas and PG&E has been in practice since 1949. With the termination of the General Service Mutual Assistance Agreement between the two companies in May 5, 1988, the California Public Utilities Commission (CPUC) ordered the two companies to renegotiate a uniform procedure for exchanging gas. The instrument is called the Master Exchange Agreement, which the CPUC approved on February 7, 1990.

The primary purpose of the MEA exchange forecast is to establish the net revenues and costs resulting from the service mutually provided by PG&E and SoCalGas. A study of the 2005 to 2006 gas load under the MEA formed the initial forecast for the exchange gas load. Additional load information was collected from Personnel at PG&E.

The net exchange gas deliveries under the MEA are forecasted to be -362 Mdth in 2005 and -314 Mdth in 2006. SoCalGas deliveries are expected to equal 422 Mdth, and 458 Mdth, while PG&E deliveries are expected to be 784 Mdth and 772 Mdth in 2005 and 2006, respectively.

C. Interutility Exchange Revenue Forecasts

MEA Exchange Revenue Forecast

The MEA exchange revenue forecast is produced by multiplying the forecasted MEA exchange demand by the appropriate rate. The rates are defined in the MEA and during the BCAP period, are not forecasted to change from the current rates. Table 1 below shows the MEA rates, demand and revenues by location for the calendar years 2006 through 2011.

Areas under each zone are as follows:

Zone 1= At Topock Only
Zone 2=Between Pisgah and Needles
Zone 3= Between Bakersfield and Pisgah
Zone 4= Between Fresno and Bakersfield or along the coast toward Morrow Bay.

Based on forecasted SoCalGas and PG&E deliveries, the net revenue to PG&E for the BCAP period is expected to be $23,000 per year. The net revenue is based on the difference between the revenue derived from SoCalGas deliveries and the revenue from PG&E deliveries.

Table 1 MEA Rates, Demand and Revenues for 2006 and 2009-2011

Master Exchange Agreement	Location	Rate (Cents/dth)	2006 Mdth	2006 $000	2009 Mdth	2009 $000	2010 Mdth	2010 $000	2011 Mdth	2011 $000
					Forecast Period 2009 - 2011					
SoCal deliveries to PGE										
	Zone 1	11	0	$0.00	0	$0	0	$0	0	$0
	Zone 2	13	0	$0.00	0	$0	0	$0	0	$0
	Zone 3 (EOR)	5	7	$0.35	8	0.40	8	0.40	8	0.40
	Zone 3 (non-EOR)	15	378	$56.70	380	57.00	380	57.00	380	57.00
	Zone 4	15	73	$10.95	36	5.40	36	5.40	36	5.40
Total	SUM =		**458**	**$68**	**425**	**$63**	**425**	**$63**	**425**	**$63**

Master Exchange Agreement	Location	Rate (Cents/dth)	2006 Mdth	2006 $000	2009 Mdth	2009 $000	2010 Mdth	2010 $000	2011 Mdth	2011 $000
					Forecast Period 2009 - 2011					
PGE Deliveries to SoCal										
	Zone 1	11	0	$0.00	0	$0	0	$0	0	$0
	Zone 2	13	0	$0.00	0	$0	0	$0	0	$0
	Zone 3 (EOR)	11	7	$0.77	8	0.88	8	0.88	8	0.88
	Zone 3 (non-EOR)	11	3	$0.33	2	0.22	2	0.22	2	0.22
	Zone 4	11	762	$83.82	768	84.48	768	84.48	768	84.48
Total	SUM =		772	$85	778	$86	778	$86	778	$86

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SOCALGAS WHOLESALE AND ECOGAS DEMAND FORECAST
FEBRUARY 2008

ECOGAS (MEXICALI) AND WHOLESALE WORKPAPERS – Testimony of Herb Emmrich

2009 BIENNIAL COST ALLOCATION PROCEEDING

Projected monthly and peak day requirements for Ecogas (Mexicali), SDG&E, Long Beach, Southwest Gas (SWG), and the City of Vernon, are shown in the consolidated workpapers.

Ecogas (Mexicali), Long Beach and Southwest Gas forecasts were originally prepared for the *2006 CGR.*

SDG&E's core, noncore and cogeneration forecast is part of Herb Emmrich's SDG&E workpapers. SDG&E non-cogeneration EG forecast is part of Robert Anderson's workpapers.

Vernon initiated municipal gas service to its electric power plant in June 2005 and to non-core customers in December 2006. Vernon's commercial and industrial load is based on recorded 2006 usage for commercial and industrial customers already served by Vernon plus those additional customers that are expected to request retail service from Vernon. The throughput forecast for Vernon EG customers is based on the power market simulation as noted in Mr. Robert Anderson's testimony on EG demand.

2009 BCAP

SoCalGas Meter Forecast
February 2008

SOUTHERN CALIFORNIA GAS COMPANY: CUSTOMER FORECAST
(annual averages)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Residential										
Single-Family										
Active	3,488,997	3,540,411	3,593,130	3,645,277	3,697,090	3,748,482	3,799,978	3,851,418	3,903,449	3,956,072
Inactive	66,623	63,581	64,527	65,463	66,393	67,316	68,240	69,164	70,098	71,043
Connected	3,555,620	3,603,992	3,657,656	3,710,740	3,763,483	3,815,798	3,868,218	3,920,582	3,973,547	4,027,116
Multi-Family										
Active	1,647,654	1,662,073	1,678,061	1,696,229	1,716,710	1,737,703	1,758,815	1,781,367	1,806,050	1,832,350
Inactive	87,076	83,818	84,625	85,543	86,577	87,635	88,700	89,839	91,085	92,412
Connected	1,734,729	1,745,891	1,762,686	1,781,772	1,803,287	1,825,339	1,847,515	1,871,206	1,897,135	1,924,762
Master-Meter										
Active	42,695	42,482	42,159	41,838	41,519	41,203	40,889	40,577	40,268	39,961
Inactive	641	598	577	556	535	515	495	476	457	438
Connected	43,337	43,080	42,735	42,393	42,054	41,718	41,384	41,053	40,725	40,399
Total Residential										
Active	5,179,346	5,244,966	5,313,349	5,383,344	5,455,319	5,527,388	5,599,682	5,673,362	5,749,767	5,828,384
Inactive	154,340	147,996	149,729	151,562	153,506	155,467	157,436	159,479	161,640	163,893
Connected	5,333,686	5,392,962	5,463,078	5,534,906	5,608,824	5,682,854	5,757,118	5,832,841	5,911,407	5,992,277
Commercial										
Active	192,321	194,385	195,232	196,115	196,927	197,593	198,185	198,787	199,499	200,192
Inactive	47,142	46,060	46,260	46,469	46,662	46,819	46,959	47,102	47,271	47,435
Connected	239,463	240,445	241,492	242,584	243,588	244,413	245,144	245,889	246,770	247,627
Industrial										
Active	20,307	20,512	20,488	20,473	20,460	20,450	20,448	20,448	20,450	20,454
Inactive	7,900	7,659	7,650	7,644	7,639	7,636	7,635	7,635	7,635	7,637
Connected	28,207	28,171	28,138	28,117	28,099	28,086	28,083	28,083	28,085	28,091
TOTAL	0									
Active	5,391,974	5,459,864	5,529,069	5,599,931	5,672,705	5,745,431	5,818,314	5,892,598	5,969,716	6,049,030
Inactive	209,382	201,715	203,639	205,676	207,807	209,922	212,030	214,216	216,546	218,965
Connected	5,601,356	5,661,579	5,732,708	5,805,607	5,880,512	5,955,353	6,030,345	6,106,813	6,186,263	6,267,995
	0									
Net Active Gain	63,544	66,746	69,205	70,862	72,774	72,726	72,883	74,283	77,119	79,314

SOUTHERN CALIFORNIA GAS COMPANY: CUSTOMER FORECAST
(annual averages)

	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Residential										
Single-Family										
Active	4,008,739	4,061,058	4,112,915	4,164,545	4,215,994	4,267,198	4,318,097	4,368,768	4,419,217	4,469,714
Inactive	71,989	72,928	73,859	74,786	75,709	76,628	77,542	78,452	79,357	80,264
Connected	4,080,727	4,133,986	4,186,774	4,239,331	4,291,703	4,343,826	4,395,639	4,447,219	4,498,574	4,549,978
Multi-Family										
Active	1,859,689	1,887,882	1,916,883	1,946,656	1,976,941	2,007,671	2,038,683	2,070,125	2,102,154	2,134,844
Inactive	93,791	95,213	96,676	98,178	99,705	101,255	102,819	104,405	106,020	107,669
Connected	1,953,480	1,983,095	2,013,559	2,044,833	2,076,646	2,108,926	2,141,502	2,174,530	2,208,174	2,242,513
Master-Meter										
Active	39,657	39,355	39,055	38,757	38,462	38,169	37,878	37,590	37,303	37,019
Inactive	419	400	382	364	347	329	312	295	278	262
Connected	40,076	39,755	39,437	39,122	38,809	38,498	38,190	37,885	37,581	37,281
Total Residential										
Active	5,908,084	5,988,295	6,068,852	6,149,958	6,231,397	6,313,038	6,394,658	6,476,482	6,558,673	6,641,576
Inactive	166,199	168,541	170,917	173,328	175,761	178,213	180,673	183,151	185,656	188,195
Connected	6,074,283	6,156,836	6,239,769	6,323,286	6,407,158	6,491,251	6,575,331	6,659,634	6,744,329	6,829,771
Commercial										
Active	200,899	201,612	202,383	203,109	203,901	204,630	205,379	206,209	207,033	207,896
Inactive	47,603	47,772	47,954	48,126	48,314	48,487	48,664	48,861	49,056	49,261
Connected	248,502	249,383	250,337	251,236	252,215	253,117	254,044	255,070	256,090	257,157
Industrial										
Active	20,458	20,463	20,466	20,469	20,469	20,469	20,470	20,471	20,472	20,472
Inactive	7,639	7,640	7,642	7,643	7,643	7,643	7,643	7,643	7,644	7,644
Connected	28,097	28,103	28,108	28,112	28,112	28,112	28,113	28,114	28,116	28,116
TOTAL										
Active	6,129,442	6,210,369	6,291,701	6,373,537	6,455,767	6,538,138	6,620,507	6,703,162	6,786,179	6,869,945
Inactive	221,440	223,953	226,513	229,097	231,718	234,342	236,980	239,656	242,356	245,100
Connected	6,350,882	6,434,323	6,518,215	6,602,634	6,687,485	6,772,480	6,857,487	6,942,818	7,028,535	7,115,044
Net Active Gain	80,412	80,928	81,332	81,835	82,230	82,370	82,369	82,655	83,017	83,766

2009 BCAP

SoCalGas Service Area Economic Forecast
February 2008

SOUTHERN CALIFORNIA GAS COMPANY SERVICE AREA ECONOMIC FORECAST

(forecast based on Global Insight's "Spring 2007 Long Term" Regional Forecast)

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
EMPLOYMENT (1000's)												
Total	7,913.4	7,940.0	8,051.2	8,217.7	8,402.7	8,496.3	8,569.9	8,674.6	8,783.6	8,864.8	8,940.6	9,013.1
Agriculture	210.6	214.3	206.8	215.5	218.7	230.2	233.2	236.9	241.3	245.1	249.0	253.1
Total Non-farm	7,702.8	7,725.7	7,844.5	8,002.2	8,184.0	8,266.0	8,336.7	8,437.7	8,542.3	8,619.7	8,691.6	8,760.0
Mining	15.6	15.6	15.9	16.6	18.2	19.2	19.4	18.9	18.3	17.5	16.8	16.2
Construction	373.3	389.6	422.4	458.7	486.8	482.8	468.9	460.8	463.0	464.7	471.4	480.5
Manufacturing	955.1	914.0	902.9	890.8	886.4	883.2	874.0	870.4	872.2	873.5	873.7	873.2
Transportation, Information, Utilities	555.5	545.8	558.5	557.7	566.5	568.0	572.7	585.2	596.1	608.3	619.4	630.2
Trade	1,338.5	1,346.7	1,373.7	1,419.7	1,454.1	1,467.6	1,488.8	1,504.5	1,515.9	1,525.3	1,531.5	1,536.3
Retail	921.4	930.3	951.6	985.3	1,006.4	1,014.2	1,028.5	1,038.9	1,045.5	1,051.0	1,054.9	1,058.0
Wholesale (including warehousing)	417.1	416.4	422.2	434.3	447.7	453.5	460.3	465.7	470.4	474.4	476.6	478.3
Restaurants	515.5	527.5	547.5	564.7	585.2	589.7	598.0	604.0	607.9	611.1	613.4	615.2
Finance, Insurance & Real Estate	446.6	470.1	486.4	499.5	508.7	507.8	506.0	512.8	524.1	532.7	537.8	542.6
Services	2,080.2	2,100.0	2,134.9	2,178.7	2,242.7	2,294.1	2,345.3	2,405.3	2,452.3	2,486.6	2,515.4	2,542.7
Accomodation	88.2	90.3	93.4	94.7	95.9	97.6	99.1	100.6	102.1	103.4	104.4	105.2
Personal & Laundry Services	79.0	79.8	79.9	81.3	83.0	84.1	83.8	83.4	83.3	83.6	83.8	83.8
Professional & Business Services	1,033.7	1,031.7	1,048.6	1,084.0	1,126.6	1,156.8	1,199.6	1,250.1	1,289.8	1,314.6	1,331.9	1,349.4
Health & Social Services	665.8	684.7	698.8	707.0	721.8	737.4	745.4	754.8	761.1	768.1	778.0	787.1
Misc. Services	213.5	213.6	214.1	211.7	215.3	218.2	217.5	216.3	216.1	216.9	217.3	217.3
Government & Education	1,422.3	1,416.4	1,402.3	1,415.7	1,435.5	1,453.6	1,463.5	1,475.8	1,492.4	1,499.9	1,512.2	1,523.1
OTHER INDICATORS												
Southern California Area Consumer Inflation*	2.8%	2.6%	3.3%	4.5%	4.3%	2.1%	2.0%	2.1%	2.0%	2.0%	2.4%	2.5%
Inflation--US Gross Domestic Product**	1.7%	2.1%	2.8%	3.0%	2.9%	2.5%	1.9%	2.0%	2.1%	2.2%	2.1%	2.0%
Housing Permits, Single-Family***	60,790	71,515	80,669	87,358	65,524	43,847	52,528	59,146	65,282	67,951	69,757	71,594
Housing Permits, Multi-Family***	22,554	26,204	34,832	27,775	31,547	30,119	33,470	35,905	36,817	37,539	38,682	40,174

* Consumer Price Index for Greater Los Angeles area (Los Angeles, Orange, and Riverside Counties)

** Chained Price Index--US GDP. Through 2017 from Global Insight May 2007 US forecast; after 2017 from Global Insight Feb. 2007 US long-term forecast

*** New housing permits for the "Big 6" counties in SoCalGas' 12-county area (Kern, Los Angeles, Orange, Riverside, San Bernardino, Ventura)

SOUTHERN CALIFORNIA GAS COMPANY SERVICE AREA ECONOMIC FORECAST

(forecast based on Global Insight's "Spring 2007 Long Term" Regional Forecast)

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
EMPLOYMENT (1000's)												
Total	9,087.1	9,157.9	9,229.2	9,303.5	9,373.2	9,438.7	9,510.3	9,575.9	9,651.5	9,731.5	9,812.3	9,891.3
Agriculture	256.9	260.5	263.9	267.3	270.7	273.8	277.2	280.5	284.1	287.9	291.6	295.3
Total Non-farm	8,830.1	8,897.4	8,965.4	9,036.2	9,102.5	9,164.9	9,233.1	9,295.4	9,367.4	9,443.6	9,520.8	9,596.1
Mining	15.7	15.1	14.7	14.3	13.9	13.7	13.7	13.7	13.6	13.6	13.6	13.6
Construction	490.2	500.6	511.2	521.7	531.2	538.9	546.2	553.3	560.5	568.0	575.7	583.9
Manufacturing	874.1	876.1	880.7	887.8	891.5	890.6	888.4	886.9	885.4	884.7	883.8	883.0
Transportation, Information, Utilities	640.2	650.0	661.1	672.7	680.2	685.0	691.2	700.4	710.5	720.8	730.5	739.9
Trade	1,540.8	1,544.0	1,547.4	1,550.2	1,555.3	1,562.5	1,570.3	1,578.5	1,588.2	1,598.0	1,608.0	1,617.8
Retail	1,060.2	1,061.5	1,062.3	1,062.0	1,062.9	1,065.1	1,068.7	1,073.0	1,077.7	1,082.9	1,087.9	1,092.3
Wholesale (including warehousing)	480.6	482.5	485.1	488.1	492.5	497.4	501.6	505.6	510.5	515.1	520.2	525.5
Restaurants	616.4	617.2	617.7	617.5	618.0	619.3	621.4	623.9	626.6	629.6	632.5	635.1
Finance, Insurance & Real Estate	546.8	549.0	549.1	546.4	544.5	546.8	549.4	551.5	553.3	554.3	555.4	557.5
Services	2,573.3	2,604.3	2,634.4	2,667.6	2,702.9	2,738.4	2,775.1	2,810.8	2,850.3	2,892.9	2,936.9	2,978.1
Accomodation	105.8	106.4	107.0	107.5	108.1	108.9	109.9	110.8	111.7	112.7	113.6	114.5
Personal & Laundry Services	83.8	83.9	84.1	84.4	84.5	84.6	84.9	85.4	85.9	86.4	86.9	87.3
Professional & Business Services	1,371.4	1,393.3	1,415.3	1,439.4	1,465.1	1,490.1	1,515.5	1,538.4	1,565.5	1,595.5	1,628.0	1,659.3
Health & Social Services	795.0	803.1	809.7	817.4	826.0	835.3	844.5	854.8	864.5	874.1	883.0	890.6
Misc. Services	217.3	217.6	218.3	218.9	219.2	219.6	220.3	221.4	222.7	224.1	225.4	226.4
Government & Education	1,532.7	1,541.0	1,549.1	1,558.1	1,564.9	1,569.7	1,577.5	1,576.3	1,579.0	1,581.7	1,584.3	1,587.1
OTHER INDICATORS												
Southern California Area Consumer Inflation*	2.5%	2.4%	2.6%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%
Inflation--US Gross Domestic Product**	1.9%	1.9%	1.9%	1.9%	1.9%	1.8%	1.8%	1.8%	1.8%	1.9%	1.9%	1.9%
Housing Permits, Single-Family***	72,462	73,389	73,466	72,720	71,916	71,321	70,696	69,912	69,400	68,637	68,778	70,000
Housing Permits, Multi-Family***	41,506	42,693	43,528	44,551	45,369	45,943	46,747	47,620	48,649	49,569	50,516	51,378

* Consumer Price Index for Greater Los Angeles area (Los Angeles, Orange, and Riverside Counties)

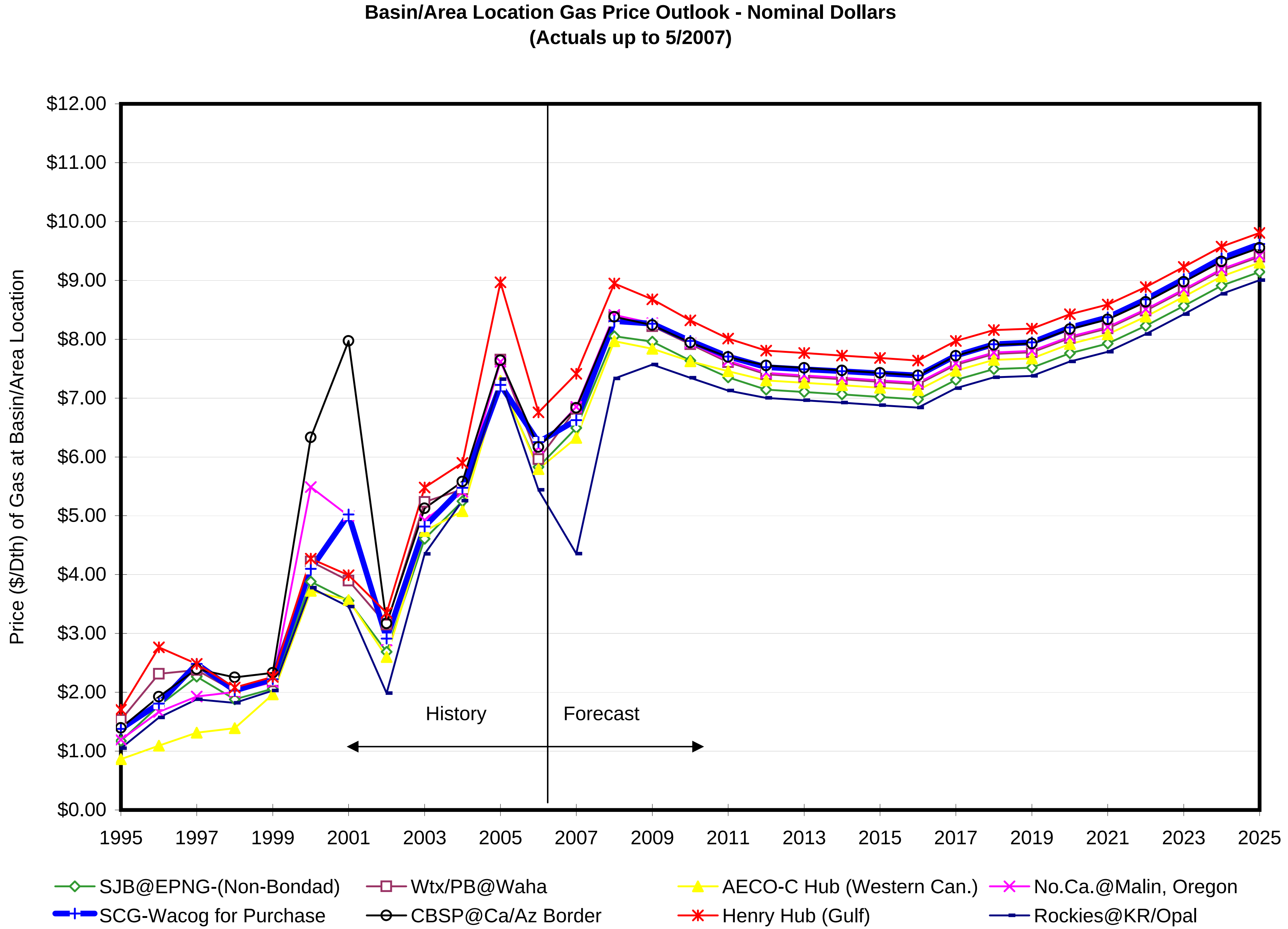
** Chained Price Index--US GDP. Through 2017 from Global Insight May 2007 US forecast; after 2017 from Global Insight Feb. 2007 US long-term forecast

*** New housing permits for the "Big 6" counties in SoCalGas' 12-county area (Kern, Los Angeles, Orange, Riverside, San Bernardino, Ventura)

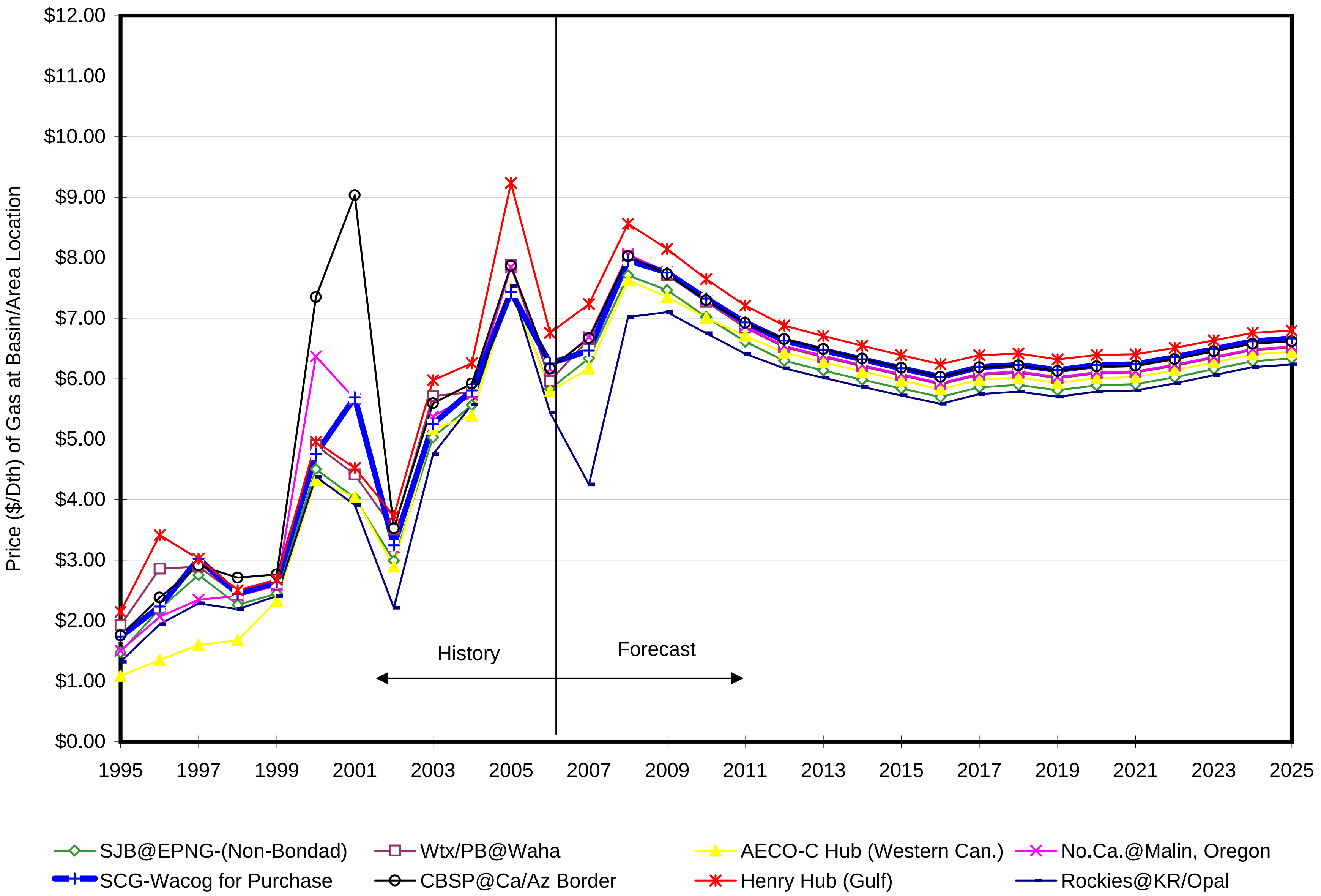
2009 BCAP

SoCalGas & SDG&E Natural Gas Price Forecast, and Alternate Fuel (Propane and Butane) Price Forecast

February 2008


Basin/Area Location Gas Price Outlook - Nominal Dollars
(Actuals up to 5/2007)
Price ($/Dth) of Gas at Basin/Area Location
$12.00
$11.00
$10.00
$9.00
$8.00
$7.00
$6.00
$5.00
$4.00
$3.00
$2.00
$1.00
$0.00
1995
1997
1999
2001
2003
2005
2007
2009
2011
2013
2015
2017
2019
2021
2023
2025
History
Forecast
SJB@EPNG-(Non-Bondad)
Wtx/PB@Waha
AECO-C Hub (Western Can.)
No.Ca.@Malin, Oregon
SCG-Wacog for Purchase
CBSP@Ca/Az Border
Henry Hub (Gulf)
Rockies@KR/Opal

Basin/Area Location Gas Price Outlook - Constant 2006 Dollars
(Actuals up to 5/2007)



LONG TERM OUTLOOK for "SPOT" Gas: San Juan Basin
($/Dth, @San Juan Basin into EPNG's System-Non-Bondad Receipt Points)
($/Dth Difference, San Juan Basin Basis Swap to Price at Henry Hub)

YEAR		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YR. AVG.
2000	Price	2.25	2.41	2.64	2.75	3.16	3.99	3.66	3.45	4.23	4.65	5.21	8.18	**3.88**
	Difference	-0.14	-0.25	-0.14	-0.27	-0.36	-0.31	-0.34	-0.93	-0.81	-0.41	-0.21	-0.52	-0.39
2001	Price	8.10	5.56	4.87	4.62	3.50	2.67	2.46	2.61	1.78	2.09	2.13	2.26	**3.55**
	Difference	-0.29	-0.04	-0.29	-0.59	-0.73	-1.08	-0.63	-0.40	-0.43	-0.32	-0.30	-0.11	-0.44
2002	Price	2.08	2.13	2.82	2.56	2.42	2.37	2.52	2.43	2.43	2.99	3.38	4.13	**2.69**
	Difference	-0.21	-0.16	-0.18	-0.85	-1.10	-0.86	-0.48	-0.65	-1.05	-1.13	-0.68	-0.64	-0.66
2003	Price	4.48	5.29	5.10	3.76	4.53	4.95	4.55	4.60	4.24	4.29	4.15	5.38	**4.61**
	Difference	-0.90	-2.14	-1.11	-1.49	-1.25	-0.90	-0.51	-0.38	-0.39	-0.36	-0.27	-0.71	-0.87
2004	Price	5.44	4.85	4.76	5.12	5.42	5.47	5.33	5.01	4.44	5.23	5.77	6.08	**5.25**
	Difference	-0.69	-0.55	-0.61	-0.58	-0.85	-0.82	-0.61	-0.44	-0.64	-1.14	-0.38	-0.54	-0.65
2005	Price	5.46	5.49	6.18	6.36	5.58	5.80	6.33	7.62	9.23	10.48	7.50	11.03	**7.26**
	Difference	-0.69	-0.62	-0.75	-0.84	-0.91	-1.35	-1.27	-1.58	-4.57	-3.02	-2.82	-2.13	-1.71
2006	Price	7.33	6.53	5.70	5.81	5.15	5.46	5.54	6.40	4.44	5.10	6.13	6.38	**5.83**
	Difference	-1.39	-1.11	-1.18	-1.34	-1.13	-0.76	-0.51	-0.84	-0.57	-0.61	-1.19	-0.50	-0.93
2007	Price	6.19	6.91	5.89	6.71	6.70	6.57	5.50	5.57	4.59	**7.13**	**7.72**	**8.44**	**6.49**
	Difference	-0.24	-1.12	-1.21	-0.88	-0.93	-0.82	-0.75	-0.73	-0.89	-1.13	-1.22	-1.17	-0.93
2008	Price	**8.78**	**8.78**	**8.61**	**7.53**	**7.41**	**7.48**	**7.77**	**7.84**	**7.88**	**7.78**	**8.15**	**8.62**	**8.05**
	Difference	-1.16	-1.15	-1.09	-0.86	-0.86	-0.86	-0.66	-0.66	-0.66	-0.86	-0.96	-0.96	-0.90
2009	Price	**8.89**	**8.87**	**8.62**	**7.48**	**7.35**	**7.43**	**7.51**	**7.58**	**7.62**	**7.72**	**7.98**	**8.42**	**7.96**
	Difference	-0.96	-0.96	-0.96	-0.60	-0.60	-0.60	-0.60	-0.60	-0.60	-0.60	-0.80	-0.80	-0.72
2010	Price	**8.65**	**8.63**	**8.38**	**7.12**	**6.99**	**7.07**	**7.15**	**7.21**	**7.26**	**7.35**	**7.70**	**8.13**	**7.64**
	Difference	-0.80	-0.80	-0.80	-0.63	-0.63	-0.63	-0.63	-0.63	-0.63	-0.63	-0.71	-0.71	-0.68
2011	Price	**8.35**	**8.34**	**8.10**	**6.83**	**6.71**	**6.79**	**6.87**	**6.93**	**6.97**	**7.06**	**7.41**	**7.85**	**7.35**
	Difference	-0.71	-0.71	-0.71	-0.63	-0.63	-0.63	-0.63	-0.63	-0.63	-0.63	-0.71	-0.71	-0.66
2012	Price	**8.07**	**8.06**	**7.83**	**6.65**	**6.53**	**6.61**	**6.69**	**6.74**	**6.79**	**6.90**	**7.22**	**7.64**	**7.14**
	Difference	-0.71	-0.71	-0.71	-0.63	-0.63	-0.63	-0.63	-0.63	-0.63	-0.63	-0.71	-0.71	-0.66
2013	Price	**8.04**	**8.03**	**7.80**	**6.61**	**6.50**	**6.57**	**6.65**	**6.71**	**6.75**	**6.84**	**7.16**	**7.57**	**7.10**
	Difference	-0.71	-0.71	-0.71	-0.63	-0.63	-0.63	-0.63	-0.63	-0.63	-0.63	-0.71	-0.71	-0.66
2014	Price	**7.99**	**7.98**	**7.76**	**6.57**	**6.46**	**6.53**	**6.61**	**6.67**	**6.71**	**6.80**	**7.12**	**7.53**	**7.06**
	Difference	-0.71	-0.71	-0.71	-0.63	-0.63	-0.63	-0.63	-0.63	-0.63	-0.63	-0.71	-0.71	-0.66
2015	Price	**7.95**	**7.93**	**7.71**	**6.54**	**6.42**	**6.49**	**6.57**	**6.63**	**6.67**	**6.76**	**7.08**	**7.48**	**7.02**
	Difference	-0.71	-0.71	-0.71	-0.63	-0.63	-0.63	-0.63	-0.63	-0.63	-0.63	-0.71	-0.71	-0.66
2016	Price	**7.90**	**7.89**	**7.67**	**6.50**	**6.39**	**6.46**	**6.53**	**6.59**	**6.63**	**6.72**	**7.03**	**7.44**	**6.98**
	Difference	-0.71	-0.71	-0.71	-0.63	-0.63	-0.63	-0.63	-0.63	-0.63	-0.63	-0.71	-0.71	-0.66
2017	Price	**8.27**	**8.26**	**8.03**	**6.80**	**6.69**	**6.76**	**6.84**	**6.90**	**6.94**	**7.04**	**7.37**	**7.79**	**7.31**
	Difference	-0.71	-0.71	-0.71	-0.63	-0.63	-0.63	-0.63	-0.63	-0.63	-0.63	-0.71	-0.71	-0.66
2018	Price	**8.48**	**8.47**	**8.23**	**6.98**	**6.86**	**6.93**	**7.01**	**7.07**	**7.12**	**7.21**	**7.56**	**7.99**	**7.49**
	Difference	-0.71	-0.71	-0.71	-0.63	-0.63	-0.63	-0.63	-0.63	-0.63	-0.63	-0.71	-0.71	-0.66
2019	Price	**8.51**	**8.50**	**8.26**	**7.00**	**6.88**	**6.96**	**7.04**	**7.10**	**7.14**	**7.24**	**7.58**	**8.01**	**7.52**
	Difference	-0.71	-0.71	-0.71	-0.63	-0.63	-0.63	-0.63	-0.63	-0.63	-0.63	-0.71	-0.71	-0.66
2020	Price	**8.78**	**8.77**	**8.53**	**7.23**	**7.11**	**7.18**	**7.27**	**7.33**	**7.37**	**7.47**	**7.83**	**8.27**	**7.76**
	Difference	-0.71	-0.71	-0.71	-0.63	-0.63	-0.63	-0.63	-0.63	-0.63	-0.63	-0.71	-0.71	-0.66
2021	Price	**8.97**	**8.96**	**8.71**	**7.38**	**7.26**	**7.34**	**7.42**	**7.48**	**7.53**	**7.63**	**8.00**	**8.45**	**7.93**
	Difference	-0.71	-0.71	-0.71	-0.63	-0.63	-0.63	-0.63	-0.63	-0.63	-0.63	-0.71	-0.71	-0.66
2022	Price	**9.31**	**9.29**	**9.04**	**7.66**	**7.53**	**7.61**	**7.70**	**7.77**	**7.81**	**7.92**	**8.30**	**8.77**	**8.23**
	Difference	-0.71	-0.71	-0.71	-0.63	-0.63	-0.63	-0.63	-0.63	-0.63	-0.63	-0.71	-0.71	-0.66
2023	Price	**9.69**	**9.67**	**9.41**	**7.98**	**7.84**	**7.93**	**8.02**	**8.09**	**8.14**	**8.24**	**8.64**	**9.13**	**8.56**
	Difference	-0.71	-0.71	-0.71	-0.63	-0.63	-0.63	-0.63	-0.63	-0.63	-0.63	-0.71	-0.71	-0.66
2024	Price	**10.08**	**10.06**	**9.79**	**8.30**	**8.16**	**8.25**	**8.34**	**8.41**	**8.46**	**8.58**	**8.99**	**9.50**	**8.91**
	Difference	-0.71	-0.71	-0.71	-0.63	-0.63	-0.63	-0.63	-0.63	-0.63	-0.63	-0.71	-0.71	-0.66
2025	Price	**10.34**	**10.33**	**10.04**	**8.52**	**8.37**	**8.46**	**8.56**	**8.63**	**8.68**	**8.80**	**9.23**	**9.75**	**9.14**
	Difference	-0.71	-0.71	-0.71	-0.63	-0.63	-0.63	-0.63	-0.63	-0.63	-0.63	-0.71	-0.71	-0.66

NOTES:

1/ Jan.'00-Sep'07 monthly actuals are simple averages of mid-range estimate of the low and high prices reported each business day by Gas Daily in their "Daily Price Survey."

2/ Forecasted price levels for Oct.'07 through Dec.'25 are the sum of Henry Hub projected price plus basis swap from NYMEX Clearport(sm).

3/ Source for gas price data: Gas Daily's "Daily Price Survey" for REGION--"New Mexico-San Juan Basin" and LOCATION--"El Paso, San Juan Basin".
Monthly prices are calculated from data reported in Platts Gas Daily--published by the McGraw-Hill Companies, Inc.
From the daily low and high prices reported under the heading "Common," the mid-range, or simple average, of these was calculated for each day.
These daily mid-range values were subsequently averaged over the number of days reported for each respective calendar month to arrive at the monthly historical prices used for each price series.

LONG TERM OUTLOOK for "SPOT" Gas: Permian Basin/West Texas @Waha
($/Dth Price, @Permian/West Texas at Waha Receipt Points into INTRA-State P/L's)
($/Dth Difference, Waha Basis Swap to Price at Henry Hub)

YEAR	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YR. AVG.
2000 Price	2.30	2.50	2.73	2.90	3.39	4.22	4.01	4.38	5.01	5.00	5.44	8.79	4.22
Difference	-0.09	-0.16	-0.06	-0.12	-0.13	-0.08	0.01	0.00	-0.03	-0.05	0.01	0.10	-0.05
2001 Price	8.28	5.59	5.13	5.11	4.13	3.67	3.07	2.94	2.03	2.22	2.28	2.30	3.90
Difference	-0.11	0.00	-0.03	-0.10	-0.10	-0.09	-0.02	-0.07	-0.18	-0.20	-0.15	-0.07	-0.09
2002 Price	2.15	2.19	2.88	3.22	3.18	3.00	2.88	2.89	3.27	3.88	3.82	4.43	3.15
Difference	-0.14	-0.09	-0.11	-0.18	-0.34	-0.23	-0.12	-0.18	-0.21	-0.24	-0.23	-0.34	-0.20
2003 Price	5.02	7.54	5.91	4.94	5.47	5.52	4.95	4.89	4.36	4.40	4.22	5.60	5.24
Difference	-0.36	0.11	-0.30	-0.31	-0.31	-0.33	-0.11	-0.08	-0.27	-0.25	-0.21	-0.49	-0.24
2004 Price	5.59	4.97	4.91	5.25	5.85	5.84	5.66	5.24	4.64	5.43	5.81	6.19	5.45
Difference	-0.54	-0.43	-0.47	-0.45	-0.43	-0.45	-0.28	-0.21	-0.45	-0.94	-0.34	-0.42	-0.45
2005 Price	5.53	5.64	6.36	6.57	5.87	6.58	7.02	8.45	10.10	10.99	7.55	11.15	7.65
Difference	-0.62	-0.47	-0.57	-0.63	5.48	5.79	-0.58	-0.75	-3.71	-2.51	-2.77	-2.00	-0.28
2006 Price	7.35	6.63	5.75	5.90	5.35	5.69	5.73	6.65	4.55	5.27	6.24	6.42	5.96
Difference	-1.37	-1.01	-1.13	-1.26	-0.93	-0.52	-0.33	-0.58	-0.46	-0.44	-1.08	-0.46	-0.80
2007 Price	6.32	7.06	6.18	7.00	7.23	6.97	5.88	5.93	4.91	7.59	8.01	8.75	6.82
Difference	-0.12	-0.96	-0.92	-0.59	-0.41	-0.36	-0.28	-0.27	-0.46	-0.68	-0.93	-0.86	-0.57
2008 Price	9.11	9.12	9.01	7.94	7.82	7.90	7.98	8.05	8.09	8.19	8.42	8.89	8.38
Difference	-0.84	-0.81	-0.70	-0.45	-0.45	-0.45	-0.45	-0.45	-0.45	-0.45	-0.68	-0.68	-0.57
2009 Price	9.16	9.15	8.90	7.75	7.62	7.70	7.78	7.85	7.89	7.99	8.20	8.64	8.22
Difference	-0.68	-0.68	-0.68	-0.33	-0.33	-0.33	-0.33	-0.33	-0.33	-0.33	-0.57	-0.57	-0.46
2010 Price	8.87	8.86	8.60	7.44	7.31	7.39	7.47	7.53	7.57	7.67	7.92	8.35	7.92
Difference	-0.57	-0.57	-0.57	-0.31	-0.31	-0.31	-0.31	-0.31	-0.31	-0.31	-0.50	-0.50	-0.40
2011 Price	8.49	8.48	8.24	7.15	7.03	7.11	7.19	7.25	7.29	7.38	7.63	8.07	7.61
Difference	-0.57	-0.57	-0.57	-0.31	-0.31	-0.31	-0.31	-0.31	-0.31	-0.31	-0.50	-0.50	-0.40
2012 Price	8.21	8.20	7.97	6.97	6.85	6.93	7.01	7.06	7.11	7.22	7.44	7.86	7.40
Difference	-0.57	-0.57	-0.57	-0.31	-0.31	-0.31	-0.31	-0.31	-0.31	-0.31	-0.50	-0.50	-0.40
2013 Price	8.18	8.17	7.94	6.93	6.82	6.89	6.97	7.03	7.07	7.16	7.38	7.79	7.36
Difference	-0.57	-0.57	-0.57	-0.31	-0.31	-0.31	-0.31	-0.31	-0.31	-0.31	-0.50	-0.50	-0.40
2014 Price	8.13	8.12	7.90	6.89	6.78	6.85	6.93	6.99	7.03	7.12	7.34	7.74	7.32
Difference	-0.57	-0.57	-0.57	-0.31	-0.31	-0.31	-0.31	-0.31	-0.31	-0.31	-0.50	-0.50	-0.40
2015 Price	8.08	8.07	7.85	6.86	6.74	6.81	6.89	6.95	6.99	7.08	7.29	7.70	7.28
Difference	-0.57	-0.57	-0.57	-0.31	-0.31	-0.31	-0.31	-0.31	-0.31	-0.31	-0.50	-0.50	-0.40
2016 Price	8.04	8.03	7.81	6.82	6.70	6.77	6.85	6.91	6.95	7.04	7.25	7.65	7.23
Difference	-0.57	-0.57	-0.57	-0.31	-0.31	-0.31	-0.31	-0.31	-0.31	-0.31	-0.50	-0.50	-0.40
2017 Price	8.41	8.40	8.17	7.12	7.01	7.08	7.16	7.22	7.26	7.35	7.59	8.01	7.56
Difference	-0.57	-0.57	-0.57	-0.31	-0.31	-0.31	-0.31	-0.31	-0.31	-0.31	-0.50	-0.50	-0.40
2018 Price	8.62	8.61	8.37	7.30	7.18	7.25	7.33	7.39	7.44	7.53	7.77	8.20	7.75
Difference	-0.57	-0.57	-0.57	-0.31	-0.31	-0.31	-0.31	-0.31	-0.31	-0.31	-0.50	-0.50	-0.40
2019 Price	8.65	8.64	8.40	7.32	7.20	7.28	7.36	7.42	7.46	7.56	7.80	8.23	7.78
Difference	-0.57	-0.57	-0.57	-0.31	-0.31	-0.31	-0.31	-0.31	-0.31	-0.31	-0.50	-0.50	-0.40
2020 Price	8.92	8.91	8.67	7.55	7.43	7.50	7.59	7.65	7.69	7.79	8.05	8.49	8.02
Difference	-0.57	-0.57	-0.57	-0.31	-0.31	-0.31	-0.31	-0.31	-0.31	-0.31	-0.50	-0.50	-0.40
2021 Price	9.11	9.10	8.85	7.70	7.58	7.66	7.74	7.80	7.85	7.95	8.22	8.67	8.19
Difference	-0.57	-0.57	-0.57	-0.31	-0.31	-0.31	-0.31	-0.31	-0.31	-0.31	-0.50	-0.50	-0.40
2022 Price	9.45	9.43	9.18	7.98	7.85	7.93	8.02	8.09	8.13	8.24	8.52	8.99	8.48
Difference	-0.57	-0.57	-0.57	-0.31	-0.31	-0.31	-0.31	-0.31	-0.31	-0.31	-0.50	-0.50	-0.40
2023 Price	9.83	9.81	9.55	8.30	8.16	8.25	8.34	8.41	8.45	8.56	8.86	9.35	8.82
Difference	-0.57	-0.57	-0.57	-0.31	-0.31	-0.31	-0.31	-0.31	-0.31	-0.31	-0.50	-0.50	-0.40
2024 Price	10.22	10.20	9.93	8.62	8.48	8.57	8.66	8.73	8.78	8.90	9.21	9.72	9.17
Difference	-0.57	-0.57	-0.57	-0.31	-0.31	-0.31	-0.31	-0.31	-0.31	-0.31	-0.50	-0.50	-0.40
2025 Price	10.48	10.47	10.18	8.84	8.69	8.78	8.88	8.95	9.00	9.12	9.45	9.97	9.40
Difference	-0.57	-0.57	-0.57	-0.31	-0.31	-0.31	-0.31	-0.31	-0.31	-0.31	-0.50	-0.50	-0.40

NOTES:
1/ Jan.'00-Sep'07 monthly actuals are simple averages of mid-range estimate of the low and high prices reported each business day by Gas Daily in their "Daily Price Survey."
2/ Forecasted price levels for Oct.'07 through Dec.'25 are the sum of Henry Hub projected price plus basis swap from NYMEX Clearport(sm).
3/ Source for gas price data: Gas Daily's "Daily Price Survey" for REGION--"Permian Basin Area" and LOCATION--"Tex Intras, Waha area".
Monthly prices are calculated from data reported in Platts Gas Daily--published by the McGraw-Hill Companies, Inc.
From the daily low and high prices reported under the heading "Common," the mid-range, or simple average, of these was calculated for each day.
These daily mid-range values were subsequently averaged over the number of days reported for each respective calendar month to arrive at the monthly historical prices used for each price series.

LONG TERM OUTLOOK for "SPOT" Gas: Alberta Canada/AECO-C
(US-$/Dth Price, @NOVA/AECO-C Hub, Western Canada)
($/Dth Difference, Alberta Basis Swap to Price at Henry Hub)

YEAR	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YR. AVG.
2000 Price	2.05	2.25	2.53	2.71	3.04	3.66	3.19	3.21	4.48	4.53	4.89	8.14	**3.72**
Difference	-0.34	-0.41	-0.25	-0.31	-0.48	-0.65	-0.81	-1.16	-0.57	-0.52	-0.54	-0.55	-0.55
2001 Price	7.47	5.41	4.98	4.96	3.90	3.18	2.34	2.48	1.69	2.03	2.16	2.21	**3.57**
Difference	-0.93	-0.19	-0.18	-0.25	-0.34	-0.58	-0.75	-0.52	-0.52	-0.39	-0.27	-0.16	-0.42
2002 Price	1.96	2.01	2.72	2.95	2.49	2.14	1.43	1.96	2.69	3.39	3.47	3.99	**2.60**
Difference	-0.33	-0.27	-0.27	-0.46	-1.03	-1.09	-1.57	-1.11	-0.79	-0.72	-0.58	-0.79	-0.75
2003 Price	4.45	5.89	5.88	4.62	4.95	5.02	4.29	4.34	4.19	4.21	4.05	5.03	**4.74**
Difference	-0.93	-1.55	-0.33	-0.64	-0.83	-0.84	-0.78	-0.64	-0.44	-0.45	-0.38	-1.06	-0.74
2004 Price	5.37	4.64	4.67	4.92	5.37	5.13	5.16	4.84	4.32	5.31	5.54	5.67	**5.08**
Difference	-0.76	-0.76	-0.71	-0.78	-0.90	-1.16	-0.78	-0.61	-0.76	-1.06	-0.61	-0.95	-0.82
2005 Price	5.31	5.30	6.06	6.33	5.60	5.91	6.18	7.63	9.48	10.74	7.98	10.95	**7.29**
Difference	-0.83	-0.81	-0.87	-0.87	-0.89	-1.24	-1.43	-1.57	-4.32	-2.76	-2.35	-2.20	-1.68
2006 Price	7.51	6.52	5.74	5.82	5.11	5.26	5.13	5.88	4.27	5.15	6.77	6.35	**5.79**
Difference	-1.21	-1.12	-1.14	-1.34	-1.17	-0.96	-0.93	-1.36	-0.74	-0.56	-0.54	-0.53	-0.97
2007 Price	5.89	6.77	6.27	6.66	6.62	6.18	5.16	4.77	4.31	**7.15**	**7.72**	**8.39**	**6.32**
Difference	-0.54	-1.26	-0.83	-0.93	-1.02	-1.05	-1.15	-1.17	-1.15	-1.12	-1.22	-1.22	-1.05
2008 Price	**8.72**	**8.71**	**8.48**	**7.53**	**7.41**	**7.49**	**7.58**	**7.65**	**7.69**	**7.79**	**8.04**	**8.52**	**7.97**
Difference	-1.22	-1.22	-1.22	-0.85	-0.85	-0.85	-0.85	-0.85	-0.85	-0.85	-1.06	-1.06	-0.98
2009 Price	**8.79**	**8.77**	**8.52**	**7.35**	**7.22**	**7.30**	**7.38**	**7.45**	**7.50**	**7.60**	**7.87**	**8.31**	**7.84**
Difference	-1.06	-1.06	-1.06	-0.73	-0.73	-0.73	-0.73	-0.73	-0.73	-0.73	-0.91	-0.91	-0.84
2010 Price	**8.53**	**8.52**	**8.27**	**7.16**	**7.03**	**7.11**	**7.19**	**7.25**	**7.29**	**7.39**	**7.66**	**8.09**	**7.62**
Difference	-0.91	-0.91	-0.91	-0.59	-0.59	-0.59	-0.59	-0.59	-0.59	-0.59	-0.75	-0.75	-0.70
2011 Price	**8.31**	**8.30**	**8.06**	**6.98**	**6.86**	**6.94**	**7.02**	**7.08**	**7.12**	**7.21**	**7.58**	**8.02**	**7.46**
Difference	-0.75	-0.75	-0.75	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.55	-0.55	-0.56
2012 Price	**8.24**	**8.23**	**8.00**	**6.80**	**6.68**	**6.76**	**6.84**	**6.89**	**6.94**	**7.05**	**7.39**	**7.81**	**7.30**
Difference	-0.55	-0.55	-0.55	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.55	-0.55	-0.50
2013 Price	**8.21**	**8.20**	**7.97**	**6.76**	**6.65**	**6.72**	**6.80**	**6.86**	**6.90**	**6.99**	**7.33**	**7.74**	**7.26**
Difference	-0.55	-0.55	-0.55	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.55	-0.55	-0.50
2014 Price	**8.16**	**8.15**	**7.93**	**6.72**	**6.61**	**6.68**	**6.76**	**6.82**	**6.86**	**6.95**	**7.29**	**7.69**	**7.22**
Difference	-0.55	-0.55	-0.55	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.55	-0.55	-0.50
2015 Price	**8.11**	**8.10**	**7.88**	**6.69**	**6.57**	**6.64**	**6.72**	**6.78**	**6.82**	**6.91**	**7.24**	**7.65**	**7.18**
Difference	-0.55	-0.55	-0.55	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.55	-0.55	-0.50
2016 Price	**8.07**	**8.06**	**7.83**	**6.65**	**6.53**	**6.60**	**6.68**	**6.74**	**6.78**	**6.87**	**7.20**	**7.60**	**7.13**
Difference	-0.55	-0.55	-0.55	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.55	-0.55	-0.50
2017 Price	**8.44**	**8.43**	**8.20**	**6.95**	**6.84**	**6.91**	**6.99**	**7.05**	**7.09**	**7.18**	**7.54**	**7.96**	**7.46**
Difference	-0.55	-0.55	-0.55	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.55	-0.55	-0.50
2018 Price	**8.65**	**8.64**	**8.40**	**7.13**	**7.01**	**7.08**	**7.16**	**7.22**	**7.27**	**7.36**	**7.72**	**8.15**	**7.65**
Difference	-0.55	-0.55	-0.55	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.55	-0.55	-0.50
2019 Price	**8.68**	**8.66**	**8.43**	**7.15**	**7.03**	**7.11**	**7.19**	**7.25**	**7.29**	**7.39**	**7.75**	**8.18**	**7.68**
Difference	-0.55	-0.55	-0.55	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.55	-0.55	-0.50
2020 Price	**8.95**	**8.94**	**8.70**	**7.38**	**7.26**	**7.33**	**7.42**	**7.48**	**7.52**	**7.62**	**8.00**	**8.44**	**7.92**
Difference	-0.55	-0.55	-0.55	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.55	-0.55	-0.50
2021 Price	**9.14**	**9.13**	**8.88**	**7.53**	**7.41**	**7.49**	**7.57**	**7.63**	**7.68**	**7.78**	**8.17**	**8.62**	**8.08**
Difference	-0.55	-0.55	-0.55	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.55	-0.55	-0.50
2022 Price	**9.47**	**9.46**	**9.21**	**7.81**	**7.68**	**7.76**	**7.85**	**7.92**	**7.96**	**8.07**	**8.47**	**8.94**	**8.38**
Difference	-0.55	-0.55	-0.55	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.55	-0.55	-0.50
2023 Price	**9.86**	**9.84**	**9.58**	**8.13**	**7.99**	**8.08**	**8.17**	**8.24**	**8.28**	**8.39**	**8.81**	**9.30**	**8.72**
Difference	-0.55	-0.55	-0.55	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.55	-0.55	-0.50
2024 Price	**10.25**	**10.23**	**9.96**	**8.45**	**8.31**	**8.40**	**8.49**	**8.56**	**8.61**	**8.73**	**9.16**	**9.67**	**9.07**
Difference	-0.55	-0.55	-0.55	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.55	-0.55	-0.50
2025 Price	**10.51**	**10.49**	**10.21**	**8.67**	**8.52**	**8.61**	**8.71**	**8.78**	**8.83**	**8.95**	**9.40**	**9.92**	**9.30**
Difference	-0.55	-0.55	-0.55	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.48	-0.55	-0.55	-0.50

NOTES:
1/ Jan.'00-Sep'07 monthly actuals are simple averages of mid-range estimate of the low and high prices reported each business day by Gas Daily in their "Daily Price Survey."
2/ Forecasted price levels for Oct.'07 through Dec.'25 are the sum of Henry Hub projected price plus basis swap from NYMEX Clearport(sm).
3/ Source for gas price data: Gas Daily's "Daily Price Survey" for REGION--"Canadian Gas" and LOCATION--"NOVA (AECO-C, NIT)".
Monthly prices are calculated from data reported in Platts Gas Daily--published by the McGraw-Hill Companies, Inc.
From the daily low and high prices reported under the heading "Common," the mid-range, or simple average, of these was calculated for each day.
These daily mid-range values were subsequently averaged over the number of days reported for each respective calendar month to arrive at the monthly historical prices used for each price series.

LONG TERM OUTLOOK for "SPOT" Gas: Rocky Mountains
($/Dth Price, Rockies @ Kern River/Opal Plant)
(US-$/Dth Difference, Rockies Basis Swap to Price at Henry Hub)

YEAR		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YR. AVG.
2000	Price	2.23	2.38	2.57	2.70	3.04	3.77	3.40	3.23	4.06	4.62	5.17	8.12	**3.77**
	Difference	-0.16	-0.28	-0.21	-0.32	-0.48	-0.53	-0.60	-1.15	-0.98	-0.44	-0.25	-0.57	-0.50
2001	Price	7.98	5.57	4.82	4.52	3.31	2.58	2.34	2.48	1.68	1.98	1.97	2.21	**3.45**
	Difference	-0.41	-0.03	-0.34	-0.69	-0.92	-1.17	-0.75	-0.53	-0.53	-0.43	-0.46	-0.16	-0.54
2002	Price	1.99	2.00	2.72	1.86	1.79	1.29	1.29	1.34	1.39	2.03	3.03	3.11	**1.99**
	Difference	-0.30	-0.29	-0.27	-1.55	-1.73	-1.94	-1.71	-1.74	-2.09	-2.08	-1.03	-1.66	-1.37
2003	Price	3.10	4.59	4.45	3.39	4.68	4.84	4.43	4.59	4.32	4.28	4.18	5.37	**4.35**
	Difference	-2.28	-2.85	-1.76	-1.86	-1.10	-1.01	-0.63	-0.38	-0.31	-0.37	-0.24	-0.72	-1.13
2004	Price	5.53	4.84	4.78	5.04	5.38	5.34	5.32	5.03	4.49	5.32	5.86	6.12	**5.25**
	Difference	-0.60	-0.56	-0.60	-0.66	-0.89	-0.95	-0.61	-0.43	-0.60	-1.05	-0.28	-0.50	-0.64
2005	Price	5.47	5.51	6.25	6.48	5.68	5.95	6.44	7.69	9.43	10.69	7.57	10.66	**7.32**
	Difference	-0.67	-0.60	-0.67	-0.73	-0.81	-1.20	-1.17	-1.52	-4.37	-2.81	-2.76	-2.50	-1.65
2006	Price	7.37	6.54	5.73	5.73	5.15	5.34	5.33	6.02	3.70	4.59	4.89	4.87	**5.44**
	Difference	-1.35	-1.10	-1.14	-1.43	-1.13	-0.87	-0.73	-1.22	-1.31	-1.12	-2.43	-2.01	-1.32
2007	Price	5.93	6.35	4.95	4.79	3.94	2.75	3.78	3.16	2.09	**4.04**	**4.67**	**5.83**	**4.36**
	Difference	-0.50	-1.68	-2.15	-2.80	-3.70	-3.86	-3.95	-4.05	-4.11	-4.23	-4.27	-3.78	-3.26
2008	Price	**7.03**	**7.78**	**7.79**	**6.90**	**6.81**	**6.95**	**7.20**	**7.31**	**7.24**	**7.06**	**7.71**	**8.18**	**7.33**
	Difference	-2.91	-2.15	-1.91	-1.48	-1.46	-1.39	-1.23	-1.19	-1.30	-1.57	-1.39	-1.39	-1.62
2009	Price	**8.45**	**8.44**	**8.19**	**7.09**	**6.96**	**7.03**	**7.12**	**7.18**	**7.23**	**7.33**	**7.68**	**8.12**	**7.57**
	Difference	-1.39	-1.39	-1.39	-0.99	-0.99	-0.99	-0.99	-0.99	-0.99	-0.99	-1.10	-1.10	-1.11
2010	Price	**8.34**	**8.33**	**8.08**	**6.86**	**6.73**	**6.81**	**6.89**	**6.95**	**6.99**	**7.09**	**7.32**	**7.75**	**7.35**
	Difference	-1.10	-1.10	-1.10	-0.89	-0.89	-0.89	-0.89	-0.89	-0.89	-0.89	-1.09	-1.09	-0.97
2011	Price	**7.97**	**7.96**	**7.72**	**6.63**	**6.51**	**6.59**	**6.67**	**6.72**	**6.76**	**6.86**	**7.36**	**7.80**	**7.13**
	Difference	-1.09	-1.09	-1.09	-0.83	-0.83	-0.83	-0.83	-0.83	-0.83	-0.83	-0.76	-0.76	-0.88
2012	Price	**7.98**	**7.97**	**7.74**	**6.47**	**6.35**	**6.43**	**6.51**	**6.57**	**6.62**	**6.72**	**7.13**	**7.55**	**7.00**
	Difference	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80
2013	Price	**7.95**	**7.94**	**7.72**	**6.44**	**6.32**	**6.39**	**6.47**	**6.53**	**6.57**	**6.66**	**7.07**	**7.48**	**6.96**
	Difference	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80
2014	Price	**7.90**	**7.89**	**7.67**	**6.40**	**6.28**	**6.36**	**6.43**	**6.49**	**6.53**	**6.62**	**7.03**	**7.44**	**6.92**
	Difference	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80
2015	Price	**7.86**	**7.85**	**7.62**	**6.36**	**6.25**	**6.32**	**6.39**	**6.45**	**6.49**	**6.58**	**6.99**	**7.39**	**6.88**
	Difference	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80
2016	Price	**7.81**	**7.80**	**7.58**	**6.32**	**6.21**	**6.28**	**6.35**	**6.41**	**6.45**	**6.54**	**6.94**	**7.35**	**6.84**
	Difference	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80
2017	Price	**8.18**	**8.17**	**7.94**	**6.63**	**6.51**	**6.58**	**6.66**	**6.72**	**6.76**	**6.86**	**7.28**	**7.70**	**7.17**
	Difference	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80
2018	Price	**8.39**	**8.38**	**8.14**	**6.80**	**6.68**	**6.76**	**6.84**	**6.90**	**6.94**	**7.04**	**7.47**	**7.90**	**7.35**
	Difference	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80
2019	Price	**8.42**	**8.41**	**8.17**	**6.82**	**6.70**	**6.78**	**6.86**	**6.92**	**6.96**	**7.06**	**7.49**	**7.92**	**7.38**
	Difference	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80
2020	Price	**8.69**	**8.68**	**8.44**	**7.05**	**6.93**	**7.01**	**7.09**	**7.15**	**7.20**	**7.30**	**7.74**	**8.19**	**7.62**
	Difference	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80
2020	Price	**8.88**	**8.87**	**8.62**	**7.21**	**7.08**	**7.16**	**7.24**	**7.31**	**7.35**	**7.45**	**7.91**	**8.36**	**7.79**
	Difference	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80
2020	Price	**9.22**	**9.21**	**8.95**	**7.48**	**7.35**	**7.44**	**7.52**	**7.59**	**7.64**	**7.74**	**8.21**	**8.68**	**8.09**
	Difference	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80
2020	Price	**9.60**	**9.59**	**9.32**	**7.80**	**7.67**	**7.75**	**7.84**	**7.91**	**7.96**	**8.07**	**8.56**	**9.04**	**8.42**
	Difference	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80
2020	Price	**9.99**	**9.97**	**9.70**	**8.12**	**7.98**	**8.07**	**8.17**	**8.24**	**8.29**	**8.40**	**8.91**	**9.41**	**8.77**
	Difference	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80
2020	Price	**10.25**	**10.24**	**9.95**	**8.34**	**8.20**	**8.29**	**8.38**	**8.46**	**8.51**	**8.62**	**9.14**	**9.66**	**9.00**
	Difference	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80	-0.80

NOTES:
1/ Jan.'00-Sep'07 monthly actuals are simple averages of mid-range estimate of the low and high prices reported each business day by Gas Daily in their "Daily Price Survey."
2/ Forecasted price levels for Oct.'07 through Dec.'25 are the sum of Henry Hub projected price plus basis swap from NYMEX Clearport(sm).
3/ Source for gas price data: Gas Daily's "Daily Price Survey" for REGION--"Rockies" and LOCATION--"Kern River/Opal Plant".
Monthly prices are calculated from data reported in Platts Gas Daily--published by the McGraw-Hill Companies, Inc.
From the daily low and high prices reported under the heading "Common," the mid-range, or simple average, of these was calculated for each day.
These daily mid-range values were subsequently averaged over the number of days reported for each respective calendar month to arrive at the monthly historical prices used for each price series.

LONG TERM OUTLOOK for "SPOT" Gas: Northern California @ Malin, Oregon
($/Dth Price, @PG&E's Line #400 at Ca./Or. Border)
(US-$/Dth Difference, Malin Basis Swap to Price at Henry Hub)

YEAR	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YR. AVG.
2000 Price	2.38	2.49	2.74	2.90	3.27	4.20	3.95	4.44	5.38	5.31	9.04	19.75	**5.49**
Difference	-0.02	-0.17	-0.04	-0.12	-0.25	-0.10	-0.05	0.06	0.33	0.25	3.61	11.06	1.21
2001 Price	10.18	9.74	7.17	9.20	5.28	3.47	2.90	3.02	1.90	2.19	2.36	2.58	**5.00**
Difference	1.79	4.14	2.01	3.99	1.04	-0.28	-0.19	0.01	-0.31	-0.22	-0.06	0.21	1.01
2002 Price	2.18	2.24	2.24	2.71	2.73	2.62	2.65	2.71	2.71	3.68	3.77	4.34	**2.88**
Difference	-0.12	-0.05	-0.75	-0.70	-0.80	-0.61	-0.35	-0.36	-0.77	-0.44	-0.28	-0.43	-0.47
2003 Price	4.66	5.90	5.93	4.71	5.13	5.08	4.58	4.65	4.43	4.37	4.30	5.38	**4.93**
Difference	-0.72	-1.53	-0.28	-0.55	-0.65	-0.77	-0.48	-0.32	-0.20	-0.29	-0.12	-0.71	-0.55
2004 Price	5.61	4.92	4.90	5.27	5.64	5.52	5.52	5.22	4.62	5.52	5.96	6.19	**5.41**
Difference	-0.52	-0.48	-0.48	-0.43	-0.64	-0.77	-0.41	-0.24	-0.46	-0.85	-0.19	-0.43	-0.49
2005 Price	5.66	5.66	6.44	6.65	5.83	6.07	6.54	7.98	9.75	11.03	8.25	11.55	**7.62**
Difference	-0.48	-0.46	-0.49	-0.55	-0.66	-1.09	-1.06	-1.22	-4.05	-2.46	-2.08	-1.60	-1.35
2006 Price	7.79	6.74	5.92	6.03	5.33	5.58	5.74	6.59	4.75	5.51	7.04	6.87	**6.16**
Difference	-0.93	-0.90	-0.95	-1.13	-0.94	-0.63	-0.32	-0.65	-0.26	-0.20	-0.28	0.00	-0.60
2007 Price	6.45	7.16	6.55	6.96	7.06	6.71	5.90	5.75	4.91	**7.60**	**8.28**	**8.89**	**6.85**
Difference	0.01	-0.86	-0.55	-0.63	-0.57	-0.61	-0.56	-0.54	-0.65	-0.67	-0.66	-0.71	-0.59
2008 Price	**9.17**	**9.16**	**8.93**	**7.91**	**7.79**	**7.86**	**8.08**	**8.15**	**8.19**	**8.18**	**8.54**	**9.01**	**8.41**
Difference	-0.77	-0.77	-0.77	-0.48	-0.48	-0.48	-0.35	-0.35	-0.35	-0.46	-0.57	-0.57	-0.53
2009 Price	**9.28**	**9.26**	**9.01**	**7.76**	**7.63**	**7.71**	**7.79**	**7.85**	**7.90**	**8.00**	**8.31**	**8.75**	**8.27**
Difference	-0.57	-0.57	-0.57	-0.32	-0.32	-0.32	-0.32	-0.32	-0.32	-0.32	-0.46	-0.46	-0.41
2010 Price	**8.98**	**8.97**	**8.71**	**7.42**	**7.30**	**7.37**	**7.46**	**7.52**	**7.56**	**7.66**	**7.95**	**8.38**	**7.94**
Difference	-0.46	-0.46	-0.46	-0.32	-0.32	-0.32	-0.32	-0.32	-0.32	-0.32	-0.46	-0.46	-0.38
2011 Price	**8.60**	**8.59**	**8.35**	**7.13**	**7.01**	**7.09**	**7.17**	**7.23**	**7.27**	**7.36**	**7.66**	**8.10**	**7.63**
Difference	-0.46	-0.46	-0.46	-0.32	-0.32	-0.32	-0.32	-0.32	-0.32	-0.32	-0.46	-0.46	-0.38
2012 Price	**8.32**	**8.31**	**8.08**	**6.95**	**6.83**	**6.91**	**6.99**	**7.05**	**7.10**	**7.20**	**7.48**	**7.89**	**7.43**
Difference	-0.46	-0.46	-0.46	-0.32	-0.32	-0.32	-0.32	-0.32	-0.32	-0.32	-0.46	-0.46	-0.38
2013 Price	**8.29**	**8.28**	**8.06**	**6.92**	**6.80**	**6.88**	**6.95**	**7.01**	**7.05**	**7.14**	**7.41**	**7.82**	**7.38**
Difference	-0.46	-0.46	-0.46	-0.32	-0.32	-0.32	-0.32	-0.32	-0.32	-0.32	-0.46	-0.46	-0.38
2014 Price	**8.24**	**8.23**	**8.01**	**6.88**	**6.77**	**6.84**	**6.91**	**6.97**	**7.01**	**7.10**	**7.37**	**7.78**	**7.34**
Difference	-0.46	-0.46	-0.46	-0.32	-0.32	-0.32	-0.32	-0.32	-0.32	-0.32	-0.46	-0.46	-0.38
2015 Price	**8.20**	**8.19**	**7.96**	**6.84**	**6.73**	**6.80**	**6.87**	**6.93**	**6.97**	**7.06**	**7.33**	**7.73**	**7.30**
Difference	-0.46	-0.46	-0.46	-0.32	-0.32	-0.32	-0.32	-0.32	-0.32	-0.32	-0.46	-0.46	-0.38
2016 Price	**8.15**	**8.14**	**7.92**	**6.80**	**6.69**	**6.76**	**6.83**	**6.89**	**6.93**	**7.02**	**7.29**	**7.69**	**7.26**
Difference	-0.46	-0.46	-0.46	-0.32	-0.32	-0.32	-0.32	-0.32	-0.32	-0.32	-0.46	-0.46	-0.38
2017 Price	**8.52**	**8.51**	**8.28**	**7.11**	**6.99**	**7.06**	**7.14**	**7.20**	**7.24**	**7.34**	**7.62**	**8.04**	**7.59**
Difference	-0.46	-0.46	-0.46	-0.32	-0.32	-0.32	-0.32	-0.32	-0.32	-0.32	-0.46	-0.46	-0.38
2018 Price	**8.73**	**8.72**	**8.48**	**7.28**	**7.16**	**7.24**	**7.32**	**7.38**	**7.42**	**7.52**	**7.81**	**8.24**	**7.77**
Difference	-0.46	-0.46	-0.46	-0.32	-0.32	-0.32	-0.32	-0.32	-0.32	-0.32	-0.46	-0.46	-0.38
2019 Price	**8.76**	**8.75**	**8.51**	**7.30**	**7.19**	**7.26**	**7.34**	**7.40**	**7.44**	**7.54**	**7.83**	**8.27**	**7.80**
Difference	-0.46	-0.46	-0.46	-0.32	-0.32	-0.32	-0.32	-0.32	-0.32	-0.32	-0.46	-0.46	-0.38
2019 Price	**9.04**	**9.02**	**8.78**	**7.53**	**7.41**	**7.49**	**7.57**	**7.63**	**7.68**	**7.78**	**8.08**	**8.53**	**8.04**
Difference	-0.46	-0.46	-0.46	-0.32	-0.32	-0.32	-0.32	-0.32	-0.32	-0.32	-0.46	-0.46	-0.38
2020 Price	**9.22**	**9.21**	**8.96**	**7.69**	**7.56**	**7.64**	**7.73**	**7.79**	**7.83**	**7.93**	**8.25**	**8.70**	**8.21**
Difference	-0.46	-0.46	-0.46	-0.32	-0.32	-0.32	-0.32	-0.32	-0.32	-0.32	-0.46	-0.46	-0.38
2020 Price	**9.56**	**9.55**	**9.29**	**7.97**	**7.84**	**7.92**	**8.01**	**8.07**	**8.12**	**8.22**	**8.55**	**9.02**	**8.51**
Difference	-0.46	-0.46	-0.46	-0.32	-0.32	-0.32	-0.32	-0.32	-0.32	-0.32	-0.46	-0.46	-0.38
2020 Price	**9.94**	**9.93**	**9.66**	**8.28**	**8.15**	**8.23**	**8.32**	**8.39**	**8.44**	**8.55**	**8.90**	**9.38**	**8.85**
Difference	-0.46	-0.46	-0.46	-0.32	-0.32	-0.32	-0.32	-0.32	-0.32	-0.32	-0.46	-0.46	-0.38
2020 Price	**10.33**	**10.32**	**10.04**	**8.60**	**8.46**	**8.55**	**8.65**	**8.72**	**8.77**	**8.88**	**9.25**	**9.75**	**9.19**
Difference	-0.46	-0.46	-0.46	-0.32	-0.32	-0.32	-0.32	-0.32	-0.32	-0.32	-0.46	-0.46	-0.38
2020 Price	**10.59**	**10.58**	**10.30**	**8.82**	**8.68**	**8.77**	**8.86**	**8.94**	**8.99**	**9.10**	**9.48**	**10.00**	**9.43**
Difference	-0.46	-0.46	-0.46	-0.32	-0.32	-0.32	-0.32	-0.32	-0.32	-0.32	-0.46	-0.46	-0.38

NOTES:
1/ Jan.'00-Sep'07 monthly actuals are simple averages of mid-range estimate of the low and high prices reported each business day by Gas Daily in their "Daily Price Survey."
2/ Forecasted price levels for Oct.'07 through Dec.'25 are the sum of Henry Hub projected price plus basis swap from NYMEX Clearport(sm).
3/ Source for gas price data: Gas Daily's "Daily Price Survey" for REGION--"Others" and LOCATION--"Malin".
Monthly prices are calculated from data reported in Platts Gas Daily--published by the McGraw-Hill Companies, Inc.
From the daily low and high prices reported under the heading "Common," the mid-range, or simple average, of these was calculated for each day.
These daily mid-range values were subsequently averaged over the number of days reported for each respective calendar month to arrive at the monthly historical prices used for each price series.

LONG TERM OUTLOOK for "SPOT" Gas: U.S. Gulf Coast/South Louisiana @ Henry Hub, Louisiana
($/Dth Price, @Henry Hub, So. Louisiana)

YEAR		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YR. AVG.
2000	Price	2.39	2.66	2.78	3.02	3.52	4.30	4.00	4.38	5.04	5.06	5.43	8.69	4.27
2001	Price	8.39	5.60	5.16	5.21	4.23	3.75	3.09	3.01	2.21	2.41	2.43	2.37	3.99
2002	Price	2.29	2.29	2.99	3.41	3.52	3.23	3.00	3.08	3.48	4.11	4.05	4.77	3.35
2003	Price	5.38	7.43	6.21	5.25	5.78	5.85	5.06	4.98	4.63	4.66	4.42	6.09	5.48
2004	Price	6.13	5.40	5.38	5.70	6.27	6.29	5.93	5.45	5.08	6.37	6.15	6.62	5.90
2005	Price	6.15	6.11	6.93	7.20	6.49	7.15	7.60	9.20	13.80	13.50	10.33	13.16	8.97
2006	Price	8.72	7.64	6.88	7.16	6.28	6.21	6.06	7.23	5.01	5.71	7.32	6.88	6.76
2007	Price	6.43	8.03	7.10	7.59	7.63	7.42	6.21	6.27	5.43	**8.27**	**8.94**	**9.61**	**7.41**
2008	Price	**9.94**	**9.93**	**9.70**	**8.38**	**8.26**	**8.34**	**8.43**	**8.50**	**8.54**	**8.64**	**9.11**	**9.58**	**8.95**
2009	Price	**9.85**	**9.83**	**9.58**	**8.08**	**7.95**	**8.03**	**8.11**	**8.18**	**8.22**	**8.32**	**8.77**	**9.22**	**8.68**
2010	Price	**9.44**	**9.43**	**9.17**	**7.75**	**7.62**	**7.70**	**7.78**	**7.84**	**7.88**	**7.98**	**8.42**	**8.84**	**8.32**
2011	Price	**9.07**	**9.05**	**8.82**	**7.45**	**7.34**	**7.41**	**7.49**	**7.55**	**7.59**	**7.69**	**8.13**	**8.56**	**8.01**
2012	Price	**8.78**	**8.78**	**8.54**	**7.27**	**7.16**	**7.23**	**7.31**	**7.37**	**7.42**	**7.52**	**7.94**	**8.35**	**7.81**
2013	Price	**8.75**	**8.74**	**8.52**	**7.24**	**7.13**	**7.20**	**7.27**	**7.33**	**7.37**	**7.46**	**7.87**	**8.28**	**7.76**
2014	Price	**8.71**	**8.69**	**8.47**	**7.20**	**7.09**	**7.16**	**7.23**	**7.29**	**7.33**	**7.42**	**7.83**	**8.24**	**7.72**
2015	Price	**8.66**	**8.65**	**8.43**	**7.16**	**7.05**	**7.12**	**7.20**	**7.25**	**7.29**	**7.38**	**7.79**	**8.19**	**7.68**
2016	Price	**8.61**	**8.60**	**8.38**	**7.12**	**7.01**	**7.08**	**7.16**	**7.21**	**7.25**	**7.34**	**7.75**	**8.15**	**7.64**
2017	Price	**8.98**	**8.97**	**8.74**	**7.43**	**7.31**	**7.39**	**7.47**	**7.52**	**7.57**	**7.66**	**8.08**	**8.50**	**7.97**
2018	Price	**9.19**	**9.18**	**8.94**	**7.60**	**7.48**	**7.56**	**7.64**	**7.70**	**7.74**	**7.84**	**8.27**	**8.70**	**8.15**
2019	Price	**9.22**	**9.21**	**8.97**	**7.63**	**7.51**	**7.58**	**7.66**	**7.72**	**7.77**	**7.86**	**8.30**	**8.73**	**8.18**
2020	Price	**9.50**	**9.49**	**9.24**	**7.85**	**7.73**	**7.81**	**7.89**	**7.95**	**8.00**	**8.10**	**8.54**	**8.99**	**8.42**
2021	Price	**9.68**	**9.67**	**9.42**	**8.01**	**7.88**	**7.96**	**8.05**	**8.11**	**8.16**	**8.26**	**8.71**	**9.16**	**8.59**
2022	Price	**10.02**	**10.01**	**9.75**	**8.29**	**8.16**	**8.24**	**8.33**	**8.39**	**8.44**	**8.54**	**9.01**	**9.48**	**8.89**
2023	Price	**10.40**	**10.39**	**10.12**	**8.60**	**8.47**	**8.55**	**8.64**	**8.71**	**8.76**	**8.87**	**9.36**	**9.84**	**9.23**
2024	Price	**10.79**	**10.78**	**10.50**	**8.92**	**8.78**	**8.87**	**8.97**	**9.04**	**9.09**	**9.20**	**9.71**	**10.21**	**9.57**
2025	Price	**11.05**	**11.04**	**10.76**	**9.14**	**9.00**	**9.09**	**9.19**	**9.26**	**9.31**	**9.43**	**9.94**	**10.46**	**9.81**
Assumed Ratios (see 3/ below) of Monthly to Year Average:		1.127	1.126	1.097	0.932	0.918	0.927	0.937	0.944	0.949	0.961	1.014	1.067	1.000

NOTES

1/ Jan.'00-Sep'07 monthly actuals are simple averages of mid-range estimate of the low and high prices reported each business day by Gas Daily in their "Daily Price Survey."

2/ Source for gas price data: Gas Daily's "Daily Price Survey" for REGION--"Louisiana-Onshore South" and LOCATION--"Henry Hub".
Monthly prices are calculated from data reported in Platts Gas Daily--published by the McGraw-Hill Companies, Inc.
From the daily low and high prices reported under the heading "Common," the mid-range, or simple average, of these was calculated for each day.
These daily mid-range values were subsequently averaged over the number of days reported for each respective calendar month to arrive at the monthly historical prices used for each price series.

3/ Monthly factors are estimated as the ratio of the respective month futures prices to annual futures prices for years 2007 and 2011.

LONG TERM OUTLOOK for "SPOT" Gas: Sumas
($/Dth Price, Northwest Pipeline Corporation - Canadian Border @ Sumas
(US-$/Dth Difference, Sumas Basis Swap to Price at Henry Hub)

YEAR	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YR. AVG.
2000 Price	2.26	2.36	2.58	2.71	3.03	3.70	3.39	3.18	4.54	4.75	9.02	17.49	4.92
Difference	-0.13	-0.30	-0.20	-0.31	-0.49	-0.60	-0.61	-1.20	-0.51	-0.31	3.59	8.80	0.64
2001 Price	7.98	6.03	5.16	5.27	4.10	3.17	2.31	2.50	1.68	2.08	2.26	2.44	3.75
Difference	-0.41	0.44	0.00	0.06	-0.13	-0.58	-0.78	-0.51	-0.53	-0.33	-0.17	0.07	-0.24
2002 Price	2.06	2.07	2.88	2.96	2.73	2.07	1.38	2.09	2.76	3.43	3.62	4.18	2.69
Difference	-0.23	-0.22	-0.11	-0.45	-0.79	-1.16	-1.61	-0.99	-0.72	-0.68	-0.44	-0.60	-0.67
2003 Price	4.53	5.79	5.73	4.49	4.79	4.78	4.33	4.39	4.22	4.19	4.19	5.27	4.73
Difference	-0.85	-1.64	-0.48	-0.76	-0.99	-1.08	-0.73	-0.58	-0.41	-0.47	-0.23	-0.82	-0.75
2004 Price	5.55	4.78	4.68	4.94	5.29	5.17	5.22	4.98	4.46	5.27	5.87	6.09	5.19
Difference	-0.58	-0.62	-0.70	-0.76	-0.98	-1.12	-0.71	-0.47	-0.62	-1.10	-0.28	-0.53	-0.71
2005 Price	5.64	5.51	6.20	6.45	5.64	5.87	6.26	7.58	9.44	10.73	8.39	11.61	7.44
Difference	-0.50	-0.61	-0.73	-0.75	-0.85	-1.29	-1.34	-1.63	-4.37	-2.77	-1.93	-1.55	-1.53
2006 Price	7.73	6.80	5.87	5.83	5.16	5.33	5.37	6.12	4.63	5.40	7.27	7.07	6.05
Difference	-0.99	-0.85	-1.01	-1.32	-1.11	-0.88	-0.68	-1.11	-0.38	-0.32	-0.04	0.19	-0.71
2007 Price	6.56	7.18	6.53	6.81	6.85	6.40	5.56	5.38	4.81	7.38	8.41	9.08	6.75
Difference	0.13	-0.84	-0.57	-0.78	-0.78	-0.90	-0.95	-0.92	-0.92	-0.89	-0.53	-0.53	-0.71
2008 Price	9.42	9.40	9.17	7.73	7.61	7.68	7.77	7.84	7.88	7.98	8.58	9.05	8.34
Difference	-0.53	-0.53	-0.53	-0.66	-0.66	-0.66	-0.66	-0.66	-0.66	-0.66	-0.53	-0.53	-0.60
2009 Price	9.32	9.30	9.05	7.42	7.29	7.37	7.45	7.52	7.57	7.67	8.25	8.69	8.08
Difference	-0.53	-0.53	-0.53	-0.66	-0.66	-0.66	-0.66	-0.66	-0.66	-0.66	-0.53	-0.53	-0.60
2010 Price	8.91	8.90	8.65	7.09	6.96	7.04	7.12	7.18	7.22	7.32	7.89	8.32	7.72
Difference	-0.53	-0.53	-0.53	-0.66	-0.66	-0.66	-0.66	-0.66	-0.66	-0.66	-0.53	-0.53	-0.60
2011 Price	8.54	8.53	8.29	6.80	6.68	6.76	6.84	6.89	6.93	7.03	7.60	8.04	7.41
Difference	-0.53	-0.53	-0.53	-0.66	-0.66	-0.66	-0.66	-0.66	-0.66	-0.66	-0.53	-0.53	-0.60
2012 Price	8.25	8.25	8.02	6.62	6.50	6.58	6.66	6.71	6.76	6.86	7.41	7.83	7.20
Difference	-0.53	-0.53	-0.53	-0.66	-0.66	-0.66	-0.66	-0.66	-0.66	-0.66	-0.53	-0.53	-0.60
2013 Price	8.23	8.21	7.99	6.58	6.47	6.54	6.62	6.67	6.71	6.81	7.35	7.76	7.16
Difference	-0.53	-0.53	-0.53	-0.66	-0.66	-0.66	-0.66	-0.66	-0.66	-0.66	-0.53	-0.53	-0.60
2014 Price	8.18	8.17	7.94	6.54	6.43	6.50	6.58	6.63	6.68	6.77	7.30	7.71	7.12
Difference	-0.53	-0.53	-0.53	-0.66	-0.66	-0.66	-0.66	-0.66	-0.66	-0.66	-0.53	-0.53	-0.60
2015 Price	8.13	8.12	7.90	6.50	6.39	6.46	6.54	6.59	6.64	6.73	7.26	7.67	7.08
Difference	-0.53	-0.53	-0.53	-0.66	-0.66	-0.66	-0.66	-0.66	-0.66	-0.66	-0.53	-0.53	-0.60
2016 Price	8.08	8.07	7.85	6.46	6.35	6.42	6.50	6.56	6.60	6.69	7.22	7.62	7.04
Difference	-0.53	-0.53	-0.53	-0.66	-0.66	-0.66	-0.66	-0.66	-0.66	-0.66	-0.53	-0.53	-0.60
2017 Price	8.46	8.44	8.21	6.77	6.66	6.73	6.81	6.87	6.91	7.00	7.55	7.97	7.37
Difference	-0.53	-0.53	-0.53	-0.66	-0.66	-0.66	-0.66	-0.66	-0.66	-0.66	-0.53	-0.53	-0.60
2018 Price	8.66	8.65	8.42	6.94	6.83	6.90	6.98	7.04	7.08	7.18	7.74	8.17	7.55
Difference	-0.53	-0.53	-0.53	-0.66	-0.66	-0.66	-0.66	-0.66	-0.66	-0.66	-0.53	-0.53	-0.60
2019 Price	8.69	8.68	8.45	6.97	6.85	6.92	7.01	7.07	7.11	7.21	7.77	8.20	7.58
Difference	-0.53	-0.53	-0.53	-0.66	-0.66	-0.66	-0.66	-0.66	-0.66	-0.66	-0.53	-0.53	-0.60
2020 Price	8.97	8.96	8.71	7.20	7.07	7.15	7.24	7.30	7.34	7.44	8.02	8.46	7.82
Difference	-0.53	-0.53	-0.53	-0.66	-0.66	-0.66	-0.66	-0.66	-0.66	-0.66	-0.53	-0.53	-0.60
2021 Price	9.16	9.14	8.90	7.35	7.23	7.30	7.39	7.45	7.50	7.60	8.18	8.64	7.99
Difference	-0.53	-0.53	-0.53	-0.66	-0.66	-0.66	-0.66	-0.66	-0.66	-0.66	-0.53	-0.53	-0.60
2022 Price	9.49	9.48	9.22	7.63	7.50	7.58	7.67	7.73	7.78	7.89	8.49	8.96	8.29
Difference	-0.53	-0.53	-0.53	-0.66	-0.66	-0.66	-0.66	-0.66	-0.66	-0.66	-0.53	-0.53	-0.60
2023 Price	9.87	9.86	9.59	7.94	7.81	7.89	7.99	8.05	8.10	8.21	8.83	9.32	8.62
Difference	-0.53	-0.53	-0.53	-0.66	-0.66	-0.66	-0.66	-0.66	-0.66	-0.66	-0.53	-0.53	-0.60
2024 Price	10.26	10.25	9.97	8.27	8.13	8.22	8.31	8.38	8.43	8.54	9.18	9.68	8.97
Difference	-0.53	-0.53	-0.53	-0.66	-0.66	-0.66	-0.66	-0.66	-0.66	-0.66	-0.53	-0.53	-0.60
2025 Price	10.53	10.51	10.23	8.48	8.34	8.43	8.53	8.60	8.65	8.77	9.42	9.93	9.20
Difference	-0.53	-0.53	-0.53	-0.66	-0.66	-0.66	-0.66	-0.66	-0.66	-0.66	-0.53	-0.53	-0.60

NOTES:

1/ Jan.'00-Sep'07 monthly actuals are simple averages of mid-range estimate of the low and high prices reported each business day by Gas Daily in their "Daily Price Survey."

2/ Forecasted price levels for Oct.'07 through Dec.'25 are the sum of Henry Hub projected price plus basis swap from NYMEX Clearport(sm).

3/ Source for gas price data: Gas Daily's "Daily Price Survey" for REGION--"Others" and LOCATION--"Northwest, Can. Bdr. (Sumas)."
Monthly prices are calculated from data reported in Platts Gas Daily--published by the McGraw-Hill Companies, Inc.
From the daily low and high prices reported under the heading "Common," the mid-range, or simple average, of these was calculated for each day.
These daily mid-range values were subsequently averaged over the number of days reported for each respective calendar month to arrive at the monthly historical prices used for each price series.

LONG TERM OUTLOOK for "SPOT" Gas: Stanfield
($/Dth Price, Interconnect between Northwest and PG&E GT-NW @ Stanfield, OR.
(US-$/Dth Difference, Stanfield Basis to Henry Hub)

YEAR		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YR. AVG.
2000	Price	2.27	2.39	2.62	2.80	3.14	3.83	3.46	3.36	4.66	4.88	9.16	18.04	**5.05**
	Difference	-0.12	-0.27	-0.16	-0.22	-0.38	-0.47	-0.54	-1.02	-0.38	-0.18	3.74	9.35	0.78
2001	Price	8.29	6.10	5.18	5.33	4.21	3.30	2.49	2.62	1.77	2.14	2.27	2.48	**3.85**
	Difference	-0.11	0.50	0.02	0.12	-0.03	-0.45	-0.61	-0.39	-0.44	-0.28	-0.16	0.11	-0.14
2002	Price	2.08	2.11	2.90	3.01	2.87	2.28	1.56	2.19	2.88	3.56	3.67	4.22	**2.78**
	Difference	-0.21	-0.18	-0.09	-0.40	-0.65	-0.95	-1.43	-0.88	-0.60	-0.55	-0.39	-0.55	-0.57
2003	Price	4.61	5.86	5.86	4.70	5.04	5.01	4.49	4.55	4.35	4.30	4.24	5.30	**4.86**
	Difference	-0.77	-1.57	-0.35	-0.55	-0.74	-0.84	-0.57	-0.42	-0.28	-0.36	-0.18	-0.79	-0.62
2004	Price	5.54	4.84	4.82	5.11	5.51	5.33	5.37	5.09	4.53	5.37	5.88	6.10	**5.29**
	Difference	-0.59	-0.56	-0.56	-0.59	-0.76	-0.96	-0.56	-0.37	-0.55	-1.00	-0.27	-0.52	-0.61
2005	Price	5.60	5.57	6.33	6.39	5.77	6.01	6.42	7.87	9.36	10.49	8.19	11.47	**7.46**
	Difference	-0.55	-0.54	-0.59	-0.81	-0.72	-1.14	-1.18	-1.33	-4.45	-3.01	-2.13	-1.68	-1.51
2006	Price	7.72	6.52	5.88	5.97	5.25	5.46	5.47	6.24	4.37	5.37	6.98	6.83	**6.01**
	Difference	-1.00	-1.13	-0.99	-1.18	-1.02	-0.75	-0.58	-0.99	-0.64	-0.35	-0.34	-0.04	-0.75
2007	Price	6.25	7.08	6.48	6.88	6.92	6.55	5.70	5.47	5.04	**7.45**	**8.13**	**8.74**	**6.72**
	Difference	-0.19	-0.95	-0.62	-0.71	-0.71	-0.87	-0.51	-0.80	-0.39	-0.82	-0.82	-0.87	-0.69
2008	Price	**9.02**	**9.01**	**8.78**	**7.75**	**7.63**	**7.71**	**7.93**	**8.00**	**8.04**	**8.03**	**8.38**	**8.86**	**8.26**
	Difference	-0.92	-0.92	-0.92	-0.63	-0.63	-0.63	-0.50	-0.50	-0.50	-0.61	-0.72	-0.72	-0.68
2009	Price	**9.13**	**9.11**	**8.86**	**7.61**	**7.48**	**7.55**	**7.64**	**7.70**	**7.75**	**7.85**	**8.16**	**8.60**	**8.12**
	Difference	-0.72	-0.72	-0.72	-0.47	-0.47	-0.47	-0.47	-0.47	-0.47	-0.47	-0.61	-0.61	-0.56
2010	Price	**8.83**	**8.82**	**8.56**	**7.27**	**7.15**	**7.22**	**7.30**	**7.36**	**7.41**	**7.50**	**7.80**	**8.23**	**7.79**
	Difference	-0.61	-0.61	-0.61	-0.47	-0.47	-0.47	-0.47	-0.47	-0.47	-0.47	-0.61	-0.61	-0.53
2011	Price	**8.45**	**8.44**	**8.20**	**6.98**	**6.86**	**6.94**	**7.02**	**7.08**	**7.12**	**7.21**	**7.51**	**7.95**	**7.48**
	Difference	-0.61	-0.61	-0.61	-0.47	-0.47	-0.47	-0.47	-0.47	-0.47	-0.47	-0.61	-0.61	-0.53
2012	Price	**8.17**	**8.16**	**7.93**	**6.80**	**6.68**	**6.76**	**6.84**	**6.90**	**6.95**	**7.05**	**7.32**	**7.74**	**7.28**
	Difference	-0.61	-0.61	-0.61	-0.47	-0.47	-0.47	-0.47	-0.47	-0.47	-0.47	-0.61	-0.61	-0.53
2013	Price	**8.14**	**8.13**	**7.91**	**6.77**	**6.65**	**6.72**	**6.80**	**6.86**	**6.90**	**6.99**	**7.26**	**7.67**	**7.23**
	Difference	-0.61	-0.61	-0.61	-0.47	-0.47	-0.47	-0.47	-0.47	-0.47	-0.47	-0.61	-0.61	-0.53
2014	Price	**8.09**	**8.08**	**7.86**	**6.73**	**6.61**	**6.69**	**6.76**	**6.82**	**6.86**	**6.95**	**7.22**	**7.63**	**7.19**
	Difference	-0.61	-0.61	-0.61	-0.47	-0.47	-0.47	-0.47	-0.47	-0.47	-0.47	-0.61	-0.61	-0.53
2015	Price	**8.05**	**8.04**	**7.81**	**6.69**	**6.58**	**6.65**	**6.72**	**6.78**	**6.82**	**6.91**	**7.18**	**7.58**	**7.15**
	Difference	-0.61	-0.61	-0.61	-0.47	-0.47	-0.47	-0.47	-0.47	-0.47	-0.47	-0.61	-0.61	-0.53
2016	Price	**8.00**	**7.99**	**7.77**	**6.65**	**6.54**	**6.61**	**6.68**	**6.74**	**6.78**	**6.87**	**7.13**	**7.54**	**7.11**
	Difference	-0.61	-0.61	-0.61	-0.47	-0.47	-0.47	-0.47	-0.47	-0.47	-0.47	-0.61	-0.61	-0.53
2017	Price	**8.37**	**8.36**	**8.13**	**6.96**	**6.84**	**6.91**	**6.99**	**7.05**	**7.09**	**7.19**	**7.47**	**7.89**	**7.44**
	Difference	-0.61	-0.61	-0.61	-0.47	-0.47	-0.47	-0.47	-0.47	-0.47	-0.47	-0.61	-0.61	-0.53
2018	Price	**8.58**	**8.57**	**8.33**	**7.13**	**7.01**	**7.08**	**7.17**	**7.23**	**7.27**	**7.36**	**7.66**	**8.09**	**7.62**
	Difference	-0.61	-0.61	-0.61	-0.47	-0.47	-0.47	-0.47	-0.47	-0.47	-0.47	-0.61	-0.61	-0.53
2019	Price	**8.61**	**8.60**	**8.36**	**7.15**	**7.03**	**7.11**	**7.19**	**7.25**	**7.29**	**7.39**	**7.68**	**8.11**	**7.65**
	Difference	-0.61	-0.61	-0.61	-0.47	-0.47	-0.47	-0.47	-0.47	-0.47	-0.47	-0.61	-0.61	-0.53
2020	Price	**8.88**	**8.87**	**8.63**	**7.38**	**7.26**	**7.34**	**7.42**	**7.48**	**7.53**	**7.63**	**7.93**	**8.38**	**7.89**
	Difference	-0.61	-0.61	-0.61	-0.47	-0.47	-0.47	-0.47	-0.47	-0.47	-0.47	-0.61	-0.61	-0.53
2021	Price	**9.07**	**9.06**	**8.81**	**7.54**	**7.41**	**7.49**	**7.57**	**7.64**	**7.68**	**7.78**	**8.10**	**8.55**	**8.06**
	Difference	-0.61	-0.61	-0.61	-0.47	-0.47	-0.47	-0.47	-0.47	-0.47	-0.47	-0.61	-0.61	-0.53
2022	Price	**9.41**	**9.39**	**9.14**	**7.81**	**7.68**	**7.77**	**7.85**	**7.92**	**7.97**	**8.07**	**8.40**	**8.87**	**8.36**
	Difference	-0.61	-0.61	-0.61	-0.47	-0.47	-0.47	-0.47	-0.47	-0.47	-0.47	-0.61	-0.61	-0.53
2023	Price	**9.79**	**9.78**	**9.51**	**8.13**	**7.99**	**8.08**	**8.17**	**8.24**	**8.29**	**8.40**	**8.74**	**9.23**	**8.70**
	Difference	-0.61	-0.61	-0.61	-0.47	-0.47	-0.47	-0.47	-0.47	-0.47	-0.47	-0.61	-0.61	-0.53
2024	Price	**10.18**	**10.16**	**9.89**	**8.45**	**8.31**	**8.40**	**8.49**	**8.56**	**8.62**	**8.73**	**9.10**	**9.60**	**9.04**
	Difference	-0.61	-0.61	-0.61	-0.47	-0.47	-0.47	-0.47	-0.47	-0.47	-0.47	-0.61	-0.61	-0.53
2025	Price	**10.44**	**10.43**	**10.14**	**8.67**	**8.53**	**8.62**	**8.71**	**8.78**	**8.84**	**8.95**	**9.33**	**9.85**	**9.27**
	Difference	-0.61	-0.61	-0.61	-0.47	-0.47	-0.47	-0.47	-0.47	-0.47	-0.47	-0.61	-0.61	-0.53

NOTES:
1/ Jan.'00-Sep'07 monthly actuals are simple averages of mid-range estimate of the low and high prices reported each business day by Gas Daily in their "Daily Price Survey."
2/ Forecasted price levels for Oct.'07 through Dec.'25 are the sum of Henry Hub projected price plus basis swap from NYMEX Clearport(sm). -$0.15
3/ Source for gas price data: Gas Daily's "Daily Price Survey" for REGION--"Others" and LOCATION--"Stanfield, OR"
Monthly prices are calculated from data reported in Platts Gas Daily--published by the McGraw-Hill Companies, Inc.
From the daily low and high prices reported under the heading "Common," the mid-range, or simple average, of these was calculated for each day.
These daily mid-range values were subsequently averaged over the number of days reported for each respective calendar month to arrive at the monthly historical prices used for each price series.

LONG TERM OUTLOOK for "SPOT" Gas: Southern California Gas
($/Dth Price @ California Border Spot Price)
($/Dth Difference, SoCal Border Basis to Price at Henry Hub

YEAR		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YR. AVG.
2000	Price	2.42	2.62	2.85	3.03	3.60	4.68	4.64	5.25	6.06	5.62	9.49	25.71	6.33
	Difference	0.03	-0.04	0.07	0.01	0.08	0.38	0.64	0.87	1.02	0.56	4.06	17.02	2.06
2001	Price	12.67	19.11	14.30	13.83	12.00	6.65	4.37	3.27	2.11	2.35	2.38	2.58	7.97
	Difference	4.28	13.51	9.14	8.62	7.77	2.89	1.28	0.26	-0.10	-0.07	-0.05	0.21	3.98
2002	Price	2.21	2.25	2.99	3.24	3.12	3.05	3.03	2.84	3.23	3.73	3.87	4.45	3.17
	Difference	-0.08	-0.04	0.00	-0.17	-0.40	-0.18	0.03	-0.23	-0.25	-0.39	-0.18	-0.32	-0.18
2003	Price	4.76	5.96	6.07	4.96	5.35	5.42	4.99	4.90	4.56	4.57	4.38	5.58	5.13
	Difference	-0.62	-1.48	-0.15	-0.29	-0.42	-0.43	-0.07	-0.07	-0.07	-0.08	-0.04	-0.51	-0.35
2004	Price	5.66	5.02	5.02	5.43	5.95	5.83	5.75	5.38	4.76	5.62	6.16	6.40	5.58
	Difference	-0.47	-0.38	-0.36	-0.27	-0.32	-0.47	-0.18	-0.08	-0.33	-0.75	0.01	-0.22	-0.32
2005	Price	5.71	5.73	6.50	6.72	5.92	6.17	6.75	8.01	9.72	11.04	7.87	11.57	7.64
	Difference	-0.44	-0.38	-0.43	-0.49	-0.57	-0.99	-0.86	-1.19	-4.08	-2.46	-2.46	-1.59	-1.33
2006	Price	7.71	6.82	5.92	6.07	5.41	5.79	5.97	6.75	4.80	5.47	6.44	6.85	6.17
	Difference	-1.01	-0.83	-0.95	-1.09	-0.86	-0.42	-0.09	-0.48	-0.21	-0.24	-0.87	-0.03	-0.59
2007	Price	6.45	7.19	6.23	6.99	7.18	6.88	6.01	5.82	5.00	7.50	7.99	8.75	6.83
	Difference	0.02	-0.83	-0.87	-0.60	-0.46	-0.48	-0.39	-0.37	-0.58	-0.77	-0.95	-0.86	-0.59
2008	Price	9.09	9.08	8.92	7.86	7.76	7.90	8.13	8.26	8.23	8.05	8.42	8.89	8.38
	Difference	-0.86	-0.85	-0.79	-0.52	-0.51	-0.44	-0.30	-0.24	-0.31	-0.59	-0.69	-0.69	-0.56
2009	Price	9.16	9.14	8.89	7.77	7.64	7.72	7.80	7.87	7.91	8.01	8.25	8.69	8.24
	Difference	-0.69	-0.69	-0.69	-0.31	-0.31	-0.31	-0.31	-0.31	-0.31	-0.31	-0.52	-0.52	-0.44
2010	Price	8.92	8.90	8.65	7.46	7.33	7.41	7.49	7.55	7.59	7.69	7.94	8.36	7.94
	Difference	-0.52	-0.52	-0.52	-0.29	-0.29	-0.29	-0.29	-0.29	-0.29	-0.29	-0.48	-0.48	-0.38
2011	Price	8.59	8.57	8.34	7.18	7.06	7.14	7.22	7.28	7.32	7.41	7.92	8.36	7.70
	Difference	-0.48	-0.48	-0.48	-0.28	-0.28	-0.28	-0.28	-0.28	-0.28	-0.28	-0.21	-0.21	-0.31
2012	Price	8.53	8.52	8.29	7.02	6.90	6.98	7.06	7.12	7.17	7.27	7.68	8.10	7.55
	Difference	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25
2013	Price	8.50	8.49	8.26	6.99	6.87	6.94	7.02	7.08	7.12	7.21	7.62	8.03	7.51
	Difference	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25
2014	Price	8.45	8.44	8.22	6.95	6.83	6.90	6.98	7.04	7.08	7.17	7.58	7.99	7.47
	Difference	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25
2015	Price	8.41	8.39	8.17	6.91	6.80	6.87	6.94	7.00	7.04	7.13	7.54	7.94	7.43
	Difference	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25
2016	Price	8.36	8.35	8.13	6.87	6.76	6.83	6.90	6.96	7.00	7.09	7.49	7.90	7.39
	Difference	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25
2017	Price	8.73	8.72	8.49	7.18	7.06	7.13	7.21	7.27	7.31	7.41	7.83	8.25	7.72
	Difference	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25
2018	Price	8.94	8.93	8.69	7.35	7.23	7.30	7.39	7.45	7.49	7.58	8.02	8.45	7.90
	Difference	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25
2019	Price	8.97	8.96	8.72	7.37	7.25	7.33	7.41	7.47	7.51	7.61	8.04	8.47	7.93
	Difference	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25
2020	Price	9.24	9.23	8.99	7.60	7.48	7.56	7.64	7.70	7.75	7.84	8.29	8.73	8.17
	Difference	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25
2021	Price	9.43	9.42	9.17	7.76	7.63	7.71	7.79	7.86	7.90	8.00	8.46	8.91	8.34
	Difference	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25
2022	Price	9.77	9.75	9.50	8.03	7.90	7.99	8.07	8.14	8.19	8.29	8.76	9.23	8.64
	Difference	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25
2023	Price	10.15	10.13	9.87	8.35	8.21	8.30	8.39	8.46	8.51	8.62	9.10	9.59	8.97
	Difference	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25
2024	Price	10.54	10.52	10.25	8.67	8.53	8.62	8.71	8.78	8.84	8.95	9.45	9.96	9.32
	Difference	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25
2025	Price	10.80	10.79	10.50	8.89	8.75	8.84	8.93	9.00	9.06	9.17	9.69	10.21	9.55
	Difference	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25	-0.25

NOTES:
1/ Jan.'00-Sep'07 monthly actuals are simple averages of mid-range estimate of the low and high prices reported each business day by Gas Daily in their "Daily Price Survey."
2/ Forecasted price levels for Oct.'07 through Dec.'25 are the sum of Henry Hub projected price plus basis swap from NYMEX Clearport(sm).
3/ Source for gas price data: Gas Daily's "Daily Price Survey" for REGION--"Others" and LOCATION--"SoCal gas, large pkgs".
Monthly prices are calculated from data reported in Platts Gas Daily--published by the McGraw-Hill Companies, Inc. From the daily low and high prices und the heading "Common," the mid-range, or simple average, of these was calculated for each day. These daily mid-range values were subsequently averaged over the number of days reported for each respective calendar month to arrive at the monthly historical prices used for each price series.

Commodity Price of San Juan Basin via EPNG Dlvd. to Ca/Az
($/Dth @ Ca/Az Border)

YEAR	Supply Component	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YR. AVG.
2000	SJB to Ca/Az via EPNG	2.37	2.54	2.77	2.89	3.31	4.18	3.83	3.62	4.43	4.86	5.45	8.53	4.06
	M/L Fuel + Commodity Transp.	0.12	0.12	0.13	0.14	0.15	0.19	0.17	0.17	0.20	0.21	0.24	0.36	0.18
2001	SJB to Ca/Az via EPNG	8.42	5.78	5.07	4.81	3.65	2.79	2.58	2.73	1.87	2.19	2.23	2.37	3.71
	M/L Fuel + Commodity Transp.	0.32	0.23	0.20	0.19	0.15	0.12	0.11	0.12	0.09	0.10	0.10	0.11	0.15
2002	SJB to Ca/Az via EPNG	2.18	2.23	2.94	2.68	2.53	2.48	2.63	2.54	2.54	3.12	3.52	4.30	2.81
	M/L Fuel + Commodity Transp.	0.10	0.10	0.13	0.12	0.11	0.11	0.12	0.11	0.11	0.13	0.15	0.17	0.12
2003	SJB to Ca/Az via EPNG	4.65	5.49	5.29	3.91	4.70	5.14	4.72	4.77	4.40	4.46	4.32	5.58	4.79
	M/L Fuel + Commodity Transp.	0.17	0.20	0.19	0.15	0.17	0.19	0.17	0.18	0.16	0.17	0.16	0.20	0.18
2004	SJB to Ca/Az via EPNG	5.64	5.03	4.94	5.31	5.62	5.66	5.52	5.20	4.61	5.42	5.98	6.30	5.44
	M/L Fuel + Commodity Transp.	0.20	0.18	0.17	0.19	0.20	0.20	0.19	0.18	0.16	0.19	0.21	0.22	0.19
2005	SJB to Ca/Az via EPNG	5.66	5.70	6.40	6.59	5.78	6.02	6.56	7.89	9.56	10.85	7.77	11.42	7.52
	M/L Fuel + Commodity Transp.	0.20	0.20	0.23	0.23	0.21	0.21	0.23	0.28	0.33	0.37	0.27	0.39	0.26
2006	SJB to Ca/Az via EPNG	7.53	6.72	5.86	5.98	5.29	5.62	5.70	6.58	4.57	5.24	6.30	6.56	6.00
	M/L Fuel + Commodity Transp.	0.20	0.18	0.16	0.16	0.15	0.16	0.16	0.18	0.13	0.15	0.17	0.18	0.17
2007	SJB to Ca/Az via EPNG	6.37	7.10	6.05	6.90	6.89	6.75	5.65	5.73	4.72	7.33	7.93	8.67	6.67
	M/L Fuel + Commodity Transp.	0.17	0.19	0.17	0.19	0.19	0.18	0.16	0.16	0.13	0.20	0.21	0.23	0.18
2008	SJB to Ca/Az via EPNG	9.02	9.02	8.85	7.73	7.61	7.69	7.98	8.05	8.09	7.99	8.37	8.86	8.27
	M/L Fuel + Commodity Transp.	0.24	0.24	0.24	0.21	0.20	0.21	0.21	0.22	0.22	0.21	0.22	0.24	0.22
2009	SJB to Ca/Az via EPNG	9.13	9.12	8.86	7.69	7.55	7.63	7.72	7.79	7.83	7.94	8.20	8.65	8.18
	M/L Fuel + Commodity Transp.	0.24	0.24	0.24	0.21	0.20	0.21	0.21	0.21	0.21	0.21	0.22	0.23	0.22
2010	SJB to Ca/Az via EPNG	8.88	8.87	8.61	7.32	7.19	7.27	7.35	7.41	7.46	7.56	7.91	8.35	7.85
	M/L Fuel + Commodity Transp.	0.24	0.24	0.23	0.20	0.19	0.20	0.20	0.20	0.20	0.20	0.21	0.22	0.21
2011	SJB to Ca/Az via EPNG	8.58	8.57	8.32	7.02	6.90	6.98	7.06	7.12	7.16	7.26	7.62	8.07	7.55
	M/L Fuel + Commodity Transp.	0.23	0.23	0.22	0.19	0.19	0.19	0.19	0.19	0.19	0.20	0.20	0.22	0.20
2012	SJB to Ca/Az via EPNG	8.29	8.28	8.04	6.83	6.71	6.79	6.88	6.93	6.98	7.09	7.42	7.85	7.34
	M/L Fuel + Commodity Transp.	0.22	0.22	0.22	0.19	0.18	0.18	0.19	0.19	0.19	0.19	0.20	0.21	0.20
2013	SJB to Ca/Az via EPNG	8.26	8.25	8.02	6.80	6.68	6.76	6.83	6.89	6.94	7.03	7.36	7.78	7.30
	M/L Fuel + Commodity Transp.	0.22	0.22	0.21	0.18	0.18	0.18	0.19	0.19	0.19	0.19	0.20	0.21	0.20
2014	SJB to Ca/Az via EPNG	8.21	8.20	7.97	6.76	6.64	6.72	6.79	6.85	6.89	6.99	7.32	7.73	7.26
	M/L Fuel + Commodity Transp.	0.22	0.22	0.21	0.18	0.18	0.18	0.18	0.19	0.19	0.19	0.20	0.21	0.20
2015	SJB to Ca/Az via EPNG	8.16	8.15	7.93	6.72	6.60	6.68	6.75	6.81	6.85	6.95	7.27	7.69	7.21
	M/L Fuel + Commodity Transp.	0.22	0.22	0.21	0.18	0.18	0.18	0.18	0.19	0.19	0.19	0.20	0.21	0.20
2016	SJB to Ca/Az via EPNG	8.12	8.10	7.88	6.68	6.56	6.64	6.71	6.77	6.81	6.90	7.23	7.64	7.17
	M/L Fuel + Commodity Transp.	0.22	0.22	0.21	0.18	0.18	0.18	0.18	0.18	0.19	0.19	0.20	0.21	0.19
2017	SJB to Ca/Az via EPNG	8.50	8.49	8.25	6.99	6.87	6.95	7.03	7.09	7.13	7.23	7.57	8.00	7.51
	M/L Fuel + Commodity Transp.	0.23	0.23	0.22	0.19	0.19	0.19	0.19	0.19	0.19	0.20	0.20	0.21	0.20
2018	SJB to Ca/Az via EPNG	8.71	8.70	8.46	7.17	7.05	7.13	7.21	7.27	7.31	7.41	7.76	8.21	7.70
	M/L Fuel + Commodity Transp.	0.23	0.23	0.23	0.19	0.19	0.19	0.19	0.20	0.20	0.20	0.21	0.22	0.21
2019	SJB to Ca/Az via EPNG	8.74	8.73	8.49	7.20	7.07	7.15	7.23	7.30	7.34	7.44	7.79	8.23	7.73
	M/L Fuel + Commodity Transp.	0.23	0.23	0.23	0.19	0.19	0.19	0.20	0.20	0.20	0.20	0.21	0.22	0.21
2020	SJB to Ca/Az via EPNG	9.02	9.01	8.76	7.43	7.30	7.38	7.47	7.53	7.58	7.68	8.05	8.50	7.98
	M/L Fuel + Commodity Transp.	0.24	0.24	0.23	0.20	0.20	0.20	0.20	0.20	0.20	0.21	0.22	0.23	0.21
2021	SJB to Ca/Az via EPNG	9.21	9.20	8.95	7.59	7.46	7.54	7.63	7.69	7.74	7.84	8.22	8.68	8.15
	M/L Fuel + Commodity Transp.	0.24	0.24	0.24	0.20	0.20	0.20	0.21	0.21	0.21	0.21	0.22	0.23	0.22
2022	SJB to Ca/Az via EPNG	9.56	9.55	9.28	7.87	7.74	7.82	7.91	7.98	8.03	8.14	8.53	9.01	8.45
	M/L Fuel + Commodity Transp.	0.25	0.25	0.25	0.21	0.21	0.21	0.21	0.21	0.22	0.22	0.23	0.24	0.23
2023	SJB to Ca/Az via EPNG	9.95	9.94	9.66	8.20	8.06	8.14	8.24	8.31	8.36	8.47	8.88	9.38	8.80
	M/L Fuel + Commodity Transp.	0.26	0.26	0.26	0.22	0.22	0.22	0.22	0.22	0.22	0.23	0.24	0.25	0.23
2024	SJB to Ca/Az via EPNG	10.35	10.34	10.05	8.53	8.38	8.47	8.57	8.64	8.69	8.81	9.24	9.76	9.15
	M/L Fuel + Commodity Transp.	0.27	0.27	0.26	0.23	0.22	0.23	0.23	0.23	0.23	0.23	0.24	0.26	0.24
2025	SJB to Ca/Az via EPNG	10.62	10.60	10.31	8.75	8.60	8.69	8.79	8.87	8.92	9.04	9.48	10.01	9.39
	M/L Fuel + Commodity Transp.	0.28	0.28	0.27	0.23	0.23	0.23	0.23	0.24	0.24	0.24	0.25	0.26	0.25

NOTES:
1/ SJB_Spot-Commodity@Ca/Az = (SJB_Spot_@EPNG_SCG) + (M/L Fuel) + (Commodity Transportation Charges)
2/ Formula for "Mainline Fuel Costs, $/Dth" = (%_Fuel) x (SJB_Spot_@EPNG_SCG) / (1 - %_Fuel).

SDG&E and SoCalGas 2009 BCAP - A.08-02-001
Workpapers of Herb Emmrich - SoCalGas Demand Forecast
Attachment 5

Commodity Transportation Charge of San Juan Basin via EPNG Dlvd. to Ca/Az
($/Dth to Ca/Az Border via EPNG's System)
"In-Kind" Volume Shrinkage for Mainline Compressor Fuel Usage
(% of Gas Delivered to EPNG's System)

YEAR	Supply Component	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YR. AVG.
2000	Commodity Transp.	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026
	M/L Fuel	3.88%	3.88%	3.88%	3.88%	3.88%	3.88%	3.88%	3.88%	3.88%	3.88%	3.88%	3.88%	
2001	Commodity Transp.	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026
	M/L Fuel	3.47%	3.47%	3.47%	3.47%	3.47%	3.47%	3.47%	3.47%	3.47%	3.47%	3.47%	3.47%	
2002	Commodity Transp.	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025
	M/L Fuel	3.47%	3.47%	3.47%	3.47%	3.47%	3.47%	3.47%	3.47%	3.47%	3.47%	3.47%	3.47%	
2003	Commodity Transp.	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025
	M/L Fuel	3.20%	3.20%	3.20%	3.20%	3.20%	3.20%	3.20%	3.20%	3.20%	3.20%	3.20%	3.20%	
2004	Commodity Transp.	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017
	M/L Fuel	3.20%	3.20%	3.20%	3.20%	3.20%	3.20%	3.20%	3.20%	3.20%	3.20%	3.20%	3.20%	
2005	Commodity Transp.	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018
	M/L Fuel	3.27%	3.27%	3.27%	3.27%	3.27%	3.27%	3.27%	3.27%	3.27%	3.27%	3.27%	3.27%	
2006	Commodity Transp.	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018
	M/L Fuel	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	
2007	Commodity Transp.	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018
	M/L Fuel	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	
2008	Commodity Transp.	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018
	M/L Fuel	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	
2009	Commodity Transp.	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018
	M/L Fuel	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	
2010	Commodity Transp.	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018
	M/L Fuel	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	
2011	Commodity Transp.	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018
	M/L Fuel	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	
2012	Commodity Transp.	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018
	M/L Fuel	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	
2013	Commodity Transp.	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018
	M/L Fuel	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	
2014	Commodity Transp.	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018
	M/L Fuel	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	
2015	Commodity Transp.	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018
	M/L Fuel	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	
2016	Commodity Transp.	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018
	M/L Fuel	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	
2017	Commodity Transp.	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018
	M/L Fuel	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	
2018	Commodity Transp.	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018
	M/L Fuel	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	
2019	Commodity Transp.	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018
	M/L Fuel	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	
2020	Commodity Transp.	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018
	M/L Fuel	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	
2021	Commodity Transp.	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018
	M/L Fuel	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	
2022	Commodity Transp.	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018
	M/L Fuel	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	
2023	Commodity Transp.	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018
	M/L Fuel	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	
2024	Commodity Transp.	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018
	M/L Fuel	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	
2025	Commodity Transp.	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018
	M/L Fuel	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	2.46%	

NOTES:
1/ Post Dec.'05 (Forecast) assumes 2.46% for "In-Kind" Mainline Fuel Shrinkage and 1.80¢/Dth Commodity Transportation charges.

Sempra Utilities Retail CORE Commodity Weighted-Average-Cost-of-Gas (WACOG) for Purchases
SoCalGas Actual to 10/2007, SEU Forecast starting 11/2007)
($/Dth @ Ca/Az Border)

YEAR	Supply Component	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YR. AVG.
2000	Wacog for Purchase	2.53	2.55	2.55	2.93	2.98	4.03	4.50	3.83	5.52	5.05	4.98	7.73	4.10
2001	Wacog for Purchase	10.47	7.80	7.39	7.48	6.86	5.09	3.16	2.83	2.37	1.54	2.82	2.45	5.02
2002	Wacog for Purchase	2.85	1.99	2.28	3.29	3.01	2.45	2.93	2.77	2.71	2.95	3.80	3.94	2.91
2003	Wacog for Purchase	4.64	4.91	6.76	4.33	4.55	5.47	5.07	4.47	4.71	4.18	4.19	4.50	4.82
2004	Wacog for Purchase	5.46	5.30	4.64	4.77	5.41	6.10	5.74	5.68	4.70	4.81	7.04	6.04	5.47
2005	Wacog for Purchase	5.85	5.78	5.64	6.53	6.60	5.71	6.49	6.40	8.49	10.04	10.71	8.42	7.22
2006	Wacog for Purchase	9.16	7.11	6.42	5.83	6.12	5.05	5.40	6.22	6.46	3.92	6.80	6.54	6.25
2007	Wacog for Purchase	6.07	6.89	7.21	6.30	7.07	7.24	6.69	5.43	5.05	5.50	**7.62**	**8.40**	**6.62**
2008	Wacog for Purchase	**8.88**	**9.00**	**8.86**	**7.81**	**7.70**	**7.79**	**8.04**	**8.12**	**8.14**	**8.04**	**8.44**	**8.91**	**8.31**
2009	Wacog for Purchase	**9.19**	**9.17**	**8.92**	**7.79**	**7.66**	**7.73**	**7.82**	**7.88**	**7.93**	**8.03**	**8.29**	**8.73**	**8.26**
2010	Wacog for Purchase	**8.97**	**8.95**	**8.70**	**7.47**	**7.34**	**7.42**	**7.50**	**7.56**	**7.60**	**7.70**	**8.01**	**8.44**	**7.97**
2011	Wacog for Purchase	**8.66**	**8.65**	**8.41**	**7.19**	**7.08**	**7.15**	**7.23**	**7.29**	**7.33**	**7.43**	**7.80**	**8.24**	**7.71**
2012	Wacog for Purchase	**8.45**	**8.45**	**8.21**	**7.03**	**6.91**	**6.99**	**7.07**	**7.12**	**7.17**	**7.27**	**7.61**	**8.03**	**7.53**
2013	Wacog for Purchase	**8.43**	**8.42**	**8.19**	**7.00**	**6.88**	**6.96**	**7.03**	**7.09**	**7.13**	**7.22**	**7.56**	**7.97**	**7.49**
2014	Wacog for Purchase	**8.39**	**8.38**	**8.16**	**6.97**	**6.85**	**6.92**	**7.00**	**7.06**	**7.10**	**7.19**	**7.52**	**7.93**	**7.46**
2015	Wacog for Purchase	**8.35**	**8.34**	**8.12**	**6.93**	**6.82**	**6.89**	**6.97**	**7.02**	**7.07**	**7.16**	**7.49**	**7.89**	**7.42**
2016	Wacog for Purchase	**8.31**	**8.30**	**8.08**	**6.90**	**6.79**	**6.86**	**6.94**	**6.99**	**7.03**	**7.12**	**7.45**	**7.85**	**7.39**
2017	Wacog for Purchase	**8.69**	**8.68**	**8.45**	**7.22**	**7.10**	**7.17**	**7.25**	**7.31**	**7.35**	**7.45**	**7.79**	**8.21**	**7.72**
2018	Wacog for Purchase	**8.90**	**8.89**	**8.66**	**7.40**	**7.28**	**7.35**	**7.43**	**7.49**	**7.54**	**7.63**	**7.99**	**8.42**	**7.91**
2019	Wacog for Purchase	**8.94**	**8.93**	**8.69**	**7.43**	**7.31**	**7.38**	**7.46**	**7.52**	**7.57**	**7.66**	**8.02**	**8.45**	**7.95**
2020	Wacog for Purchase	**9.22**	**9.21**	**8.97**	**7.66**	**7.54**	**7.62**	**7.70**	**7.76**	**7.81**	**7.91**	**8.28**	**8.72**	**8.20**
2021	Wacog for Purchase	**9.42**	**9.40**	**9.16**	**7.82**	**7.70**	**7.78**	**7.86**	**7.93**	**7.97**	**8.07**	**8.45**	**8.90**	**8.37**
2022	Wacog for Purchase	**9.76**	**9.75**	**9.49**	**8.11**	**7.98**	**8.06**	**8.15**	**8.21**	**8.26**	**8.37**	**8.76**	**9.23**	**8.68**
2023	Wacog for Purchase	**10.15**	**10.14**	**9.87**	**8.43**	**8.30**	**8.38**	**8.47**	**8.54**	**8.59**	**8.70**	**9.11**	**9.60**	**9.02**
2024	Wacog for Purchase	**10.55**	**10.53**	**10.26**	**8.76**	**8.62**	**8.71**	**8.81**	**8.88**	**8.93**	**9.04**	**9.47**	**9.97**	**9.38**
2025	Wacog for Purchase	**10.82**	**10.80**	**10.52**	**8.99**	**8.85**	**8.94**	**9.03**	**9.10**	**9.16**	**9.27**	**9.71**	**10.23**	**9.62**

NOTES:
1/ "Wacog for Purchases" projections based on the equation: WACOG_Purch@Ca/Az =
(SJ_Spot-Commodity@Ca/Az * SJ %) + (Permian_Spot-Commodity@Ca/Az * Permian %) + (CBSP * CBSP %) + (Rockies * Rockies %) + (AECO + AECO %) plus Interstate Pipeline Demand charges.
2/ Source: Jan.'00-Oct.'07 data of SoCalGas' Weighted Average Cost of Gas is from Gas Accounting's PGA Reports (Adjusted Single Porfolio WACOG to Price gas costs for PGA Balancing Accounts.) Interstate Pipeline Demand or Capacity Reservation charges are included, but FF&U and Core Brokerage Fees are NOT included.

Sempra Utilities Core Purchasing Weight

	Weight
Kern River	15%
San Juan	67%
AECO	3%
Permian	8%
Border	7%
Total	100%

Estimated Reservation Charge

	SempraU
2006	$0.31
2007	$0.31
2008	$0.32
2009	$0.33
2010	$0.33
2011	$0.34
2012	$0.35
2013	$0.35
2014	$0.36
2015	$0.37
2016	$0.38
2017	$0.38
2018	$0.39
2019	$0.40
2020	$0.40
2021	$0.41
2022	$0.42
2023	$0.43
2024	$0.43
2025	$0.44

Chained price index--US Gross Domestic Product (2000=100)

Data through 2017 from Global Insight's May 2007 Control Forecast of the US Economy (CTL0507)
Data beyond 2017 based on growth rates from Global Insight's Feb 2007 30-Year Long Term Forecast

Year	JPGDP 2000=100.00	% change	JPGDP 2006=1.00
1990	81.61		
1991	84.46		
1992	86.40		
1993	88.39		
1994	90.27		
1995	92.12		0.7937
1996	93.86	1.89%	0.8087
1997	95.41	1.66%	0.8221
1998	96.48	1.11%	0.8312
1999	97.87	1.44%	0.8432
2000	100.00	2.18%	0.8616
2001	102.40	2.40%	0.8823
2002	104.19	1.75%	0.8977
2003	106.41	2.13%	0.9168
2004	109.43	2.84%	0.9428
2005	112.74	3.03%	0.9714
2006	116.06	2.94%	1.0000
2007	118.95	2.48%	1.0248
2008	121.26	1.95%	1.0448
2009	123.69	2.00%	1.0658
2010	126.33	2.13%	1.0884
2011	129.05	2.15%	1.1119
2012	131.75	2.10%	1.1352
2013	134.37	1.99%	1.1577
2014	136.95	1.92%	1.1800
2015	139.54	1.89%	1.2023
2016	142.14	1.86%	1.2247
2017	144.79	1.87%	1.2475
2018	147.49	1.86%	1.2708
2019	150.19	1.83%	1.2941
2020	152.93	1.83%	1.3177
2021	155.69	1.80%	1.3414
2022	158.51	1.81%	1.3657
2023	161.44	1.85%	1.3910
2024	164.44	1.86%	1.4168
2025	167.54	1.89%	1.4436
2026	170.72	1.89%	1.4709
2027	173.93	1.88%	1.4986
2028	177.16	1.86%	1.5264
2029	180.48	1.87%	1.5550
2030	183.85	1.87%	1.5841
2031	187.22	1.83%	1.6131
2032	190.63	1.82%	1.6425
2033	194.00	1.77%	1.6715
2034	197.42	1.76%	1.7010
2035	200.94	1.78%	1.7313

Quarter	JPGDP 2000=100.0	JPGDP 2006=1.00
1990q1	80.39	
1990q2	81.33	
1990q3	82.05	
1990q4	82.69	
1991q1	83.66	
1991q2	84.19	
1991q3	84.77	
1991q4	85.20	
1992q1	85.77	
1992q2	86.21	
1992q3	86.59	
1992q4	87.04	
1993q1	87.73	
1993q2	88.20	
1993q3	88.60	
1993q4	89.03	
1994q1	89.60	
1994q2	89.98	
1994q3	90.53	
1994q4	90.96	
1995q1	91.55	0.7888
1995q2	91.89	0.7917
1995q3	92.28	0.7951
1995q4	92.73	0.7990
1996q1	93.30	0.8039
1996q2	93.62	0.8066
1996q3	94.06	0.8105
1996q4	94.46	0.8138
1997q1	94.96	0.8182
1997q2	95.29	0.8210
1997q3	95.54	0.8232
1997q4	95.86	0.8260
1998q1	96.10	0.8280
1998q2	96.28	0.8296
1998q3	96.62	0.8325
1998q4	96.90	0.8349
1999q1	97.27	0.8381
1999q2	97.70	0.8418
1999q3	98.02	0.8446
1999q4	98.48	0.8485
2000q1	99.29	0.8555
2000q2	99.78	0.8597
2000q3	100.24	0.8637
2000q4	100.69	0.8675
2001q1	101.51	0.8746
2001q2	102.29	0.8813
2001q3	102.69	0.8848
2001q4	103.12	0.8885
2002q1	103.55	0.8922
2002q2	103.94	0.8956
2002q3	104.35	0.8991
2002q4	104.93	0.9041
2003q1	105.74	0.9111
2003q2	106.08	0.9140
2003q3	106.62	0.9186
2003q4	107.20	0.9237
2004q1	108.19	0.9322
2004q2	109.17	0.9406
2004q3	109.74	0.9456
2004q4	110.61	0.9530
2005q1	111.56	0.9612
2005q2	112.23	0.9670
2005q3	113.14	0.9748
2005q4	114.05	0.9826

Chained price index--US Gross Domestic Product (2000=100)
Data through 2017 from Global Insight's May 2007 Control Forecast of the US Economy (CTL0507)
Data beyond 2017 based on growth rates from Global Insight's Feb 2007 30-Year Long Term Forecast

Year	JPGDP 2000=100.00	% change	JPGDP 2006=1.00	Quarter	JPGDP 2000=100.0	JPGDP 2006=1.00
				2006q1	114.97	0.9906
				2006q2	115.91	0.9986
				2006q3	116.45	1.0033
				2006q4	116.93	1.0075
				2007q1	118.07	1.0173
				2007q2	118.77	1.0233
				2007q3	119.20	1.0270
				2007q4	119.74	1.0317
				2008q1	120.40	1.0374
				2008q2	120.98	1.0424
				2008q3	121.55	1.0473
				2008q4	122.12	1.0522
				2009q1	122.76	1.0577
				2009q2	123.37	1.0630
				2009q3	124.00	1.0684
				2009q4	124.64	1.0739
				2010q1	125.35	1.0800
				2010q2	126.01	1.0857
				2010q3	126.65	1.0912
				2010q4	127.30	1.0969
				2011q1	128.03	1.1031
				2011q2	128.71	1.1090
				2011q3	129.39	1.1148
				2011q4	130.05	1.1205
				2012q1	130.78	1.1268
				2012q2	131.43	1.1324
				2012q3	132.08	1.1380
				2012q4	132.72	1.1436
				2013q1	133.43	1.1497
				2013q2	134.06	1.1550
				2013q3	134.68	1.1604
				2013q4	135.31	1.1658
				2014q1	136.01	1.1719
				2014q2	136.63	1.1772
				2014q3	137.26	1.1827
				2014q4	137.89	1.1881
				2015q1	138.59	1.1941
				2015q2	139.22	1.1995
				2015q3	139.86	1.2050
				2015q4	140.49	1.2104
				2016q1	141.19	1.2165
				2016q2	141.81	1.2219
				2016q3	142.45	1.2274
				2016q4	143.09	1.2329
				2017q1	143.81	1.2391
				2017q2	144.45	1.2446
				2017q3	145.11	1.2503
				2017q4	145.78	1.2561
				2018q1	146.50	1.2623
				2018q2	147.16	1.2680
				2018q3	147.81	1.2736
				2018q4	148.47	1.2792
				2019q1	149.20	1.2855
				2019q2	149.86	1.2912
				2019q3	150.52	1.2969
				2019q4	151.18	1.3025
				2020q1	151.93	1.3090
				2020q2	152.60	1.3148
				2020q3	153.27	1.3206
				2020q4	153.94	1.3263
				2021q1	154.68	1.3328
				2021q2	155.35	1.3385
				2021q3	156.02	1.3442
				2021q4	156.70	1.3501

Chained price index--US Gross Domestic Product (2000=100)
Data through 2017 from Global Insight's May 2007 Control Forecast of the US Economy (CTL0507)
Data beyond 2017 based on growth rates from Global Insight's Feb 2007 30-Year Long Term Forecast

Year	JPGDP 2000=100.00	% change	JPGDP 2006=1.00	Quarter	JPGDP 2000=100.0	JPGDP 2006=1.00
				2022q1	157.46	1.3567
				2022q2	158.16	1.3627
				2022q3	158.85	1.3687
				2022q4	159.56	1.3748
				2023q1	160.36	1.3817
				2023q2	161.08	1.3879
				2023q3	161.80	1.3941
				2023q4	162.53	1.4004
				2024q1	163.34	1.4073
				2024q2	164.07	1.4136
				2024q3	164.81	1.4200
				2024q4	165.55	1.4264
				2025q1	166.40	1.4337
				2025q2	167.16	1.4403
				2025q3	167.93	1.4469
				2025q4	168.69	1.4535
				2026q1	169.55	1.4608
				2026q2	170.33	1.4676
				2026q3	171.11	1.4743
				2026q4	171.88	1.4810
				2027q1	172.75	1.4884
				2027q2	173.54	1.4952
				2027q3	174.32	1.5019
				2027q4	175.10	1.5087
				2028q1	175.97	1.5162
				2028q2	176.76	1.5230
				2028q3	177.56	1.5298
				2028q4	178.35	1.5367
				2029q1	179.25	1.5444
				2029q2	180.07	1.5515
				2029q3	180.88	1.5585
				2029q4	181.70	1.5656
				2030q1	182.61	1.5734
				2030q2	183.45	1.5806
				2030q3	184.27	1.5876
				2030q4	185.09	1.5948
				2031q1	185.99	1.6025
				2031q2	186.81	1.6096
				2031q3	187.63	1.6166
				2031q4	188.46	1.6238
				2032q1	189.38	1.6317
				2032q2	190.22	1.6389
				2032q3	191.04	1.6460
				2032q4	191.86	1.6531
				2033q1	192.76	1.6609
				2033q2	193.59	1.6680
				2033q3	194.41	1.6750
				2033q4	195.23	1.6821
				2034q1	196.16	1.6901
				2034q2	197.00	1.6973
				2034q3	197.84	1.7046
				2034q4	198.68	1.7119
				2035q1	199.64	1.7201
				2035q2	200.50	1.7275
				2035q3	201.37	1.7350
				2035q4	202.24	1.7425

LONG TERM OUTLOOK for Propane Prices
(Nominal $/Dth, Wholesale @Los Angeles Basin)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YR. AVG.
1995	5.31	4.87	4.54	4.76	4.49	4.22	4.05	3.78	4.27	4.65	5.04	4.65	4.55
1996	5.42	4.93	4.87	4.87	4.38	3.78	3.78	4.00	4.65	6.30	6.57	7.66	5.10
1997	7.17	6.30	5.75	4.60	3.72	3.72	3.78	4.11	4.16	4.65	5.15	4.71	4.82
1998	4.82	5.04	4.11	3.78	3.78	3.39	2.90	2.85	2.85	3.07	3.72	3.83	3.68
1999	4.82	4.14	3.83	4.26	3.77	3.32	3.34	3.76	4.48	5.27	5.36	5.47	4.32
2000	6.24	6.77	6.71	5.86	5.36	5.38	5.58	6.26	7.64	8.22	8.29	12.26	7.05
2001	12.61	10.25	9.15	6.95	7.56	5.89	4.83	5.34	5.58	5.23	5.09	4.76	6.94
2002	4.46	4.10	4.13	4.15	3.81	3.61	3.53	3.69	5.61	6.33	6.27	6.81	4.71
2003	7.42	8.03	8.70	6.62	5.97	6.17	5.47	5.92	6.19	6.44	7.47	8.50	6.91
2004	9.30	9.14	8.29	6.14	6.65	6.54	7.34	9.02	9.32	10.77	11.32	11.22	8.76
2005	10.48	10.29	10.21	10.29	10.06	9.21	9.62	10.24	12.80	14.59	13.47	13.73	11.25
2006	14.04	12.22	12.53	13.80	12.73	11.57	12.37	12.62	12.02	12.24	13.08	13.76	12.75
2007	14.66	14.64	13.53	11.69	11.89	10.60	10.97	11.72	13.17	14.78	15.51	16.38	13.30
2008	15.90	14.95	14.27	13.04	12.28	11.38	11.20	11.95	13.43	15.07	15.83	16.71	13.83
2009	15.51	14.58	13.92	12.72	11.98	11.11	10.93	11.67	13.11	14.72	15.46	16.32	13.50
2010	15.25	14.33	13.68	12.51	11.78	10.92	10.74	11.47	12.89	14.47	15.20	16.05	13.27
2011	15.03	14.13	13.49	12.33	11.62	10.77	10.60	11.31	12.71	14.27	14.98	15.82	13.09
2012	15.03	14.13	13.49	12.33	11.61	10.76	10.58	11.30	12.70	14.26	14.97	15.80	13.08
2013	15.11	14.20	13.56	12.39	11.67	10.81	10.63	11.35	12.76	14.32	15.03	15.87	13.14
2014	15.17	14.26	13.61	12.44	11.71	10.86	10.68	11.40	12.81	14.37	15.09	15.94	13.19
2015	15.23	14.32	13.67	12.49	11.76	10.90	10.72	11.44	12.86	14.43	15.15	16.00	13.25
2016	15.44	14.52	13.86	12.66	11.92	11.05	10.87	11.60	13.04	14.63	15.36	16.22	13.43
2017	15.89	14.94	14.26	13.02	12.27	11.37	11.18	11.94	13.42	15.05	15.80	16.69	13.82
2018	16.25	15.28	14.58	13.32	12.55	11.63	11.44	12.21	13.72	15.39	16.16	17.07	14.13
2019	16.52	15.53	14.83	13.54	12.75	11.82	11.62	12.41	13.95	15.64	16.43	17.35	14.37
2020	16.92	15.91	15.19	13.87	13.06	12.11	11.91	12.71	14.29	16.02	16.82	17.77	14.71
2021	17.29	16.25	15.51	14.17	13.35	12.37	12.16	12.98	14.59	16.37	17.18	18.15	15.03
2022	17.73	16.67	15.91	14.54	13.69	12.69	12.48	13.32	14.97	16.79	17.63	18.62	15.42
2023	18.21	17.12	16.35	14.93	14.06	13.04	12.82	13.68	15.38	17.25	18.12	19.13	15.84
2024	18.71	17.59	16.79	15.34	14.44	13.39	13.16	14.05	15.80	17.72	18.61	19.65	16.27
2025	19.15	18.00	17.18	15.70	14.78	13.70	13.48	14.39	16.17	18.14	19.05	20.11	16.65

NOTES:

1/ Jan. '95-May '07 reported monthly actuals from data reported in "Butane/Propane News" publications.

2/ Projections based on a forecast prepared by Foster Associates, Inc. for SoCalGas in May'07 and implementation by SoCalGas of a FA-Inc. methodology to adjust their propane price forecast to reflect differences in natural gas price projections. The adjustment methodology yields QUARTERLY projections. SoCalGas developed monthly projections from analyses of historical monthly data. SoCalGas used its own conversion from 2006 $/Bbl to current-year or nominal $/Dth units.

LONG TERM OUTLOOK for Butane Prices
(Nominal $/Dth, Wholesale @Los Angeles Basin)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YR. AVG.
1995	3.64	2.82	2.43	1.94	2.09	2.09	2.09	2.04	2.18	2.38	2.96	3.83	2.54
1996	3.79	3.79	2.67	2.38	2.38	2.09	2.09	2.52	3.35	4.22	4.76	5.05	3.26
1997	5.00	4.81	3.01	2.96	2.77	2.86	2.82	2.82	3.35	5.00	4.32	4.47	3.68
1998	4.37	3.25	2.52	1.84	2.28	2.23	1.94	1.84	1.94	2.23	2.91	2.86	2.52
1999	2.77	2.53	2.21	2.18	2.23	2.46	2.86	3.13	3.31	4.39	4.94	5.49	3.21
2000	5.73	5.43	4.55	3.45	3.39	3.99	4.91	4.78	4.95	4.95	7.11	7.81	5.09
2001	8.04	6.60	6.56	5.86	5.91	5.08	3.69	3.75	3.53	3.61	3.40	2.99	4.92
2002	2.96	2.95	2.95	2.86	2.82	2.82	2.94	2.99	3.14	4.00	5.14	5.81	3.45
2003	6.21	6.69	5.52	4.66	3.80	3.87	4.01	4.25	4.50	4.94	6.13	6.99	5.13
2004	7.51	6.41	5.27	5.17	5.80	5.98	6.14	6.92	7.48	9.00	10.02	9.57	7.11
2005	9.17	8.75	8.13	8.24	7.62	7.25	7.96	8.02	9.83	12.06	12.06	12.67	9.31
2006	13.59	11.89	9.47	9.51	10.01	9.41	10.06	10.18	9.73	8.74	9.21	10.81	10.22
2007	9.90	10.40	9.72	9.71	9.82	9.75	8.98	9.28	10.06	11.97	13.50	14.49	10.63
2008	13.89	12.55	10.46	9.38	9.43	9.39	9.51	9.82	10.65	12.68	14.29	15.35	11.45
2009	13.46	12.17	10.13	9.09	9.14	9.10	9.22	9.52	10.33	12.30	13.86	14.89	11.10
2010	13.17	11.90	9.91	8.89	8.94	8.91	9.02	9.32	10.10	12.03	13.56	14.57	10.86
2011	12.92	11.68	9.73	8.72	8.78	8.74	8.85	9.14	9.92	11.81	13.31	14.30	10.66
2012	12.88	11.64	9.70	8.70	8.75	8.71	8.82	9.11	9.88	11.77	13.26	14.24	10.62
2013	12.93	11.68	9.73	8.72	8.78	8.74	8.85	9.14	9.91	11.79	13.29	14.28	10.65
2014	12.95	11.70	9.75	8.74	8.79	8.76	8.86	9.15	9.93	11.82	13.32	14.30	10.67
2015	12.98	11.73	9.77	8.75	8.81	8.77	8.88	9.17	9.95	11.84	13.34	14.33	10.69
2016	13.16	11.89	9.91	8.88	8.93	8.90	9.00	9.30	10.09	12.00	13.53	14.53	10.84
2017	13.56	12.25	10.21	9.15	9.20	9.16	9.28	9.58	10.39	12.37	13.94	14.97	11.17
2018	13.88	12.54	10.45	9.36	9.42	9.38	9.50	9.81	10.64	12.66	14.27	15.32	11.44
2019	14.12	12.76	10.63	9.52	9.58	9.54	9.66	9.97	10.82	12.87	14.51	15.58	11.63
2020	14.47	13.08	10.90	9.76	9.83	9.78	9.90	10.23	11.09	13.20	14.87	15.97	11.92
2021	14.80	13.37	11.14	9.98	10.05	10.00	10.12	10.45	11.34	13.49	15.20	16.33	12.19
2022	15.20	13.73	11.44	10.25	10.32	10.27	10.40	10.74	11.65	13.86	15.62	16.78	12.52
2023	15.63	14.13	11.77	10.54	10.61	10.57	10.69	11.05	11.98	14.26	16.07	17.26	12.88
2024	16.07	14.53	12.10	10.84	10.91	10.86	11.00	11.36	12.32	14.66	16.52	17.75	13.24
2025	16.47	14.88	12.40	11.11	11.18	11.13	11.27	11.64	12.62	15.02	16.93	18.18	13.57

NOTES:

1/ Jan. '95-May '07 reported monthly actuals from data reported in "Butane/Propane News" publications.

2/ Projections based on a forecast prepared by Foster Associates, Inc. for SoCalGas in May'07 and implementation by SoCalGas of a FA-Inc. methodology to adjust their butane price forecast to reflect differences in natural gas price projections. The adjustment methodology yields QUARTERLY projections. SoCalGas developed monthly projections from analyses of historical monthly data. SoCalGas used its own conversion from 2006 $/Bbl to current-year or nominal $/Dth units.

POSTED OIL PRICES (Nominal Dollars)

Source: RAC - EIA Weekly Petroleum Status Report. WTI, KR, No. 6 and No. 2 - Platts Oilgram Price Report. Propane and Butane - BPN Weekly Propane Newsletter

		Crude Oil			No. 6			No. 2				
				Kern	Fuel Oil a/			Fuel Oil			3.836	4.326
		RAC	WTI	River	0.5%S	1.0%S	2.0%S	LA	Propane Ave.	Butane Ave.	Propane Ave.	Butane Ave.
Year	YearQtr	($/Bbl)	($/Bbl)	($/Bbl)	($/Bbl)	($/Bbl)	($/Bbl)	($/Bbl)	($/Bbl)	($/Bbl)	($/Dth)	($/Dth)
1995	1995q1	16.54	18.02	12.46	16.70	15.70		20.88	20.37	15.75	5.31	3.64
1995	1995q1	17.18	18.53	12.89	16.66	15.67		21.78	18.69	12.18	4.87	2.82
1995	1995q1	17.27	18.55	13.35	17.48	16.48		22.23	17.43	10.50	4.54	2.43
1995	1995q2	18.44	19.88	14.34	17.28	16.28		23.26	18.27	8.40	4.76	1.94
1995	1995q2	18.60	19.74	15.41	17.65	16.65		22.52	17.22	9.03	4.49	2.09
1995	1995q2	17.69	18.42	15.15	17.66	16.66		22.04	16.17	9.03	4.22	2.09
1995	1995q3	16.68	17.30	14.21	16.11	15.11		22.55	15.54	9.03	4.05	2.09
1995	1995q3	16.75	18.03	13.72	15.50	14.49		23.00	14.49	8.82	3.78	2.04
1995	1995q3	16.91	18.21	13.73	15.50	14.38		23.23	16.38	9.45	4.27	2.18
1995	1995q4	16.56	17.44	12.73	15.50	14.38		23.98	17.85	10.29	4.65	2.38
1995	1995q4	16.61	18.00	12.19	15.50	14.38		24.36	19.32	12.81	5.04	2.96
1995	1995q4	17.57	19.02	12.79	16.34	15.32		24.68	17.85	16.59	4.65	3.83
1996	1996q1	17.75	18.80	14.02	17.66	16.71		25.47	20.79	16.38	5.42	3.79
1996	1996q1	17.95	19.09	14.21	17.34	16.59		23.55	18.90	16.38	4.93	3.79
1996	1996q1	19.71	21.33	16.46	17.48	16.33		26.90	18.69	11.55	4.87	2.67
1996	1996q2	21.60	23.51	17.87	18.72	17.47		37.72	18.69	10.29	4.87	2.38
1996	1996q2	20.63	21.24	14.65	19.07	17.82		36.34	16.80	10.29	4.38	2.38
1996	1996q2	19.15	20.45	13.85	18.07	16.82		31.10	14.49	9.03	3.78	2.09
1996	1996q3	19.75	21.32	13.76	17.57	16.49		29.15	14.49	9.03	3.78	2.09
1996	1996q3	20.41	21.93	13.73	17.75	16.75		29.53	15.33	10.92	4.00	2.52
1996	1996q3	22.11	24.00	15.76	18.39	17.39		32.31	17.85	14.49	4.65	3.35
1996	1996q4	23.11	24.90	17.13	18.68	17.64		34.27	24.15	18.27	6.30	4.22
1996	1996q4	22.85	23.72	16.70	18.75	17.50		30.98	25.20	20.58	6.57	4.76
1996	1996q4	23.30	25.41	18.13	18.75	17.50		30.03	29.40	21.84	7.66	5.05
1997	1997q1	23.62	25.13	18.80	18.25	17.00		34.44	27.51	21.63	7.17	5.00
1997	1997q1	21.65	22.19	14.56	18.43	17.18		33.22	24.15	20.79	6.30	4.81
1997	1997q1	19.82	20.96	14.58	18.11	16.65		31.51	22.05	13.02	5.75	3.01
1997	1997q2	18.36	19.75	14.20	16.99	15.41		30.69	17.64	12.81	4.60	2.96
1997	1997q2	18.84	20.91	14.60	16.36	14.86		26.05	14.28	11.97	3.72	2.77
1997	1997q2	17.87	19.28	13.51	16.95	15.45		23.41	14.28	12.39	3.72	2.86
1997	1997q3	17.88	19.63	13.52	17.76	16.26		23.90	14.49	12.18	3.78	2.82
1997	1997q3	18.23	19.93	14.67	17.33	16.24		28.52	15.75	12.18	4.11	2.82
1997	1997q3	18.20	19.78	14.75	16.50	15.50		27.04	15.96	14.49	4.16	3.35
1997	1997q4	19.26	21.27	15.98	17.34	16.34		28.68	17.85	21.63	4.65	5.00
1997	1997q4	18.61	20.18	14.50	17.92	16.64		29.55	19.74	18.69	5.15	4.32
1997	1997q4	17.00	18.30	12.70	16.86	15.36		25.24	18.06	19.32	4.71	4.47
1998	1998q1	15.14	16.69	10.41	14.64	13.09		23.76	18.48	18.90	4.82	4.37
1998	1998q1	14.03	16.07	8.92	13.07	11.48		20.95	19.32	14.07	5.04	3.25

POSTED OIL PRICES (Nominal Dollars)
Source: RAC - EIA Weekly Petroleum Status Report. WTI, KR, No. 6 and No. 2 - Platts Oilgram Price Report. Propane and Butane - BPN Weekly Propane Newsletter

		Crude Oil			No. 6			No. 2				
				Kern		Fuel Oil a/		Fuel Oil			3.836	4.326
		RAC	WTI	River	0.5%S	1.0%S	2.0%S	LA	Propane Ave.	Butane Ave.	Propane Ave.	Butane Ave.
Year	YearQtr	($/Bbl)	($/Bbl)	($/Bbl)	($/Bbl)	($/Bbl)	($/Bbl)	($/Bbl)	($/Bbl)	($/Bbl)	($/Dth)	($/Dth)
1998	1998q1	12.87	15.10	7.47	11.95	10.27		20.38	15.75	10.92	4.11	2.52
1998	1998q2	13.10	15.43	7.89	11.75	10.13		22.16	14.49	7.98	3.78	1.84
1998	1998q2	13.01	14.93	7.91	11.75	11.23		21.66	14.49	9.87	3.78	2.28
1998	1998q2	11.98	13.69	7.42	11.75	11.13		19.61	13.02	9.66	3.39	2.23
1998	1998q3	11.92	14.12	8.31	11.75	11.13		19.74	11.13	8.40	2.90	1.94
1998	1998q3	11.79	13.39	8.31	11.51	10.89		19.44	10.92	7.98	2.85	1.84
1998	1998q3	13.04	14.97	9.34	11.00	10.38		20.26	10.92	8.40	2.85	1.94
1998	1998q4	12.64	14.42	9.63	11.00	10.38		20.14	11.76	9.66	3.07	2.23
1998	1998q4	11.59	12.95	8.40	11.00	10.38		19.52	14.28	12.60	3.72	2.91
1998	1998q4	9.84	11.29	6.66	9.74	9.49		16.51	14.70	12.39	3.83	2.86
1999	1999q1	10.47	12.48	7.18	9.63	9.38		17.43	18.48	11.97	4.82	2.77
1999	1999q1	10.50	12.00	7.06	9.63	9.38		16.50	15.89	10.95	4.14	2.53
1999	1999q1	12.30	14.66	8.53	9.85	9.51		25.02	14.69	9.55	3.83	2.21
1999	1999q2	14.92	17.34	10.82	11.23	10.89		24.49	16.35	9.45	4.26	2.18
1999	1999q2	15.97	17.74	11.75	11.64	11.30		22.71	14.47	9.64	3.77	2.23
1999	1999q2	16.06	17.90	11.24	13.60	13.35	13.06	28.25	12.72	10.66	3.32	2.46
1999	1999q3	17.94	20.08	13.28	13.43	13.40	13.18	28.88	12.80	12.36	3.34	2.86
1999	1999q3	19.56	21.27	15.06	16.17	15.91	15.43	30.07	14.42	13.53	3.76	3.13
1999	1999q3	21.68	23.88	17.82	19.61	19.26	18.92	28.52	17.19	14.30	4.48	3.31
1999	1999q4	21.93	22.69	18.15	20.27	19.54	19.11	29.71	20.23	18.99	5.27	4.39
1999	1999q4	23.11	24.88	18.82	19.86	19.45	19.20	33.64	20.58	21.39	5.36	4.94
1999	1999q4	24.51	26.11	20.20	20.75	20.50	20.25	32.05	20.99	23.77	5.47	5.49
2000	2000q1	25.49	27.26	21.01	21.01	20.39	20.14	35.96	23.95	24.78	6.24	5.73
2000	2000q1	27.55	29.39	23.10	21.00	20.75	20.75	37.23	25.97	23.48	6.77	5.43
2000	2000q1	28.28	29.86	24.13	22.58	21.28	21.02	39.95	25.73	19.69	6.71	4.55
2000	2000q2	24.97	25.78	20.18	22.64	21.34	20.91	34.12	22.48	14.93	5.86	3.45
2000	2000q2	26.46	28.80	23.04	23.48	22.03	21.77	33.80	20.58	14.66	5.36	3.39
2000	2000q2	29.13	31.88	25.86	23.75	23.00	22.75	35.21	20.64	17.26	5.38	3.99
2000	2000q3	28.73	29.71	25.03	23.75	23.00	22.75	37.52	21.42	21.22	5.58	4.91
2000	2000q3	29.01	31.33	26.08	23.75	23.00	22.75	44.57	24.02	20.67	6.26	4.78
2000	2000q3	31.08	33.89	28.59	23.75	23.00	22.75	50.45	29.32	21.42	7.64	4.95
2000	2000q4	30.58	33.02	26.43	24.19	23.68	23.39	48.99	31.55	21.42	8.22	4.95
2000	2000q4	30.92	34.40	26.96	24.88	24.63	24.25	50.61	31.79	30.76	8.29	7.11
2000	2000q4	26.31	28.35	18.09	25.71	24.47	24.06	44.17	47.02	33.78	12.26	7.81
2001	2001q1	25.45	29.56	17.41	26.67	22.92	22.40	37.56	48.35	34.79	12.61	8.04
2001	2001q1	26.09	29.56	21.65	28.50	22.75	22.25	37.87	39.34	28.56	10.25	6.60
2001	2001q1	24.05	27.18	20.74	27.11	21.69	21.06	36.44	35.09	28.36	9.15	6.56
2001	2001q2	23.87	27.40	21.27	23.40	18.40	17.40	36.84	26.68	25.35	6.95	5.86

POSTED OIL PRICES (Nominal Dollars)

Source: RAC - EIA Weekly Petroleum Status Report. WTI, KR, No. 6 and No. 2 - Platts Oilgram Price Report. Propane and Butane - BPN Weekly Propane Newsletter

		Crude Oil			No. 6			No. 2				
				Kern	Fuel Oil a/			Fuel Oil			3.836	4.326
		RAC	WTI	River	0.5%S	1.0%S	2.0%S	LA	Propane Ave.	Butane Ave.	Propane Ave.	Butane Ave.
Year	YearQtr	($/Bbl)	($/Bbl)	($/Bbl)	($/Bbl)	($/Bbl)	($/Bbl)	($/Bbl)	($/Bbl)	($/Bbl)	($/Dth)	($/Dth)
2001	2001q2	25.31	28.61	21.83	23.25	18.25	17.40	37.35	29.01	25.55	7.56	5.91
2001	2001q2	24.92	27.57	21.32	23.25	18.25	17.25	37.68	22.60	21.99	5.89	5.08
2001	2001q3	23.76	26.43	19.76	23.25	18.25	17.25	33.18	18.53	15.96	4.83	3.69
2001	2001q3	24.44	27.40	19.78	23.25	18.25	17.25	35.85	20.47	16.22	5.34	3.75
2001	2001q3	23.73	26.08	18.93	23.25	18.25	17.50	37.04	21.42	15.27	5.58	3.53
2001	2001q4	20.04	22.08	15.00	23.25	18.25	17.25	30.48	20.04	15.61	5.23	3.61
2001	2001q4	17.24	19.59	12.90	23.25	18.25	17.25	26.19	19.54	14.73	5.09	3.40
2001	2001q4	16.52	19.27	12.26	23.25	18.25	17.25	23.61	18.28	12.94	4.76	2.99
2002	2002q1	17.38	19.68	13.06	23.25	18.25	17.25	23.91	17.10	12.81	4.46	2.96
2002	2002q1	18.43	20.66	14.44	23.25	18.25	17.50	25.88	15.74	12.75	4.10	2.95
2002	2002q1	22.00	24.35	18.24	23.25	18.25	17.25	30.87	15.82	12.74	4.13	2.95
2002	2002q2	24.10	26.26	21.59	23.93	21.20	20.13	30.62	15.90	12.37	4.15	2.86
2002	2002q2	25.03	27.06	23.08	24.25	22.75	21.75	29.72	14.61	12.19	3.81	2.82
2002	2002q2	24.05	25.50	20.94	24.25	22.75	21.75	30.55	13.86	12.21	3.61	2.82
2002	2002q3	25.16	26.92	23.12	24.25	22.89	22.04	30.69	13.53	12.71	3.53	2.94
2002	2002q3	26.19	28.34	24.86	24.25	23.25	22.75	34.09	14.14	12.95	3.69	2.99
2002	2002q3	27.66	29.71	26.05	26.42	25.80	24.83	36.28	21.53	13.59	5.61	3.14
2002	2002q4	26.70	28.87	23.85	26.88	26.25	25.25	34.75	24.27	17.31	6.33	4.00
2002	2002q4	24.60	26.29	20.21	26.88	26.25	25.25	32.42	24.07	22.23	6.27	5.14
2002	2002q4	26.93	29.45	23.22	26.88	26.25	25.25	34.52	26.11	25.12	6.81	5.81
2003	2003q1	30.52	32.99	27.43	30.45	28.82	26.85	36.19	28.48	26.88	7.42	6.21
2003	2003q1	33.00	35.75	30.42	30.44	29.31	27.65	44.23	30.82	28.93	8.03	6.69
2003	2003q1	30.65	33.43	28.63	33.67	30.07	25.77	42.13	33.39	23.89	8.70	5.52
2003	2003q2	26.02	28.26	22.17	28.21	26.38	24.64	32.89	25.41	20.16	6.62	4.66
2003	2003q2	25.74	28.14	22.58	26.23	24.23	22.23	30.98	22.89	16.42	5.97	3.80
2003	2003q2	27.92	30.66	26.22	29.06	27.06	25.06	33.08	23.68	16.75	6.17	3.87
2003	2003q3	28.55	30.70	26.12	32.86	30.86	28.86	35.73	21.00	17.35	5.47	4.01
2003	2003q3	29.15	31.59	26.61	29.62	27.62	25.67	39.84	22.72	18.38	5.92	4.25
2003	2003q3	26.39	28.25	23.68	29.30	27.30	25.30	32.82	23.73	19.48	6.19	4.50
2003	2003q4	27.75	30.30	24.55	28.31	26.44	24.41	35.28	24.70	21.38	6.44	4.94
2003	2003q4	28.28	31.06	24.60	27.92	26.86	25.59	36.96	28.67	26.51	7.47	6.13
2003	2003q4	29.28	32.14	25.77	26.24	25.62	24.86	39.68	32.60	30.24	8.50	6.99
2004	2004q1	30.93	34.24	26.67	28.85	28.35	27.10	40.29	35.66	32.51	9.30	7.51
2004	2004q1	31.72	34.74	29.05	26.93	26.43	25.18	47.90	35.07	27.72	9.14	6.41
2004	2004q1	33.10	36.71	30.53	27.33	26.82	25.60	45.05	31.82	22.79	8.29	5.27
2004	2004q2	33.47	36.69	30.12	28.90	28.40	27.15	54.53	23.56	22.39	6.14	5.17
2004	2004q2	36.32	40.24	33.94	30.31	29.81	28.51	56.65	25.52	25.10	6.65	5.80
2004	2004q2	34.59	38.00	32.05	32.22	31.74	30.49	49.08	25.10	25.88	6.54	5.98

POSTED OIL PRICES (Nominal Dollars)
Source: RAC - EIA Weekly Petroleum Status Report. WTI, KR, No. 6 and No. 2 - Platts Oilgram Price Report. Propane and Butane - BPN Weekly Propane Newsletter

		Crude Oil			No. 6			No. 2				
				Kern	Fuel Oil a/			Fuel Oil			3.836	4.326
		RAC	WTI	River	0.5%S	1.0%S	2.0%S	LA	Propane Ave.	Butane Ave.	Propane Ave.	Butane Ave.
Year	YearQtr	($/Bbl)	($/Bbl)	($/Bbl)	($/Bbl)	($/Bbl)	($/Bbl)	($/Bbl)	($/Bbl)	($/Bbl)	($/Dth)	($/Dth)
2004	2004q3	36.68	40.79	33.28	31.17	30.67	29.42	52.72	28.17	26.57	7.34	6.14
2004	2004q3	40.30	44.90	36.82	31.90	31.40	30.15	56.81	34.60	29.93	9.02	6.92
2004	2004q3	41.35	45.90	34.61	31.60	31.10	29.85	59.46	35.75	32.34	9.32	7.48
2004	2004q4	46.13	53.24	40.45	39.95	39.33	38.20	66.33	41.33	38.93	10.77	9.00
2004	2004q4	41.77	48.44	35.03	34.80	34.21	32.92	59.27	43.42	43.37	11.32	10.02
2004	2004q4	36.60	43.20	29.06	30.21	29.52	28.29	52.06	43.03	41.41	11.22	9.57
2005	2005q1	39.01	46.83	31.84	30.17	30.02	29.64	53.89	40.22	39.69	10.48	9.17
2005	2005q1	41.05	47.94	33.07	30.31	30.80	32.05	61.83	39.48	37.84	10.29	8.75
2005	2005q1	46.77	54.33	40.07	34.53	35.03	36.28	70.25	39.17	35.18	10.21	8.13
2005	2005q2	46.67	52.89	40.24	42.29	41.76	40.69	73.70	39.48	35.66	10.29	8.24
2005	2005q2	44.74	49.84	37.56	43.30	42.80	41.57	66.11	38.59	32.97	10.06	7.62
2005	2005q2	50.30	56.36	44.72	41.48	40.97	39.72	71.27	35.33	31.34	9.21	7.25
2005	2005q3	53.88	58.68	48.47	41.80	41.30	40.05	75.06	36.92	34.44	9.62	7.96
2005	2005q3	59.29	64.96	54.88	44.45	43.74	42.45	86.86	39.27	34.70	10.24	8.02
2005	2005q3	60.18	65.52	56.42	52.10	51.71	50.60	90.35	49.10	42.50	12.80	9.83
2005	2005q4	57.17	62.28	53.37	50.95	50.50	49.36	91.21	55.97	52.19	14.59	12.06
2005	2005q4	52.13	58.27	48.84	47.97	47.47	46.22	73.03	51.66	52.19	13.47	12.06
2005	2005q4	52.51	59.41	48.67	48.67	48.17	46.71	72.35	52.67	54.81	13.73	12.67
2006	2006q1	57.32	65.46	54.01	52.98	52.48	50.40	79.41	53.87	58.80	14.04	13.59
2006	2006q1	54.85	61.57	50.65	53.73	53.21	50.84	78.02	46.88	51.45	12.22	11.89
2006	2006q1	56.37	62.82	50.50	53.80	53.31	50.72	83.21	48.05	40.95	12.53	9.47
2006	2006q2	62.97	69.46	58.13	56.86	56.37	53.86	95.06	52.92	41.16	13.80	9.51
2006	2006q2	65.35	70.87	59.62	58.78	58.28	56.01	99.64	48.83	43.31	12.73	10.01
2006	2006q2	65.25	70.88	59.51	54.23	53.74	51.23	94.93	44.39	40.70	11.57	9.41
2006	2006q3	68.87	74.38	62.52	57.91	57.41	54.91	91.61	47.46	43.52	12.37	10.06
2006	2006q3	67.56	73.01	60.94	54.79	54.29	51.83	96.42	48.41	44.05	12.62	10.18
2006	2006q3	58.93	63.74	52.03	49.32	48.77	46.32	81.49	46.12	42.08	12.02	9.73
2006	2006q4	54.09	58.82	46.55	48.30	47.80	45.30	74.28	46.94	37.80	12.24	8.74
2006	2006q4	53.51	59.03	47.07	48.61	48.11	45.59	79.56	50.19	39.85	13.08	9.21
2006	2006q4	55.99	61.96	50.90	48.16	47.59	45.12	84.08	52.79	46.75	13.76	10.81
2007	2007q1	50.74	54.14	43.42	48.51	48.01	45.51	75.80	56.23	42.84	14.66	9.90
2007	2007q1	54.42	59.20	48.27	52.13	51.63	49.13	83.16	56.18	44.99	14.64	10.40
2007	2007q1	56.34	60.63	49.46	53.58	53.08	50.95	85.56	51.91	42.04	13.53	9.72
2007	2007q2	#N/A	63.85	53.48	55.33	54.83	52.33	91.43	44.84	42.00	11.69	9.71
2007	2007q2								45.62	42.47	11.89	9.82
2007	2007q2											

Propane Quarterly Regression 1990-2006 December 2006

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.9632
R Square	0.9277
Adjusted R Square	0.9219
Standard Error	0.7335
Observations	68

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	5	427.8780	85.5756	159.0722	5.34416E-34
Residual	62	33.3540	0.5380		
Total	67	461.2320			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	2.0977	0.2910	7.2076	0.0000	1.5159	2.6795	1.5159	2.6795
RAC	0.7419	0.0697	10.6429	0.0000	0.6026	0.8813	0.6026	0.8813
WTX Gas	0.5355	0.0760	7.0434	0.0000	0.3836	0.6875	0.3836	0.6875
1	0.1950	0.2526	0.7719	0.4431	-0.3100	0.6999	-0.3100	0.6999
2	-1.4493	0.2525	-5.7391	0.0000	-1.9540	-0.9445	-1.9540	-0.9445
3	-1.7534	0.2538	-6.9073	0.0000	-2.2608	-1.2459	-2.2608	-1.2459
4	0							

Butane Quarterly Regression 1990-2006 December 2006

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.9747
R Square	0.9501
Adjusted R Square	0.9461
Standard Error	0.5662
Observations	68

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	5	378.4849	75.6970	236.1222	5.57962E-39
Residual	62	19.8762	0.3206		
Total	67	398.3611			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	0.5630	0.2247	2.5058	0.0149	0.1139	1.0121	0.1139	1.0121
RAC	0.7335	0.0538	13.6309	0.0000	0.6259	0.8411	0.6259	0.8411
WTX Gas	0.4680	0.0587	7.9733	0.0000	0.3507	0.5853	0.3507	0.5853
1	-0.2525	0.1950	-1.2949	0.2002	-0.6423	0.1373	-0.6423	0.1373
2	-1.6100	0.1949	-8.2589	0.0000	-1.9996	-1.2203	-1.9996	-1.2203
3	-1.5963	0.1960	-8.1465	0.0000	-1.9881	-1.2046	-1.9881	-1.2046
4	0							

OIL AND PRODUCTS PRICE FORECAST (2007-2025) - BASE CASE
(Forecast in 2006 Dollars Per Barrel)

							3.836	4.326		3.836	4.326
							OLS Estimate	OLS Estimate		OLS Estimate	OLS Estimate
						FA WTx/PB	FA Intermediate	FA Intermediate	SoCal WTx/PB	SoCal Intermediate	SoCal Intermediate
			RAC	Propane a/	Butane a/	Inter.St. Gas	Calc. of Propane	Calc. of Butane	Interstate Gas	Calc. of Propane	Calc. of Butane
Year	Qtr	YrQtr	('06 $/Bbl)	('06 $/Bbl)	('06 $/Bbl)	($/Dth)	('06 $/Bbl)	('06 $/Bbl)	('06-$/Dth)	('06 $/Bbl)	('06 $/Bbl)
2006	1	2006q1	56.18	49.60	50.40	6.93	50.05	46.95	6.58	49.32	46.23
2006	2	2006q2	64.52	48.71	41.72	5.39	49.34	47.05	5.65	49.85	47.55
2006	3	2006q3	65.12	47.33	43.22	5.67	49.89	47.94	5.64	49.84	47.89
2006	4	2006q4	54.53	49.97	41.46	5.44	45.99	43.29	5.98	47.08	44.37
2007	1	2007q1	52.57	53.49	42.28	6.75	47.90	44.60	6.37	47.12	43.84
2007	2	2007q2	60.50	45.01	37.57	6.59	45.72	41.92	7.06	46.67	42.86
2007	3	2007q3	61.00	44.65	39.76	6.60	44.81	42.27	7.55	46.77	44.19
2007	4	2007q4	61.30	57.84	55.86	6.74	51.97	49.61	7.93	54.41	52.02
2008	1	2008q1	59.20	55.61	51.30	7.00	52.23	47.90	8.66	55.63	51.26
2008	2	2008q2	58.60	45.02	39.01	6.85	45.30	41.39	7.52	46.69	42.75
2008	3	2008q3	58.20	44.66	41.28	6.85	43.96	41.25	7.67	45.64	42.90
2008	4	2008q4	59.20	57.86	58.00	6.99	51.46	48.98	8.11	53.75	51.24
2009	1	2009q1	56.40	53.21	48.76	6.38	49.57	45.11	8.45	53.82	49.30
2009	2	2009q2	55.60	43.08	37.08	6.22	42.55	38.49	7.16	44.48	40.39
2009	3	2009q3	55.20	42.73	39.24	6.23	41.21	38.35	7.30	43.41	40.51
2009	4	2009q4	56.00	55.36	55.12	6.37	48.61	45.97	7.71	51.36	48.68
2010	1	2010q1	54.70	51.22	46.70	6.30	48.58	44.02	7.98	52.03	47.43
2010	2	2010q2	54.00	41.47	35.51	6.14	41.61	37.45	6.71	42.78	38.61
2010	3	2010q3	53.45	41.14	37.58	6.15	40.19	37.23	6.85	41.61	38.63
2010	4	2010q4	54.00	53.29	52.79	6.29	47.47	44.71	7.26	49.45	46.67
2011	1	2011q1	53.00	49.45	44.87	6.23	47.60	42.96	7.46	50.14	45.45
2011	2	2011q2	52.40	40.03	34.12	6.08	40.68	36.44	6.30	41.15	36.90
2011	3	2011q3	52.00	39.71	36.11	6.09	39.34	36.30	6.43	40.05	37.00
2011	4	2011q4	53.00	51.44	50.72	6.22	46.84	44.03	6.83	48.09	45.27
2012	1	2012q1	52.47	48.39	43.80	6.15	47.18	42.51	7.05	49.02	44.32
2012	2	2012q2	51.83	39.18	33.31	6.00	40.24	35.97	6.00	40.24	35.97
2012	3	2012q3	51.48	38.86	35.25	6.01	38.92	35.86	6.12	39.16	36.09
2012	4	2012q4	52.47	50.35	49.52	6.14	46.41	43.58	6.51	47.16	44.32
2013	1	2013q1	51.93	47.67	43.07	6.08	46.76	42.05	6.86	48.36	43.64
2013	2	2013q2	51.29	38.60	32.75	5.92	39.82	35.52	5.83	39.63	35.33
2013	3	2013q3	50.94	38.29	34.66	5.93	38.50	35.40	5.95	38.53	35.44
2013	4	2013q4	51.93	49.60	48.69	6.07	45.99	43.13	6.30	46.48	43.61
2014	1	2014q1	51.38	46.97	42.34	6.00	46.33	41.59	6.66	47.68	42.93
2014	2	2014q2	50.74	38.02	32.20	5.84	39.39	35.06	5.66	39.01	34.69
2014	3	2014q3	50.39	37.72	34.07	5.85	38.07	34.95	5.77	37.91	34.79
2014	4	2014q4	51.38	48.86	47.86	5.99	45.56	42.67	6.12	45.83	42.93
2015	1	2015q1	50.84	46.27	41.63	5.93	45.92	41.16	6.47	47.02	42.24
2015	2	2015q2	50.20	37.46	31.66	5.77	38.98	34.62	5.50	38.41	34.06
2015	3	2015q3	49.85	37.16	33.50	5.78	37.66	34.51	5.61	37.30	34.15
2015	4	2015q4	50.84	48.14	47.06	5.92	45.15	42.23	5.94	45.20	42.28
2016	1	2016q1	51.18	46.07	41.45	5.85	45.93	41.19	6.28	46.80	42.05
2016	2	2016q2	50.54	37.30	31.52	5.70	38.99	34.65	5.34	38.25	33.92
2016	3	2016q3	50.19	37.00	33.35	5.71	37.67	34.54	5.44	37.13	34.01

OIL AND PRODUCTS PRICE FORECAST (2007-2025) - BASE CASE
(Forecast in 2006 Dollars Per Barrel)

Year	Qtr	YrQtr	RAC ('06 $/Bbl)	Propane a/ ('06 $/Bbl)	Butane a/ ('06 $/Bbl)	FA WTx/PB Inter.St. Gas ($/Dth)	OLS Estimate FA Intermediate Calc. of Propane ('06 $/Bbl) 3.836	OLS Estimate FA Intermediate Calc. of Butane ('06 $/Bbl) 4.326	SoCal WTx/PB Interstate Gas ('06-$/Dth)	OLS Estimate SoCal Intermediate Calc. of Propane ('06 $/Bbl) 3.836	OLS Estimate SoCal Intermediate Calc. of Butane ('06 $/Bbl) 4.326
2016	4	2016q4	51.18	47.93	46.86	5.84	45.16	42.26	5.77	45.01	42.12
2017	1	2017q1	51.52	46.52	41.91	5.77	45.93	41.22	6.41	47.25	42.51
2017	2	2017q2	50.88	37.66	31.88	5.62	38.99	34.68	5.45	38.64	34.33
2017	3	2017q3	50.53	37.36	33.73	5.63	37.68	34.57	5.56	37.53	34.42
2017	4	2017q4	51.52	48.40	47.38	5.76	45.17	42.29	5.89	45.43	42.55
2018	1	2018q1	51.87	46.71	42.12	5.70	45.95	41.25	6.42	47.43	42.71
2018	2	2018q2	51.23	37.82	32.04	5.54	39.01	34.71	5.45	38.82	34.53
2018	3	2018q3	50.88	37.51	33.90	5.55	37.69	34.60	5.56	37.70	34.62
2018	4	2018q4	51.87	48.60	47.62	5.69	45.18	42.32	5.90	45.61	42.75
2019	1	2019q1	52.21	46.63	42.06	5.63	45.97	41.30	6.29	47.33	42.64
2019	2	2019q2	51.57	37.75	31.99	5.47	39.03	34.76	5.34	38.76	34.49
2019	3	2019q3	51.22	37.45	33.85	5.48	37.72	34.65	5.45	37.64	34.58
2019	4	2019q4	52.21	48.51	47.55	5.62	45.21	42.37	5.78	45.53	42.69
2020	1	2020q1	52.55	46.90	42.36	5.55	45.98	41.33	6.34	47.60	42.92
2020	2	2020q2	51.91	37.97	32.21	5.39	39.04	34.79	5.38	39.00	34.75
2020	3	2020q3	51.56	37.67	34.09	5.40	37.72	34.68	5.48	37.89	34.84
2020	4	2020q4	52.55	48.80	47.88	5.54	45.21	42.40	5.82	45.79	42.97
2021	1	2021q1	52.93	47.06	42.54	5.59	46.25	41.61	6.32	47.75	43.09
2021	2	2021q2	52.29	38.10	32.35	5.43	39.31	35.08	5.36	39.15	34.92
2021	3	2021q3	51.94	37.80	34.23	5.44	37.99	34.97	5.46	38.03	35.01
2021	4	2021q4	52.93	48.96	48.09	5.58	45.48	42.69	5.80	45.93	43.13
2022	1	2022q1	53.30	47.42	42.91	5.63	46.51	41.90	6.40	48.09	43.46
2022	2	2022q2	52.66	38.39	32.64	5.47	39.57	35.36	5.42	39.46	35.25
2022	3	2022q3	52.31	38.08	34.53	5.48	38.25	35.25	5.53	38.35	35.34
2022	4	2022q4	53.30	49.34	48.51	5.62	45.74	42.97	5.87	46.26	43.48
2023	1	2023q1	53.68	47.83	43.34	5.67	46.77	42.18	6.50	48.49	43.87
2023	2	2023q2	53.04	38.72	32.96	5.51	39.83	35.65	5.50	39.82	35.63
2023	3	2023q3	52.69	38.41	34.88	5.52	38.52	35.53	5.61	38.71	35.72
2023	4	2023q4	53.68	49.76	48.99	5.66	46.01	43.25	5.96	46.64	43.87
2024	1	2024q1	54.05	48.23	43.75	5.71	47.04	42.46	6.60	48.87	44.28
2024	2	2024q2	53.41	39.05	33.27	5.55	40.10	35.93	5.58	40.16	35.99
2024	3	2024q3	53.06	38.73	35.21	5.56	38.78	35.81	5.69	39.05	36.09
2024	4	2024q4	54.05	50.18	49.46	5.70	46.27	43.54	6.05	47.00	44.26
2025	1	2025q1	54.43	48.45	44.00	5.74	47.30	42.75	6.61	49.08	44.51
2025	2	2025q2	53.79	39.23	33.46	5.59	40.36	36.21	5.59	40.36	36.21
2025	3	2025q3	53.44	38.91	35.41	5.60	39.04	36.10	5.70	39.25	36.31
2025	4	2025q4	54.43	50.41	49.74	5.74	46.53	43.82	6.06	47.20	44.48

PETROLEUM PRICE OUTLOOK

May 2007

Prepared for

Sempra Energy
San Diego, California

Prepared by:

Mr. Scott Miller

Reviewed by:

Dr. William G. Foster

of

Foster Associates, Inc.
Bethesda, Maryland

TABLE OF CONTENTS

FOSTER ASSOCIATES, INC.

PETROLEUM PRICE OUTLOOK

I. INTRODUCTION

Foster Associates, Inc. is pleased to submit this 2007 petroleum price forecast to Sempra Energy (Sempra). All petroleum product prices are measured in the Los Angeles Basin and represent wholesale prices. The prices are presented on a quarterly basis for the first five years, and annually thereafter to 2025. All are expressed in 2006 dollars.

As requested by Sempra, we have covered the following types of petroleum:

Crudes: Refiners' Acquisition Cost (RAC)
West Texas Intermediate (WTI)
Kern River

Products: No. 6 Fuel Oil 0.5%, 1.0% and 2.0% Sulfur
No. 2 Fuel Oil
Propane
Butane

Because world crude oil markets are the primary factors affecting U.S. petroleum prices, we first discuss world crude prices on both a short-term and long-term basis. The report then turns to petroleum product prices in the Los Angeles Basin area. The Appendix to this report presents the petroleum price forecasts under three price scenarios: base, high, and low. As requested, a copy of the forecast is being provided in machine-readable format using Microsoft's EXCEL spreadsheet.

II. CURRENT OIL MARKET CONDITIONS

Crude oil prices have remained high, though they are lower than at this point last year. High prices are expected to continue throughout the remainder of this year and into next year as well. Because high demand has persisted along with OPEC's reduced production, crude inventories have fallen from their historic high levels of last year. As demand continues to rise with the summer season approaching and tightening supplies worldwide, today's high prices will continue.

The following table shows the current level of crude prices in comparison with prices in April 2006.

Table 1

Crude Oil Prices
($/Barrel)

	April 27, 2007	April 28, 2006
WTI	$66	$72
Average OPEC	$64	$68

Several important factors that are contributing to the current high oil prices are:

(1) OPEC pricing policy: OPEC continues to level a target price of $50 per barrel. In practice, however, the average price is carrying a substantial premium over this level.

(2) World oil demand has remained strong despite higher oil prices. In 2006, world oil demand increased 0.8 MMBd, with the largest increase in China. This growth continues into 2007.

(3) While non-OPEC supply has grown, the growth has not been as much as expected. Declining production from mature basins as well as supply problems in Australia and Mexico have offset strong gains in other areas such as the FSU and Brazil.

(4) Political unrest in a number of OPEC countries continues to cause prices to remain volatile. Violence continues to threaten production in Nigeria, however a slight rise in production is expected by the end of the year.

Iraq continues to be in a state of political and military uncertainty. The U.S. has not been able to stabilize the situation. Crude oil production has risen to 2.0 MMBd, but that is still below the pre-war level of over 2.8 MMBd.

(5) Iran continues to engender international tension over its uranium enrichment program. The United Nations is demanding that Iran stop their uranium enrichment project, and will impose more sanctions on Iran if they do not comply by June, 2007. Iran has repeatedly stated that they are not willing to give up the project, which they say is being used to produce electricity. The U.S. and others suspect they are instead trying to produce atomic weapons. While Iran's president recently said the country would not use oil as a weapon if the U.N. Security Council imposes sanctions, Iran's oil minister would not rule out the possibility if they were attacked. Iran is the No. 2 OPEC oil producer after Saudi Arabia, producing 3.7 MMBd. It also lies on one side of the narrow Straits of Hormez, a key passage for crude shipped from the Persian Gulf.

(6) Spare world crude production capacity is low, as shown on the following table.

Table 2

OPEC'S CRUDE OIL PRODUCTION COMPARED WITH OUTPUT TARGETS (MMBd)

	Sustainable Capacity	March 2007 Production	Spare Capacity
Algeria	1.43	1.36	0.07
Indonesia	0.85	0.85	0.00
Iran	3.75	3.70	0.05
Kuwait	2.60	2.45	0.15
Libya	1.70	1.68	0.02
Nigeria	2.25	2.25	0.00
Qatar	0.85	0.79	0.06
Saudi Arabia	11.00	8.60	2.40
U.A.E.	2.60	2.50	0.10
Venezuela	2.45	2.40	0.05
Subtotal	29.48	26.58	2.90
Iraq	2.05	2.05	0.00
Total	31.53	28.63	2.90

III. SHORT-TERM MARKET OUTLOOK

The following table shows the world supply and demand outlook for the period 2007 through 2009.

Table 3

WORLD OIL MARKET SUMMARY (MMBd)

	Actual				Projected		
	1999	2004	2005	2006	2007	2008	2009
DEMAND							
OECD	47.7	49.4	49.6	49.1	49.6	50.1	50.6
Non-OECD	28.0	32.9	34.1	35.4	36.4	37.5	38.6
TOTAL	75.7	82.2	83.7	84.5	86.0	87.6	89.2
SUPPLY							
Non-OPEC	44.9	49.1	49.0	49.2	49.7	50.5	51.3
OPEC	29.4	33.9	35.5	35.3	36.3	37.1	37.9
TOTAL	74.3	83.0	84.5	84.5	86.0	87.6	89.2
Stock Change	(1.4)	0.8	0.8	0.0	--	--	–

World oil demand is expected to grow by 1.8 percent per year, increasing demand by 1.5 to 1.6 MMBtu per year. Most of this increase will come from the developing countries, primarily China.

Many of the factors currently affecting the world petroleum market will continue over the next few years.

The supply issues remain the most important factors affecting price in the short run. The situation in Nigeria, where militants are sabotaging oil production facilities and kidnapping foreigners continues from last year. Chevron Corporation has begun withdrawing workers and contractors from offshore Nigerian operations. Increased violence is expected leading up to the inauguration of the new government on May 29th. On that date the current president, Obasanjo, will give control to his hand picked successor Yar’Adua. Though Yar’Adua was elected, there were widespread irregularities during the voting, including stolen ballot boxes, political activists murdered, and opposition leaders threatened. Nigeria is an important world crude supplier. Nigeria has the third greatest production capacity in OPEC, behind Saudi Arabia and Iran. Nigeria's political unrest will contribute to high oil prices over the next few years.

Iraq has still not recovered its crude oil production since the U.S. invasion. Vandalism, poor management, and corruption continues to abound in Iraq causing oil production to fall short of goals. Full production from Iraq cannot be expected before 2008.

Saudi Arabia continues to be threatened by Al Qaeda. In late April, Saudi Arabia announced the arrest of 172 al-Qaeda linked militants with plans to attack Saudi oil facilities. However that does not end the threat of an attack in the future. If one were to occur, oil prices will be pushed to a higher level.

Iran's nuclear situation is another uncertainty. Iran is the second largest oil producer within OPEC. If Iran responds to the U.N. Security Council by reducing oil exports, then oil prices will jump by a few dollars. However, if Iran decides on a complete embargo, oil prices will jump $10 to $15 per barrel over a base case.

Table 4 shows the quarterly crude oil price forecast for our base case. The average WTI price was $66.00 per barrel in 2006, 17 percent higher than in 2005. This is expected to be $65 per barrel in 2007, and $64.68 per barrel in 2008, expressed in 2006 dollars. This scenario assumes that: (1) world demand remains fairly strong; (2) unrest in Nigeria, but no civil war; (3) very slow recovery in Iraq; and (4) no embargo by Iran. Under the base case, prices fall to a level more reflective of market fundamentals by 2011, to just above OPEC's target price.

Table 4

CRUDE OIL PRICE FORECAST
2007-2011
(2006 dollars per Barrel)

		RAC	WTI			RAC	WTI
2003 Average*		$28.60	$31.11	2008	Quarter 1	$59.20	$65.12
					Quarter 2	58.60	64.46
					Quarter 3	58.20	64.02
					Quarter 4	59.20	65.12
					2008 Average	58.80	64.68
2004 Average*		36.91	41.42	2009	Quarter 1	56.40	62.04
					Quarter 2	55.60	61.16
					Quarter 3	55.20	60.72
					Quarter 4	56.00	61.60
					2009 Average	55.80	61.38
2005*	Quarter 1	42.28	49.70	2010	Quarter 1	54.70	60.17
	Quarter 2	47.24	53.03		Quarter 2	54.00	59.40
	Quarter 3	57.78	63.05		Quarter 3	53.45	58.80
	Quarter 4	53.94	59.99		Quarter 4	54.00	59.40
	2005 Average	50.31	56.44		2010 Average	54.04	59.44
2006*	Quarter 1	56.18	63.28	2011	Quarter 1	53.00	58.30
	Quarter 2	64.52	70.40		Quarter 2	52.40	57.64
	Quarter 3	65.12	70.38		Quarter 3	52.00	57.20
	Quarter 4	54.53	59.94		Quarter 4	53.00	58.30
	2006 Average	60.09	66.00		2011 Average	52.60	57.86
2007	Quarter 1	53.44	58.78				
	Quarter 2	60.50	66.55				
	Quarter 3	61.00	67.10				
	Quarter 4	61.30	67.43				
	2007 Average	59.06	64.97				

* Actual

High and low price cases have been developed around this base case. Prices could be significantly lower if: (1) an economic recession occurs in 2007 (or 2008) as a result of high energy prices; (2) OPEC and non-OPEC countries raise production levels; (3) the political situation settles down in the Middle East and elsewhere; and (4) Iraq quickly recovers production. The price trend would then follow our low price case of about 30 percent below the base case.

The high price trend would result if the following scenario occurs: (1) Iraq remains on its current path; (2) there is significant political turmoil in Nigeria that significantly affects exports; and, (3) Iran reduces its exports. Under these conditions, world crude price would be 30 percent higher than the base case.

IV. LONG-TERM MARKET OUTLOOK

Table 5 summarizes the long-term world oil supply and demand forecast.

Table 5

WORLD PETROLEUM SUPPLY/DEMAND BALANCE
(MMBd)

	Demand			Supply a/		
Year	OECD	Non-OECD	Total	OPEC	Non-OPEC	Total
2006	49.1	35.4	84.5	35.3	49.2	84.5
2010	51.5	39.5	91.0	36.2	54.8	91.0
2015	53.7	44.0	97.7	39.4	58.3	97.7
2020	55.1	48.2	103.3	42.3	61.0	103.3
2025	57.3	52.8	110.1	46.3	63.8	110.1

a/ Includes crude oil and NGLs

World oil demand is expected to grow by an average of 1.3 percent per year over the long term. However, the market growth will not be equal across all nations.[1] Oil is expected to lose market share to other energy sources, particularly to natural gas and coal, both of which will be used to generate power. Demand in the OECD countries will expand at only 0.8 percent per year because of their mature economies and increasing environmental considerations. In the industrialized countries, oil

[1] The petroleum demand forecast is dependent upon several underlying economic assumptions for the U.S. and world (2006-2025) as listed below:

	U.S.	World
GDP Growth	2.8%	3.2%
Population Growth	0.8%	0.9%
Inflation	2.4%	NA
Weather	Normal	Normal
Technology	Continuing growth @ a moderate level	
Environmental	Moderate tightening of environmental regulations	
Prolonged conflict	None	None
Political Tension	None	Continuous

demand growth stems primarily from petrochemical production and increased transportation use.

In other markets (i.e., emerging economies), growing demand for oil comes from all uses: transportation, power generation, heating, and manufacturing. This growth will represent the majority of the world's petroleum demand increase in the future. Petroleum demand growth is expected to be 2.2 percent for the developing nations, although variations are expected among these nations. Within the developing nations, China and India are expected to show some of the sharpest growth in oil demand, with the largest growth coming in the transportation sector.

Currently, OPEC produces about 42 percent of the world oil supply. While this percentage will drop until about 2015, by 2025 OPEC's market share will be back up to about 42 percent (see Table 5). This dominance stems from: (1) OPEC's current excess producing capacity; (2) the huge crude reserves within OPEC; and (3) OPEC's low cost of producing oil compared with non-OPEC countries.

OPEC's petroleum production during 2006, including natural gas liquids (NGLs), averaged about 35 MMBd. This level was below OPEC's estimated sustainable capacity of 37 MMBd (including NGLs and Iraq's production). As world petroleum demand increases, OPEC's excess capacity will dissipate. Around 2008, new production capacity will be necessary in order to fulfill demand. OPEC members have programs in place to expand production by 8 to 10 MMBd. The Organization will need to add a total of 19 MMBd of production capacity by 2025 in order to meet projected world requirements. This new capacity will depend upon OPEC's ability and willingness to expand production. Relevant factors that will affect OPEC's expansion are: available reserves, cost of development versus market prices, available capital, improved technology, and political/religious tensions. OPEC members hold a large percentage of the world's petroleum. This includes 69 percent of the proven reserves and 57 percent of the total oil resource base (known reserves and undiscovered estimates). In addition, the production costs in the Persian Gulf are less than one half of the costs of production elsewhere. Over the long term, the increase in OPEC's production will meet about two thirds of world demand growth.

In recent years, non-OPEC oil production has risen sharply. It has played an important role in curtailing OPEC's market power by eroding OPEC's market share.

By 2025, non-OPEC oil production is expected to reach 63.8 MMBd, up 14.6 MMBd from 2006. We expect oil production in some non-OPEC areas to decline while other areas will grow. For example, U.S. production (including NGLs and other liquids) is expected to continue to decline in spite of some increases offered by deep offshore Gulf of Mexico production. In 2006, the U.S. produced 6.9 MMBd, compared with 8.9 MMBd in 1990.[1] Production increases in Mexico and Canada (particularly from oil sands resources) should offset a portion of the decline in U.S. production.

Oil production from Central and South America is expected to grow. In particular, Brazil has become a significant producer with over 1 MMBd. This level should more than double over the forecast period. Other countries with potential production are Columbia, Argentina, and Ecuador.

Oil production in a number of African nations is also expected to increase. This is particularly true for a number of West African nations with deepwater offshore tracts, such as offshore Angola.

The outlook for the FSU has improved due to the Russian companies forming alliances with western service companies. This has significantly increased the

[1] The 2006 crude oil production was slightly affected by Hurricanes Katrina and Rita. Production was not back to normal until June 2006.

prospects out of West Siberia. The Caspian output continues to be one of the best growth areas, with crude production expected to exceed 4 MMBd. It is believed that North Sea production has peaked, and will now commence a slow depletion period.

Our WTI crude oil price forecast shows $65 per barrel in 2007. From 2007 until about 2015, WTI crude prices are expected to decline to $55.47 per barrel before commencing to grow. By 2025 , the WTI price will reach $59.42 per barrel (expressed in 2006 dollars). The principal causes of the higher prices during this period will be continuing world demand growth, and renewed dominance by OPEC. These factors will result in the inability of non-OPEC production to keep pace with demand growth.

Table 6 presents Foster Associates' crude oil (WTI) forecast, expressed in real 2006 dollars for base, low, and high cases. Since the uncertainty of oil price trends increases over time, Foster Associates' price variations between the low and high cases also increase over time. Our goal in developing this range is to maintain an 80 percent probability that the actual prices will fall within the range.

Table 6

CRUDE OIL PRICE FORECAST (WTI)
2007-2025
(2006 Dollars per Barrel)

		Low	Base	High
Actual	2001	–	$25.89	–
	2002	–	26.09	–
	2003	–	31.11	–
	2004	–	41.42	–
	2005	–	56.44	–
	2006	–	66.10	–
Projected	2007	$45.48	$64.97	$84.46
	2015	38.83	55.47	72.11
	2020	40.15	57.35	74.56
	2025	41.60	59.42	77.25

The several factors that contribute to a low and a high price forecast are listed below.

Table 7 FACTORS AFFECTING OIL PRICES	
Factors Contributing To Low Oil Price Trend	Factors Contributing To High Oil Price Trend
Acceleration in non-OPEC production growth	OPEC dominance increases, e.g., non-OPEC production does not develop
Lower world oil demand (caused by economic or environmental factors, or the development of alternative energy sources)	Increased oil demand
Technological advances are accelerated	Technological advances are significantly slowed
No political unrest, no risk premium	Increased political unrest with larger supply risk premium

Table 8 compares our crude oil price forecast to forecasts made by others.

Table 8 **COMPARATIVE CRUDE OIL PRICE FORECASTS** **(2005 Dollars per Barrel)**			
Forecaster	**2010**	**2015**	**2025**
Foster Associates (RAC)	$52.77	$49.25	$52.75
DOE (EIA)	57.47	49.87	56.37
EEA	56.94	49.80	45.16
EVA	42.28	42.35	49.45
GII	57.11	46.54	43.21

* All prices converted to $2005.

Sources: U.S. Dept. of Energy - Annual Energy Outlook - 2007
EEA - Compass Service Base Case, October 2006
EVA - Energy Ventures Analysis Inc., FUELCAST: Long-Term Outlook, August 2006
GII - Global Insight, 2006 U.S. Energy Outlook, November 2006

Market prices for propane and butane reflect the influence of both crude oil prices and natural gas prices. Foster Associates' long-term price forecast for West Texas/Permian Basin natural gas production is as follows:

Table 9

Annual Average Natural Gas Price
West Texas/Permian Basin

Year	$/MMBtu*
2004**	$5.44
2005**	7.15
2006**	6.02
2007	6.85
2008	7.11
2009	6.47
2020	5.62
2025	5.82

* 2006 dollars

** Actual

V. PETROLEUM PRODUCT PRICES

Prices for six specific petroleum products are projected in this report: distillate fuel oil (DFO), residual fuel oil (RFO) (.5, 1.0 and 2.0 percent sulfur), propane, and butane. Although petroleum product prices will continue to be dominated by feedstock costs, changes are expected in other determining factors. For example, as facilities achieve compliance with environmental health and safety regulations, refinery costs are expected to increase. These costs will add as much as 3 cents per gallon to the price of petroleum products.

According to the U.S. Department of Energy, California consumed about 257 MBd of DFO in 2004[1], with local refineries suppling the vast majority of this product. Over the past 5 years, DFO demand in California has increased only slightly due to highway use. The transportation sector consumes 84 percent of the total distillate in the state. Over the long term, DFO demand in California is expected to increase by about 1.8 percent per year, stemming primarily from the growth in the transportation sector. California's long-term growth in DFO demand will be slightly higher than the rate expected for the U.S. as a whole (1.5 percent).

Demand for RFO in California has fallen significantly and currently stands at 76 Mbd. Similar to DFO, RFO is also supplied to California by local refineries. The large majority of RFO consumed in California is used as bunker fuel in the transportation sector. RFO demand is not expected to grow over time. The increases in the transportation sector will be offset by declines in other sectors.

Propane is primarily consumed in the industrial and residential sectors, while butane is primarily used as refinery input. Propane and butane are produced both in

[1] 2004 data is the most recent available from DOE. 2005 data will be released in June 2007.

gas processing (field) plants and in refineries. About 22 percent of propane comes from field production and 78 percent from refineries. About 38 percent of butane comes from field production and 62 percent from refineries. Thus, the wholesale price of these products will primarily depend upon natural gas and crude oil feedstock prices.

Schedules 1 to 3 of the Appendix present the petroleum price forecasts in 2006 dollars per barrel, quarterly through 2011 and annually to 2025. Schedule 1 summarizes the crude prices and the petroleum product prices under the base case forecast scenario. The high price scenario is shown on Schedule 2, and the low price scenario is shown on Schedule 3.

APPENDIX

Schedule 3

OIL AND PRODUCTS PRICE FORECAST (2007-2025) - BASE CASE
(2006 Dollars Per Barrel)

Year / Quarter	RAC	WTI	Kern River	No. 6 Fuel Oil a/ 0.5%S	No. 6 Fuel Oil a/ 1.0%S	No. 6 Fuel Oil a/ 2.0%S	No. 2 Fuel Oil a/	Propane a/	Butane a/
2001 (Actual)	22.96	25.89	18.57	24.31	19.31	18.46	34.17	26.61	21.28
2002 (Actual)	24.01	26.09	21.06	24.81	22.68	21.75	31.19	18.06	14.91
2003 (Actual)	28.60	31.11	25.73	29.36	27.55	25.57	36.78	26.51	22.20
2004 (Actual)	36.91	41.42	32.80	31.18	30.65	29.41	53.03	33.58	30.74
2005 (Actual)	50.31	56.44	44.85	42.34	42.02	41.28	73.83	43.15	40.29
2006 - Q1 (Actual)	56.18	61.80	47.75	53.37	48.88	47.19	79.78	47.82	45.04
2006 - Q2 (Actual)	64.52	70.97	56.78	60.65	56.13	53.55	90.33	41.18	41.35
2006 - Q3 (Actual)	65.12	71.63	57.96	58.61	54.70	52.10	91.82	41.52	42.29
2006 - Q4 (Actual)	54.53	59.98	45.81	52.35	49.62	47.99	78.52	42.39	42.34
Annual Average	60.09	66.10	52.07	56.24	52.33	50.21	85.11	43.23	42.76
2007 - Q1	53.44	58.78	45.42	50.77	46.49	44.89	75.88	48.56	44.11
2007 - Q2	60.50	66.55	53.24	56.87	52.64	50.22	84.70	46.50	42.56
2007 - Q3	61.00	67.10	54.29	54.90	51.24	48.80	86.01	45.80	42.89
2007 - Q4	61.30	67.43	51.49	58.85	55.78	53.94	88.27	51.95	49.20
Annual Average	59.06	64.97	51.11	55.35	51.54	49.46	83.72	48.20	44.69
2008 - Q1	59.20	65.12	50.32	56.24	51.50	49.73	84.06	52.02	47.71
2008 - Q2	58.60	64.46	51.57	55.08	50.98	48.64	82.04	46.10	42.09
2008 - Q3	58.20	64.02	51.80	52.38	48.89	46.56	82.06	44.95	41.94
2008 - Q4	59.20	65.12	49.73	56.83	53.87	52.10	85.25	51.45	48.62
Annual Average	58.80	64.68	50.85	55.13	51.31	49.26	83.35	48.63	45.09
2009 - Q1	56.40	62.04	47.94	53.58	49.07	47.38	80.09	49.23	44.90
2009 - Q2	55.60	61.16	48.93	52.26	48.37	46.15	77.84	43.21	39.17
2009 - Q3	55.20	60.72	49.13	49.68	46.37	44.16	77.83	42.06	39.03
2009 - Q4	56.00	61.60	47.04	53.76	50.96	49.28	80.64	48.45	45.60
Annual Average	55.80	61.38	48.26	52.32	48.69	46.74	79.10	45.74	42.17
2010 - Q1	54.70	60.17	46.50	51.97	47.59	45.95	77.67	48.20	43.83
2010 - Q2	54.00	59.40	47.52	50.76	46.98	44.82	75.60	42.23	38.15
2010 - Q3	53.45	58.80	47.57	48.11	44.90	42.76	75.36	41.00	37.93
2010 - Q4	54.00	59.40	45.36	51.84	49.14	47.52	77.76	47.27	44.37
Annual Average	54.04	59.44	46.74	50.67	47.15	45.26	76.60	44.68	41.07
2011 - Q1	53.00	58.30	45.85	49.69	46.24	48.83	74.73	47.20	42.78
2011 - Q2	52.40	57.64	45.33	49.13	45.72	48.27	73.88	41.28	37.16
2011 - Q3	52.00	57.20	44.98	48.75	45.37	47.91	73.32	40.12	37.02
2011 - Q4	53.00	58.30	45.85	49.69	46.24	48.83	74.73	46.62	43.69
Annual Average	52.60	57.86	45.50	49.31	45.89	48.46	74.17	43.80	40.16
2012	52.06	57.26	45.03	48.80	45.42	47.96	73.40	43.36	39.71
2013	51.52	56.67	44.56	48.30	44.95	47.46	72.64	42.91	39.26
2014	50.97	56.07	44.09	47.79	44.47	46.96	71.87	42.46	38.80
2015	50.43	55.47	43.62	47.28	44.00	46.46	71.11	42.04	38.37
2016	50.77	55.85	43.92	47.60	44.30	46.77	71.59	42.04	38.39
2017	51.11	56.23	44.21	47.92	44.60	47.09	72.07	42.04	38.40
2018	51.46	56.60	44.51	48.24	44.90	47.40	72.55	42.04	38.42
2019	51.80	56.98	44.81	48.56	45.19	47.72	73.04	42.06	38.46
2020	52.14	57.35	45.10	48.88	45.49	48.03	73.52	42.06	38.47
2021	52.52	57.77	45.43	49.23	45.82	48.38	74.05	42.34	38.76
2022	52.89	58.18	45.75	49.59	46.15	48.73	74.58	42.61	39.04
2023	53.27	58.59	46.08	49.94	46.48	49.07	75.11	42.89	39.32
2024	53.64	59.01	46.40	50.29	46.80	49.42	75.64	43.16	39.60
2025	54.02	59.42	46.73	50.64	47.13	49.77	76.17	43.44	39.89

a/ Los Angeles Basin (wholesale prices).
Source: Foster Associates, Inc.

Schedule 3

OIL AND PRODUCTS PRICE FORECAST (2007-2025) - HIGH CASE
(2006 Dollars Per Barrel)

Year / Quarter	RAC	WTI	Kern River	No. 6 Fuel Oil a/ 0.5%S	No. 6 Fuel Oil a/ 1.0%S	No. 6 Fuel Oil a/ 2.0%S	No. 2 Fuel Oil a/	Propane a/	Butane a/
2001 (Actual)	22.96	25.89	18.57	24.31	19.31	18.46	34.17	26.61	21.28
2002 (Actual)	24.01	26.09	21.06	24.81	22.68	21.75	31.19	18.06	14.91
2003 (Actual)	28.60	31.11	25.73	29.36	27.55	25.57	36.78	26.51	22.20
2004 (Actual)	36.91	41.42	32.80	31.18	30.65	29.41	53.03	33.58	30.74
2005 (Actual)	50.40	56.44	44.85	42.34	42.02	41.28	73.83	43.15	40.29
2006 - Q1 (Actual)	56.18	61.80	47.75	53.37	48.31	46.63	78.65	48.54	46.07
2006 - Q2 (Actual)	64.52	70.97	56.78	60.65	56.13	53.55	89.04	52.67	54.70
2006 - Q3 (Actual)	65.12	71.63	57.96	58.61	54.70	52.75	91.17	53.30	55.91
2006 - Q4 (Actual)	54.53	59.98	45.81	53.98	50.17	47.99	78.52	52.84	54.19
Annual Average	60.09	66.10	52.07	56.65	52.33	50.23	84.35	51.84	52.71
2007 - Q1	69.47	76.42	59.05	66.00	60.44	58.36	98.65	61.12	56.93
2007 - Q2	78.65	86.52	69.21	73.93	68.43	65.28	110.11	60.03	56.40
2007 - Q3	79.30	87.23	70.58	71.37	66.61	63.44	111.81	59.41	56.82
2007 - Q4	79.69	87.66	66.94	76.50	72.52	70.13	114.75	65.69	63.26
Annual Average	76.78	84.46	66.44	71.95	67.00	64.30	108.83	61.56	58.35
2008 - Q1	76.96	84.66	65.42	73.11	66.96	64.65	109.28	65.63	61.61
2008 - Q2	76.18	83.80	67.04	71.61	66.28	63.23	106.65	59.51	55.79
2008 - Q3	75.66	83.23	67.34	68.09	63.55	60.53	106.68	58.30	55.58
2008 - Q4	76.96	84.66	64.65	73.88	70.03	67.72	110.82	65.04	62.51
Annual Average	76.44	84.08	66.11	71.67	66.70	64.03	108.36	62.12	58.87
2009 - Q1	73.32	80.65	62.32	69.65	63.79	61.59	104.11	62.00	57.95
2009 - Q2	72.28	79.51	63.61	67.94	62.88	59.99	101.19	55.75	52.00
2009 - Q3	71.76	78.94	63.87	64.58	60.28	57.41	101.18	54.54	51.79
2009 - Q4	72.80	80.08	61.15	69.89	66.25	64.06	104.83	61.15	58.58
Annual Average	72.54	79.79	62.74	68.02	63.30	60.76	102.83	58.36	55.08
2010 - Q1	71.11	78.22	60.44	67.55	61.87	59.73	100.98	60.66	56.56
2010 - Q2	70.20	77.22	61.78	65.99	61.07	58.27	98.28	54.48	50.67
2010 - Q3	69.49	76.43	61.84	62.54	58.37	55.59	97.97	53.17	50.37
2010 - Q4	70.20	77.22	58.97	67.39	63.88	61.78	101.09	59.62	56.98
Annual Average	70.25	77.27	60.76	65.87	61.30	58.84	99.58	56.98	53.65
2011 - Q1	68.90	75.79	57.88	66.14	62.70	60.63	99.22	59.35	55.20
2011 - Q2	68.12	74.93	57.22	65.40	61.99	59.95	98.09	53.24	49.38
2011 - Q3	67.60	74.36	56.78	64.90	61.52	59.49	97.34	52.03	49.18
2011 - Q4	68.90	75.79	57.88	66.14	62.70	60.63	99.22	58.77	56.10
Annual Average	68.38	75.22	57.44	65.64	62.23	60.17	98.47	55.84	52.47
2012	67.67	74.44	58.54	63.45	59.05	62.35	95.42	55.27	51.88
2013	66.97	73.67	57.93	62.78	58.43	61.70	94.43	54.69	51.29
2014	66.26	72.89	57.32	62.12	57.82	61.05	93.43	54.10	50.70
2015	65.56	72.11	56.71	61.46	57.20	60.40	92.44	53.55	50.13
2016	66.00	72.60	57.09	61.88	57.59	60.81	93.07	53.55	50.15
2017	66.45	73.09	57.48	62.30	57.98	61.22	93.69	53.55	50.17
2018	66.89	73.58	57.86	62.71	58.36	61.62	94.32	53.56	50.20
2019	67.34	74.07	58.25	63.13	58.75	62.03	94.95	53.58	50.25
2020	67.78	74.56	58.63	63.55	59.14	62.44	95.57	53.58	50.27
2021	68.27	75.10	59.05	64.00	59.57	62.89	96.26	53.94	50.64
2022	68.76	75.64	59.48	64.46	59.99	63.34	96.95	54.30	51.00
2023	69.25	76.17	59.90	64.92	60.42	63.80	97.64	54.66	51.37
2024	69.74	76.71	60.32	65.38	60.85	64.25	98.33	55.01	51.74
2025	70.23	77.25	60.75	65.84	61.27	64.70	99.02	55.38	52.11

a/ Los Angeles Basin (wholesale prices).
Source: Foster Associates, Inc.

Schedule 3

OIL AND PRODUCTS PRICE FORECAST (2007-2025) - LOW CASE
(2006 Dollars Per Barrel)

Year / Quarter	RAC	WTI	Kern River	No. 6 Fuel Oil a/ 0.5%S	No. 6 Fuel Oil a/ 1.0%S	No. 6 Fuel Oil a/ 2.0%S	No. 2 Fuel Oil a/	Propane a/	Butane a/
2001 (Actual)	22.96	25.89	18.57	24.31	19.31	18.46	34.17	26.61	21.28
2002 (Actual)	24.01	26.09	21.06	24.81	22.68	21.75	31.19	18.06	14.91
2003 (Actual)	28.60	31.11	25.73	29.36	27.55	25.57	36.78	26.51	22.20
2004 (Actual)	36.91	41.42	32.80	31.18	30.65	29.41	53.03	33.58	30.74
2005 (Actual)	50.40	56.44	44.85	42.34	42.02	41.28	73.83	43.15	40.29
2006 - Q1 (Actual)	56.18	61.80	47.75	53.37	48.31	46.63	78.65	48.54	46.07
2006 - Q2 (Actual)	64.52	70.97	56.78	60.65	56.13	53.55	89.04	29.69	28.00
2006 - Q3 (Actual)	65.12	71.63	57.96	58.61	54.70	52.75	91.17	29.74	28.68
2006 - Q4 (Actual)	54.53	59.98	45.81	53.98	50.17	47.99	78.52	31.94	30.49
Annual Average	60.09	66.10	52.07	56.65	52.33	50.23	84.35	34.98	33.31
2007 - Q1	37.41	41.15	31.80	35.54	32.54	31.42	53.12	35.99	31.30
2007 - Q2	42.35	46.59	37.27	39.81	36.84	35.15	59.29	32.97	28.72
2007 - Q3	42.70	46.97	38.00	38.43	35.87	34.16	60.21	32.19	28.97
2007 - Q4	42.91	47.20	36.04	41.19	39.05	37.76	61.79	38.20	35.14
Annual Average	41.34	45.48	35.78	38.74	36.08	34.62	58.60	34.84	31.03
2008 - Q1	41.44	45.58	35.22	39.37	36.05	34.81	58.84	38.42	33.82
2008 - Q2	41.02	45.12	36.10	38.56	35.69	34.05	57.43	32.69	28.39
2008 - Q3	40.74	44.81	36.26	36.67	34.22	32.59	57.44	31.59	28.30
2008 - Q4	41.44	45.58	34.81	39.78	37.71	36.47	59.67	37.85	34.73
Annual Average	41.16	45.28	35.60	38.59	35.92	34.48	58.35	35.14	31.31
2009 - Q1	39.48	43.43	33.56	37.51	34.35	33.16	56.06	36.47	31.85
2009 - Q2	38.92	42.81	34.25	36.58	33.86	32.30	54.49	30.67	26.35
2009 - Q3	38.64	42.50	34.39	34.78	32.46	30.91	54.48	29.57	26.26
2009 - Q4	39.20	43.12	32.93	37.63	35.67	34.50	56.45	35.75	32.62
Annual Average	39.06	42.97	33.78	36.62	34.08	32.72	55.37	33.12	29.27
2010 - Q1	38.29	42.12	32.55	36.38	33.31	32.16	54.37	35.75	31.10
2010 - Q2	37.80	41.58	33.26	35.53	32.89	31.37	52.92	29.99	25.64
2010 - Q3	37.42	41.16	33.30	33.67	31.43	29.93	52.76	28.83	25.49
2010 - Q4	37.80	41.58	31.75	36.29	34.40	33.26	54.43	34.93	31.76
Annual Average	37.83	41.61	32.72	35.47	33.01	31.68	53.62	32.37	28.50
2011 - Q1	37.10	40.81	31.16	35.62	33.76	32.65	53.42	35.04	30.37
2011 - Q2	36.68	40.35	30.81	35.21	33.38	32.28	52.82	29.31	24.94
2011 - Q3	36.40	40.04	30.58	34.94	33.12	32.03	52.42	28.21	24.85
2011 - Q4	37.10	40.81	31.16	35.62	33.76	32.65	53.42	34.47	31.28
Annual Average	36.82	40.50	30.93	35.35	33.51	32.40	53.02	31.76	27.86
2012	36.44	40.08	31.52	34.16	31.79	30.52	51.38	31.45	27.54
2013	36.06	39.67	31.19	33.81	31.46	30.20	50.85	31.14	27.23
2014	35.68	39.25	30.86	33.45	31.13	29.88	50.31	30.82	26.91
2015	35.30	38.83	30.54	33.09	30.80	29.56	49.77	30.53	26.61
2016	35.54	39.09	30.74	33.32	31.01	29.77	50.11	30.53	26.62
2017	35.78	39.36	30.95	33.54	31.22	29.97	50.45	30.52	26.63
2018	36.02	39.62	31.16	33.77	31.43	30.17	50.79	30.53	26.64
2019	36.26	39.88	31.36	33.99	31.64	30.37	51.12	30.54	26.67
2020	36.50	40.15	31.57	34.22	31.84	30.57	51.46	30.54	26.68
2021	36.76	40.44	31.80	34.46	32.07	30.79	51.83	30.74	26.88
2022	37.02	40.73	32.03	34.71	32.30	31.01	52.20	30.93	27.07
2023	37.29	41.02	32.25	34.96	32.53	31.23	52.58	31.12	27.27
2024	37.55	41.31	32.48	35.20	32.76	31.45	52.95	31.31	27.47
2025	37.81	41.60	32.71	35.45	32.99	31.67	53.32	31.51	27.67

a/ Los Angeles Basin (wholesale prices).
Source: Foster Associates, Inc.

2009 BCAP

SoCalGas Weather Heating Degree Days – Average and "Cold" Year Designs; and Winter Peak Day Design Temperatures

February 2008

Table of Contents

I. Overview

Southern California Gas Company's service area extends from Fresno County to the Mexican border. To quantify the overall temperature experienced within this region, SoCalGas aggregates daily temperature recordings from fifteen U.S. Weather Bureau weather stations first into six temperature zones and then into one system average heating degree-day ("HDD") figure. The table below lists weather station locations by temperature zones.

Table 1

Weather Stations by Temperature Zones and Weights

Temperature Zone	Weight	Station (After 10/31/2002)	Station (Before 11/1/2002)
1. High mountain	0.0057	Big Bear Lake	Lake Arrowhead
2. Low desert	0.0354	Palm Springs	Palm Springs
		El Centro	Brawley
3. Coastal	0.1888	Los Angeles Airport	Los Angeles Airport
		Newport Beach	Newport Beach Harbor
		Santa Barbara Airport	Santa Barbara Airport
4. High desert	0.0676	Bakersfield	Bakersfield Airport
		Lancaster Airport	Palmdale
		Fresno	Visalia
5. Interior valleys	0.3854	Burbank	Burbank
		Pasadena	Pasadena
		Ontario	Pomona Cal Poly
		San Bernardino	Redlands
6. Basin	0.3171	Los Angeles Civic Center	Los Angeles Civic Center
		Santa Ana	Santa Ana

SoCalGas uses 65° Fahrenheit to calculate the number of HDDs. One heating degree day is accumulated for each degree that the daily average is below 65° Fahrenheit. To arrive at the HDD figure for each temperature zone, SoCalGas uses the simple average of the weather station HDDs in that temperature zone. To arrive at the system average HDDs figure for its entire service area, SoCalGas weights the HDD figure for each zone using the proportion of gas customers within each temperature zone based on calendar year 2006 customer counts. These weights are used in calculating the data shown from January 1987 to December 2006.

Daily weather temperatures are from the National Climatic Data Center or from preliminary data that SoCalGas captures each day and posts on its web-site: http://www.socalgas.com/business/weather/ for various individual weather stations as well as for its system average values of HDD. Annual HDDs for the entire service area from 1987 to 2006 are listed in Table 2, below.

Table 2

Calendar Month Heating Degree-Days (Jan. 1987 through Dec. 2006)

Year	Month Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total "Cal-Year"
1987	349	226	212	60	42	13	6	2	3	18	160	406	1497
1988	301	159	142	120	64	31	2	3	11	16	176	341	1366
1989	366	315	153	61	53	19	1	3	9	40	104	234	1358
1990	296	299	206	72	56	10	1	1	1	10	120	368	1440
1991	283	117	315	119	101	26	4	3	4	45	113	275	1405
1992	282	182	202	40	15	15	1	1	1	11	127	372	1249
1993	337	258	116	51	16	11	0	0	3	11	128	275	1206
1994	230	259	130	112	79	6	3	0	2	41	292	309	1463
1995	317	136	179	129	110	40	2	2	2	14	68	245	1244
1996	263	201	170	57	14	3	1	0	0	68	144	261	1182
1997	282	205	114	97	5	4	1	0	0	26	120	296	1150
1998	268	282	186	185	87	21	0	0	5	43	167	320	1564
1999	264	245	284	235	78	39	1	2	5	8	127	244	1532
2000	246	243	210	81	26	5	2	1	3	65	247	240	1369
2001	378	338	196	209	26	7	4	3	3	21	146	358	1689
2002	333	202	226	150	79	11	2	4	8	78	92	314	1499
2003	140	232	166	180	74	17	1	1	3	16	200	305	1335
2004	291	301	86	85	18	8	3	2	4	73	227	291	1389
2005	286	208	176	116	35	11	4	1	9	44	99	234	1223
2006	271	200	338	163	29	3	0	1	5	36	103	277	1426
20-Yr-Avg (Jan1987-Dec2006)													
Avg.	**289.2**	**230.4**	**190.4**	**116.1**	**50.4**	**15.0**	**2.0**	**1.5**	**4.1**	**34.2**	**148.0**	**298.3**	**1379.3**
St.Dev.	**52.5**	**58.9**	**64.7**	**55.9**	**32.0**	**11.3**	**1.6**	**1.2**	**3.1**	**22.7**	**56.6**	**50.6**	**141.255**
Min.	**140.0**	**117.0**	**86.0**	**40.0**	**5.0**	**3.0**	**0.0**	**0.0**	**0.0**	**8.0**	**68.0**	**234.0**	**1150.0**
Max.	**378.0**	**338.0**	**338.0**	**235.0**	**110.0**	**40.0**	**6.0**	**4.0**	**11.0**	**78.0**	**292.0**	**406.0**	**1689.0**

II. Calculations to Define Our Average-Temperature Year

The simple average of the 20-year period (January 1987 through December 2006) was used to represent the Average Year total and the individual monthly values for HDD. The standard deviation of these 20 years of annual HDDs was used to design the two Cold Years based on a "1-in-10" and "1-in-35" chance, $\boldsymbol{c}$, that the respective annual "Cold Year" $\boldsymbol{hdd_c}$ value would be exceeded.

Our model for the annual HDD data is essentially a regression model where the only "explanatory" variable is the constant term. For example, the annual HDDs are modeled by the equation below:

$HDD_y = \beta_0 + e_y$; where β_0 represents the mean and the e_y is an error term.

It turns out (e.g., see *Econometrics*, Wonnacott and Wonnacott, 1970, Wiley & Sons, Inc., 1970, p. 254) that the average of the annual HDD_y estimates β_0 and that the standard deviation of these HDDs about the mean, β_0, estimates the standard deviation, s_e, of the error term, e_y. Further, a probability model for the annual HDD is based on a T-Distribution with N-1 degrees of freedom, where, N is the number of years of HDD data we use:

$U = (HDD_y - \beta_0)/s_e$, has a T-Distribution with N-1 degrees of freedom.

III. Calculating the Cold-Temperature Year Weather Designs

<u>Cold Year HDD Weather Designs</u>

For SoCalGas, cold-temperature-year HDD weather designs are developed with a 1-in-35 year chance of occurrence. In terms of probabilities this can be expressed as the following for a "1-in-35" cold-year HDD value in equation 1 and a "1-in-10" cold-year HDD value in equation 2, with Annual HDD as the random variable:

(1) Prob { Annual HDD > "1-in-35" Cold-Yr HDD } = 1/35 = 0.0286

(2) Prob { Annual HDD > "1-in-10" Cold-Yr HDD } = 1/10 = 0.1000

An area of 0.0286 under one tail of the T-Distribution translates to 2.025 standard deviations *above* an average-year based on a t-statistic with 19 degrees of freedom. Using the standard deviation of 141.25 HDD from the last 20 years of data, these equations yield values of about 1,665 HDD for a “1-in-35” cold year and 1,567 as the number of HDDs for a “1-in-10” cold year (an area of 0.1000 under one tail of the T-Distribution translates to 1.328 standard deviations *above* an average-year based on a t-statistic with 19 degrees of freedom). For example, the “1-in-35” cold-year HDD is calculated as follows:

(3) Cold-year HDD = 1,665 which equals approximately

1,379 average-year HDDs + 2.025 * 141.25

Table 3 shows monthly HDD figures for “1-in-35” cold year, “1-in-10” cold year and, average year temperature designs. The monthly average-temperature-year HDDs are calculated from weighted monthly HDDs from 1987 to 2006, as shown as the bottom of Table 2, above. For example, the average-year December value of 298.2 HDD equals the simple average of the 20 December HDD figures from 1987 to 2006, and represents 21.6 percent of the HDDs in an average-year. SoCalGas calculates the cold--temperature-year monthly HDD values using the same shape of the average-year HDDs. For example, since 21.6 percent of average-temperature-year HDDs occurred in December, the estimated number of HDDs during December for a cold-year is equal to 1,665 HDDs multiplied by 21.6 percent, or 360.0 HDDs.

Table 3

Calendar Month Heating Degree-Day Designs

SoCalGas Heating Degree Day (HDD) Weather Designs

(Calendar Based)

	Cold		**Average**	**Hot**	
	1-in-35 Design	**1-in-10 Design**		**1-in-10 Design**	**1-in-35 Design**
January	349.0	328.5	289.1	249.7	229.1
February	278.1	261.8	230.3	198.9	182.6
March	229.8	216.3	190.3	164.4	150.8
April	140.1	131.9	116.1	100.3	92.0
May	60.8	57.2	50.3	43.5	39.9
June	18.1	17.0	15.0	13.0	11.9
July	2.4	2.2	1.9	1.7	1.5
August	1.8	1.7	1.5	1.3	1.2
September	4.9	4.6	4.0	3.5	3.2
October	41.3	38.9	34.2	29.5	27.1
November	178.7	168.1	148.0	127.8	117.3
December	360.0	338.8	298.2	257.5	236.3
	1665	1567	1379	1191	1093

IV. Calculating the Peak-Day Design Temperature

SoCalGas' Peak-Day design temperature of 38.8 degrees Fahrenheit, denoted "Deg-F," is determined from a statistical analysis of observed annual minimum daily system average temperatures constructed from daily temperature recordings from the three U.S. Weather Bureau weather stations discussed above. Since we have a time series of daily data by year, the following notation will be used for the remainder of this discussion:

(1) $AVG_{y,d}$ = system average value of Temperature

for calendar year "y" and day "d".

The calendar year, y, can range from 1950 through 2006, while the day, d, can range from 1 to 365, for non leap years, or from 1 to 366 for leap years. The "upper" value for the day, d, thus depends on the calendar year, y, and will be denoted by n(y)=365, or 366, respectively, when y is a non-leap year or a leap year.

For each calendar year, we calculate the following statistic from our series of daily system average temperatures defined in equation (1) above:

(2) $MinAVG_y = \min_{d=1}^{n(y)}\{ AVG_{y,d} \}$, for y=1950, 1973, …, 2006.

(The notation used in equation 2 means "For a particular year, y, list all the daily values of system average temperature for that year, then pick the smallest one.")

The resulting minimum annual temperatures are shown in Table 4, below. Note that most of the minimum temperatures occur in the months of December or January; however, for some calendar years the minimums occurred in other months (the minimum for 2006 was observed in March).

The statistical methods we use to analyze this data employ software developed to fit three generic probability models: the Generalized Extreme Value (GEV) model, the Double-Exponential or GUMBEL (EV1) model and a 2-Parameter Students' T-Distribution (T-Dist) model. [The GEV and EV1 models have the same mathematical specification as those implemented in a DOS-based executable-only computer code that was developed by Richard L. Lehman and described in a paper published in the Proceedings of the Eighth Conference on Applied Climatology, January 17-22, 1993, Anaheim, California, pp. 270-273, by the American Meteorological Society, Boston, MA., with the title "Two Software Products for Extreme Value Analysis: System Overviews of ANYEX and DDEX." At the time he wrote the paper, Dr. Lehman was with the Climate

Analysis Center, National Weather Service/NOAA in Washington, D.C., zip code 20233.] The Statistical Analysis Software (SAS) procedure for nonlinear statistical model estimation (PROC MODEL, from SAS V6.12) was used to do the calculations. Further, the calculation procedures were implemented to fit the probability models to observed *maximums* of data, like heating degrees. By recognizing that:

$$- MinAVG_y = - \min_{d=1}^{n(y)}\{AVG_{y,d}\} = \max_{d=1}^{n(y)}\{ -AVG_{y,d}\}, \text{ for } y=1950, \ldots, 2006;$$

this same software, when applied to the *negative* of the minimum temperature data, yields appropriate probability model estimation results.

The calculations done to fit any one of the three probability models chooses the parameter values that provide the "best fit" of the parametric probability model's calculated cumulative distribution function (CDF) to the empirical cumulative distribution function (ECDF). Note that the ECDF is constructed based on the variable "$-MinAVG_y$" (which is a *maximum* over a set of *negative* temperatures) with values of the variable $MinAVG_y$ that are the same as shown in Table 4.

In Table 5, the data for $-MinAVG_y$ are shown after they have been sorted from "lowest" to "highest" value. The ascending *ordinal* value is shown in the column labeled "RANK" and the empirical cumulative distribution function is calculated and shown in the next column. The formula used to calculate this function is:

$$ECDF = (RANK – \alpha)/[MaxRANK + (1 – 2 \alpha)],$$

where the parameter "α" (shown as *alpha* in Table 5) is a "small" positive value (usually less than ½) that is used to bound the ECDF away from 0 and 1.

Of the three probability models considered (GEV, EV1, and T_Dist) the results obtained for the GEV model were selected since the fit to the ECDF was better than that of either the EV1 model or the T_Dist model. (Convergence to stable parameter estimates was occasionally a problem with fitting a GEV model to the ECDF; however, convergence was obtained in this case.)

The following mathematical expression specifies the GEV model we fit to the data for "$-MinAVG_y$ " shown in Table 5.

(3) $ECDF(-MinAVG_y) = Prob \{ -T < -MinAVG_y \}= \exp[-((1- k \bullet z) (1/k))],$

where "exp[.]" is the exponential function, and

(4) $z = (-MinAVG_y - \gamma) / \theta$, for each year, y, and

the parameters "k", "γ" and "θ" are estimated for the GEV model. The estimated values for k, γ and θ are shown in Table 5 along with the fitted values of the model CDF (the column: "Fitted" Model CDF).

Now, to calculate a *peak-day design temperature*, $TPDD_\delta$, with a specified likelihood, δ, that a value less than $TPDD_\delta$ would be observed, we use the equation below:

(5) $\delta = \text{Prob}\ \{ T \leq TPDD_\delta \}$, which is equivalent to

(6) $\delta = \text{Prob}\ \{ [(-T - \gamma) / \theta] \geq [(-TPDD_\delta - \gamma) / \theta] \}$, $= \text{Prob}\ \{ [(-T - \gamma) / \theta] \geq [z_\delta] \}$,

where $z_\delta = [(-TPDD_\delta - \gamma) / \theta]$. In terms of our probability model,

(7) $\delta = 1 – \exp[-((1- k \bullet z_\delta) (1/k))]$, or $(1- \delta) = \exp[-((1- k \bullet z_\delta) (1/k))]$,

which yields the following equation for z_δ,

(7') $z_\delta = \{1 – [(-\ln(1- \delta))^{(k)} \} (1/k)$, where "ln[.]" is the natural

logarithm function. The implied equation for $TPDD_\delta$ is:

(8) $TPDD_\delta = - [\gamma + (z_\delta \cdot \theta)]$.

To calculate the minimum daily (system average) temperature to define our extreme weather event, we specify that this COLDEST-Day be one where the temperature would be lower with a "1-in-35" likelihood. This criterion translates into two equations to be solved based on equations (7) and (8) above:

(9) solve for "z_δ" from equation (7') above with $(1-\delta) = (1 - 1/35) = 1 - 0.0286$,

(10) solve for "$TPDD_\delta$" from $TPDD_\delta = - [\gamma + (z_\delta \cdot \theta)]$.

The value of $z_\delta = 2.855$ and $TPDD_\delta = - [\gamma + (z_\delta \cdot \theta)] = 38.8$ degrees Fahrenheit, with values for "k", "γ" and "θ" in Table 5, below.

SDG&E's Peak-Day design temperature of 41.2 degrees Fahrenheit, is calculated in a methodologically similar way as for the 38.8 degree peak day temperature. The criteria specified in equation (9) above for a "1-in-35" likelihood would be replaced by a "1-in-10" likelihood.

(9') solve for "z_δ" from equation (7') above with $(1-\delta) = (1 - 1/10) = 1 - 0.1000$,

which yields a "z_δ" value of $z_\delta = 1.959$ and, $TPDD_\delta = - [\gamma + (z_\delta \cdot \theta)] = 41.2$, with values for "k", "γ" and "θ" in Table 5, below.

A plot of the cumulative distribution function for $MinAVG_y$ based on the fitted model parameters "k", "γ" and "θ" in Table 5, below, is shown in Figure 1.

Table 4

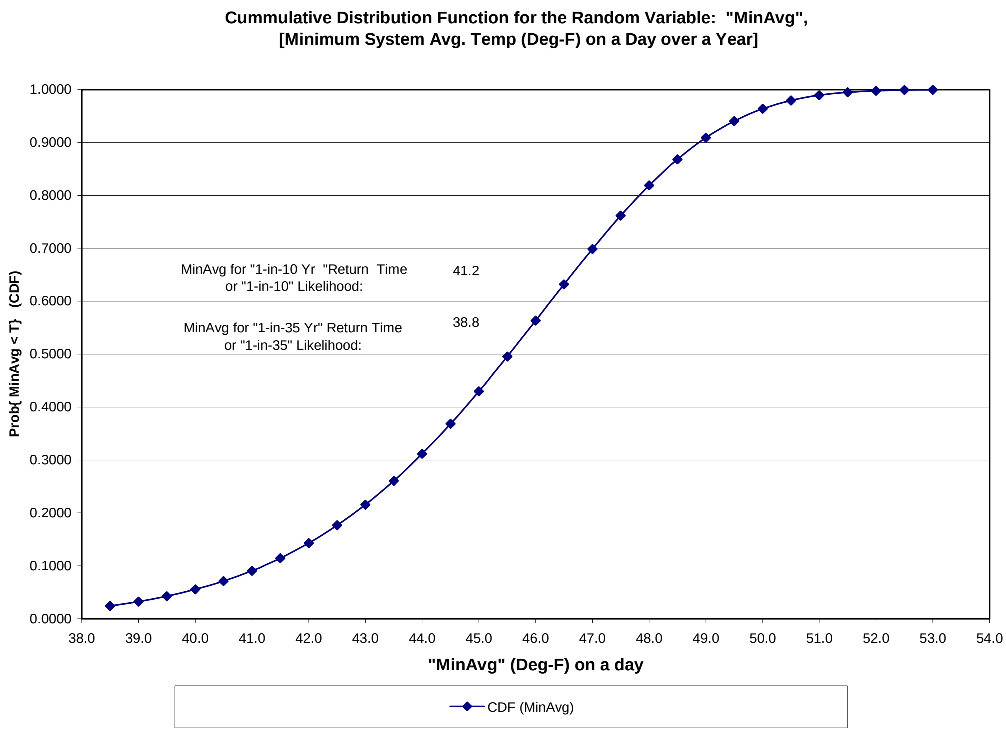
YEAR	MINAVG	Month(MinAvg)
1950	40.9183	Jan
1951	44.5976	Dec
1952	43.1127	Jan
1953	45.6944	Feb
1954	45.7266	Dec
1955	45.8405	Dec
1956	44.9376	Feb
1957	39.5106	Jan
1958	46.3200	Nov
1959	48.2742	Feb
1960	42.3773	Jan
1961	47.2724	Dec
1962	43.4605	Jan
1963	42.6634	Jan
1964	45.2679	Nov
1965	44.8386	Jan
1966	46.7472	Jan
1967	40.8227	Dec
1968	40.6646	Dec
1969	44.8695	Jan
1970	46.8395	Dec
1971	43.0352	Jan
1972	41.4527	Dec
1973	45.1152	Jan
1974	43.0357	Jan
1975	44.6574	Jan
1976	44.8893	Jan
1977	48.4115	Jan
1978	41.7090	Dec
1979	41.3919	Jan
1980	50.3768	Jan
1981	49.3495	Jan
1982	45.3700	Jan
1983	48.7163	Jan
1984	46.9387	Dec
1985	45.1652	Feb
1986	48.6176	Feb
1987	43.5032	Dec
1988	43.3276	Dec
1989	40.6421	Feb
1990	39.0510	Dec
1991	48.6652	Mar
1992	47.4024	Dec
1993	46.1631	Jan
1994	47.1736	Nov
1995	49.8793	Dec
1996	44.9600	Feb
1997	48.3607	Jan
1998	43.6996	Dec
1999	49.0383	Jan
2000	48.8114	Mar
2001	47.1589	Feb
2002	45.8350	Jan
2003	47.1264	Dec
2004	48.2675	Nov
2005	47.2984	Jan
2006	45.7944	Mar

Table 5

				alpha=	0.375	
YEAR	Month (-MinAvg)	Days/Yr	-MinAvg	"Rank"	Empirical CDF	"Fitted" Model CDF
1980	Jan	366	-50.3768	1	0.01092	0.02390
1995	Dec	365	-49.8793	2	0.02838	0.04117
1981	Jan	365	-49.3495	3	0.04585	0.06799
1999	Jan	365	-49.0383	4	0.06332	0.08830
2000	Mar	366	-48.8114	5	0.08079	0.10533
1983	Jan	365	-48.7163	6	0.09825	0.11302
1991	Mar	365	-48.6652	7	0.11572	0.11729
1986	Feb	365	-48.6176	8	0.13319	0.12135
1977	Jan	365	-48.4115	9	0.15066	0.13987
1997	Jan	365	-48.3607	10	0.16812	0.14466
1959	Feb	365	-48.2742	11	0.18559	0.15302
2004	Nov	366	-48.2675	12	0.20306	0.15368
1992	Dec	366	-47.4024	13	0.22052	0.25018
2005	Jan	365	-47.2984	14	0.23799	0.26311
1961	Dec	365	-47.2724	15	0.25546	0.26637
1994	Nov	365	-47.1736	16	0.27293	0.27889
2001	Feb	365	-47.1589	17	0.29039	0.28078
2003	Dec	365	-47.1264	18	0.30786	0.28495
1984	Dec	366	-46.9387	19	0.32533	0.30938
1970	Dec	365	-46.8395	20	0.34279	0.32250
1966	Jan	365	-46.7472	21	0.36026	0.33483
1958	Nov	365	-46.3200	22	0.37773	0.39283
1993	Jan	365	-46.1631	23	0.39520	0.41435
1955	Dec	365	-45.8405	24	0.41266	0.45856
2002	Jan	365	-45.8350	25	0.43013	0.45930
2006	Mar	365	-45.7944	26	0.44760	0.46484
1954	Dec	365	-45.7266	27	0.46507	0.47407
1953	Feb	365	-45.6944	28	0.48253	0.47845
1982	Jan	365	-45.3700	29	0.50000	0.52199
1964	Nov	366	-45.2679	30	0.51747	0.53546
1985	Feb	365	-45.1652	31	0.53493	0.54887
1973	Jan	365	-45.1152	32	0.55240	0.55536
1996	Feb	366	-44.9600	33	0.56987	0.57524
1956	Feb	366	-44.9376	34	0.58734	0.57807
1976	Jan	366	-44.8893	35	0.60480	0.58416
1969	Jan	365	-44.8695	36	0.62227	0.58665
1965	Jan	365	-44.8386	37	0.63974	0.59051
1975	Jan	365	-44.6574	38	0.65721	0.61284
1951	Dec	365	-44.5976	39	0.67467	0.62007
1998	Dec	365	-43.6996	40	0.69214	0.71966
1987	Dec	365	-43.5032	41	0.70961	0.73900
1962	Jan	365	-43.4605	42	0.72707	0.74308
1988	Dec	366	-43.3276	43	0.74454	0.75553
1952	Jan	366	-43.1127	44	0.76201	0.77476
1974	Jan	365	-43.0357	45	0.77948	0.78138
1971	Jan	365	-43.0352	46	0.79694	0.78143
1963	Jan	365	-42.6634	47	0.81441	0.81145
1960	Jan	366	-42.3773	48	0.83188	0.83240
1978	Dec	365	-41.7090	49	0.84934	0.87440
1972	Dec	366	-41.4527	50	0.86681	0.88811
1979	Jan	365	-41.3919	51	0.88428	0.89118
1950	Jan	365	-40.9183	52	0.90175	0.91283
1967	Dec	365	-40.8227	53	0.91921	0.91675
1968	Dec	366	-40.6646	54	0.93668	0.92290
1989	Feb	365	-40.6421	55	0.95415	0.92374
1957	Jan	365	-39.5106	56	0.97162	0.95735
1990	Dec	365	-39.0510	57	0.98908	0.96684

Mean{-MinAvg}=	-45.2833
St.Dev{-MinAvg}=	2.7909
"Gamma": "Data Analysis Fitted Est."=	**-46.50**
"Theta": "Data Analysis Fitted Est."=	**2.70**
"Kappa": "Data Analysis Fitted Est."=	**0.13**

Figure 1


Cummulative Distribution Function for the Random Variable: "MinAvg",
[Minimum System Avg. Temp (Deg-F) on a Day over a Year]
Prob{ MinAvg < T} (CDF)
1.0000
0.9000
0.8000
0.7000
0.6000
0.5000
0.4000
0.3000
0.2000
0.1000
0.0000
MinAvg for "1-in-10 Yr "Return Time or "1-in-10" Likelihood:
41.2
MinAvg for "1-in-35 Yr" Return Time or "1-in-35" Likelihood:
38.8
38.0
39.0
40.0
41.0
42.0
43.0
44.0
45.0
46.0
47.0
48.0
49.0
50.0
51.0
52.0
53.0
54.0
"MinAvg" (Deg-F) on a day
CDF (MinAvg)

V. Estimating the Uncertainty in the Peak-Day Design Temperature

The calculated peak-day design temperatures in section IV above also have a statistical uncertainty associated with them. The estimated measures of uncertainty recommended for our use are calculated from the fitted model for the probability distribution and are believed to be reasonable, although rough, approximations.

The basic approach used the estimated parameters for the probability distribution (see the results provided in Table 5, above) to calculate the fitted temperatures as a function of the empirical CDF listed in Table 5. These fitted temperatures are then "compared" with the observed temperatures by calculating the difference = "observed" – "fitted" values. The full set of differences are then separated into the lower third (L), the middle third (M) and the upper third (U) of the distribution. Finally, calculate values of the root-mean-square error (RMSE) of the differences in each third of the distribution, along with the entire set of differences overall. The data in Table 6, below, show the temperature data and the resulting RMSE values.

The formula below is used to calculate the RMSE for a specified set of "N" data differences:

$$\text{RMSE} = \text{SQRT}\left\{ \left(\sum_{i=1, \ldots, N} e[\,i\,]^{2} \right) / \,(N-3) \right\},$$

where e[i] = *observed* less *fitted* value of temperature, T[i]. The number of estimated paramters (3 for the GEV model) is subtracted from the respective number of data differences, N, in the denominator of the RMSE expression.

Since both the "1-in-35" and "1-in-10" peak-day temperature values are in the lower third quantile of the fitted distribution, the calculated standard error for these estimates is 0.6 Deg-F.

Table 6

Quantile: (Lower, Middle, Upper 3rd's)	Observed "T[i]" Temp. Ranked	"Fitted Value" of "T[i]"	Residual "e[i]": Obs'd. less Fitted Value of "T[i]"	Square of "e[i]":
U	50.3768	50.9922	-0.6154	0.3787
U	49.8793	50.2266	-0.3474	0.1207
U	49.3495	49.7719	-0.4225	0.1785
U	49.0383	49.4297	-0.3914	0.1532
U	48.8114	49.1474	-0.3360	0.1129
U	48.7163	48.9027	-0.1864	0.0347
U	48.6652	48.6838	-0.0187	0.0003
U	48.6176	48.4839	0.1336	0.0179
U	48.4115	48.2984	0.1131	0.0128
U	48.3607	48.1242	0.2365	0.0560
U	48.2742	47.9590	0.3153	0.0994
U	48.2675	47.8011	0.4664	0.2175
U	47.4024	47.6492	-0.2468	0.0609
U	47.2984	47.5024	-0.2040	0.0416
U	47.2724	47.3597	-0.0873	0.0076
U	47.1736	47.2205	-0.0469	0.0022
U	47.1589	47.0842	0.0747	0.0056
U	47.1264	46.9503	0.1762	0.0310
U	46.9387	46.8183	0.1204	0.0145
M	46.8395	46.6879	0.1516	0.0230
M	46.7472	46.5587	0.1885	0.0355
M	46.3200	46.4304	-0.1104	0.0122
M	46.1631	46.3027	-0.1396	0.0195
M	45.8405	46.1754	-0.3349	0.1122
M	45.8350	46.0481	-0.2131	0.0454
M	45.7944	45.9207	-0.1263	0.0159
M	45.7266	45.7928	-0.0662	0.0044
M	45.6944	45.6642	0.0301	0.0009
M	45.3700	45.5347	-0.1648	0.0271
M	45.2679	45.4040	-0.1361	0.0185
M	45.1652	45.2719	-0.1067	0.0114
M	45.1152	45.1381	-0.0228	0.0005
M	44.9600	45.0022	-0.0422	0.0018
M	44.9376	44.8640	0.0736	0.0054
M	44.8893	44.7231	0.1662	0.0276
M	44.8695	44.5793	0.2902	0.0842
M	44.8386	44.4319	0.4067	0.1654
M	44.6574	44.2807	0.3767	0.1419
L	44.5976	44.1251	0.4725	0.2233
L	43.6996	43.9644	-0.2649	0.0702
L	43.5032	43.7981	-0.2949	0.0870
L	43.4605	43.6253	-0.1648	0.0272
L	43.3276	43.4452	-0.1176	0.0138
L	43.1127	43.2565	-0.1438	0.0207
L	43.0357	43.0580	-0.0223	0.0005
L	43.0352	42.8480	0.1872	0.0350
L	42.6634	42.6245	0.0390	0.0015
L	42.3773	42.3847	-0.0074	0.0001
L	41.7090	42.1253	-0.4162	0.1733
L	41.4527	41.8414	-0.3888	0.1512
L	41.3919	41.5267	-0.1348	0.0182
L	40.9183	41.1714	-0.2531	0.0641
L	40.8227	40.7604	0.0623	0.0039
L	40.6646	40.2683	0.3963	0.1570
L	40.6421	39.6459	0.9962	0.9925
L	39.5106	38.7759	0.7347	0.5398
L	39.0510	37.2085	1.8425	3.3948
			Overall RMSE ($e_{[i]}$):	0.5 °F
			Lower 3rd RMSE ($e_{[i]}$):	0.6 °F
			Middle 3rd RMSE ($e_{[i]}$):	0.2 °F
			Upper 3rd RMSE ($e_{[i]}$):	0.3 °F

VI. The Relationship between Annual Likelihoods for Peak-Day Temperatures and "Expected Return Time"

The event whose probability distribution we've modeled is the likelihood that the minimum daily temperature over a calendar year is less than a specified value. And, in particular, we've used this probability model to infer the value of a temperature, our *peak-day design temperature* ($TPDD_\delta$), that corresponds to a pre-defined likelihood, δ, that the observed minimum temperature is less than or equal to this design temperature.

(1) δ = Prob{ Minimum Daily Temperature over the Year < $TPDD_\delta$ }.

For some applications, it is useful to think of how this specified likelihood (or "risk level" δ) relates to the expected number of years until this Peak-Day event would first occur. This expected number of years is what is meant by the *return period*. The results stated below are found in the book: ***Statistics of Extremes***, E.J. Gumbel, Columbia University Press, 1958, on pages 21-25.

(2) E[#Yrs for Peak-Day Event to Occur] = 1 / δ,

1 / Prob{ Minimum Daily Temperature over the Year < $TPDD_\delta$ }.

For our peak-day design temperature (38.8°F) associated with a 1-in-35 annual likelihood, the return period is 35 years (δ=1/35). For the 41.2°F peak-day design temperature, the return period is 10 years (δ=1/10). Occasionally, a less precise terminology is used. For example, the 38.8°F peak-day design temperature may be referred to as a "1-in-35 year cold day"; and the 41.2°F peak-day design temperature may be referred to as a "1-in-10 year cold day."

The probability model for the *return period*, as a random variable, is a geometric (discrete) distribution with positive integer values for the *return period*. The parameter δ = Prob{ Minimum Daily Temperature over the Year < $TPDD_\delta$ }.

(3) Prob{ *return period* = r } = $(1 - \delta)^{(r-1)}\,\delta$, for r = 1, 2, 3, . . .

The expected value of the *return period* is already given in (2) above; the variance of the *return period* is:

(4) Var[*return period*] = $\big(\text{E[} \textit{return period} \text{]}\big)^2 \times \big(1 - (1 / \text{E [} \textit{return period} \text{]})\big)$,

(4') Var[*return period*] = $\big(\text{E[} \textit{return period} \text{]}\big) \times \big(\text{E [} \textit{return period} \text{] - 1}\big)$.

Equations (4) and (4') indicate that the standard deviation (square root of the variance) of the *return period* is nearly equal to its expected value. Thus, there is substantial variability about the expected value—a *return period* is not very precise.

VII. Calculation of Likelihoods for Peak-Day Temperature Events Over a Specified Number of Years

With a specified annual likelihood (i.e., a level of risk) for a peak-day temperature event, several forward-looking questions can be posed:

1). What is the probability that we observe *no* peak-day event over the next N years?

2). What is the probability that we observe *at least one* specified peak-day event over the next N years?"

3). What is the probability that we observe exactly one peak-day event over the next N years?

4). What is the underlying peak-day temperature associated with the annual likelihood computed from setting the probability in question 3 above to a specified value?

To calculate the probabilities to answer questions 1-3, we use a binomial probability model:

(1) BiNomial(s, N, δ) = { N! / [(s!) (N-s)!]} $[\delta]^{(s)}$ $[1 - \delta]^{(N-s)}$, where

N = # of years, s = # of peak-day events and δ = Annual Likelihood of a peak-day event.; the notation "N!" means the product "N(N-1)(N-2) ... (2)(1)" in the formula.

The binomial probability model is the one that applies here since for a specified number of years in the future, N, and a specified annual likelihood, δ, for the peak-day event, there are typically a number of ways that a specified number of annual peak-day events can occur out of the total, N, regardless of the order in which the outcomes might occur.

For δ=0.1, N=10 years the answer to question 1) is calculated from:

(2) Prob{ *No* peak-day event over 10 years } = BiNomial(0, 10, 0.1) = 0.3487

The answer to question 2) is simply:

(3) Prob{ *At Least* One peak-day event over 10 years } =

1 - Prob{ No peak-day event over 10 years } = 1 – 0.3487 = 0.6513

The answer to question 3) is calculated from:

(4) Prob{ *Exactly One* peak-day event over 10 years } = BiNomial(1, 10, 0.1)

(4') Prob{ *Exactly One* peak-day event over 10 years } = 0.3874

Finally, to find an answer to question 4) where there's a 1/10 chance that only one peak-day event occurs over a ten-year period, we solve for δ in the equation:

(5) 0.1000 = BiNomial(1, 10, δ).

A numerical solution to this equation yields δ = 0.0011, approximately, for the annual likelihood of a peak-day event. Our estimation results of Section IV, above, allow us to calculate the peak-day design temperature for this value of δ. The resulting calculations yield $TPDD_{\delta}$ = 37.2°F. A similar set of calculations for the case where we want to find the annual likelihood of a peak-day where only one peak-day event occurs over a thirty-five year period with a chance of 1/35=0.0286. The resulting value of δ = 0.000841 with $TPDD_{\delta}$ = 33.9°F for this value of δ.

VIII. Attachment 1: SAS Program Execution Log

```
NOTE: Copyright (c) 1989-1996 by SAS Institute Inc., Cary, NC, USA.
NOTE: SAS (r) Proprietary Software Release 6.12  TS020
      Licensed to SAN DIEGO GAS & ELECTRIC CO, Site 0009311007.


Title1 "Data Analysis for Maximum/Minimum Daily SysAvg Temperatures (Un-Rounded)." ;
Title2 "Fit GEV Probability Model to Empirical CDF using NL-OLS Regression Methods." ;

/*****************************************************************************************************/
/*                                                                                                   */
/*                                                                                                   */
/*                                                                                                   */
/* FILE SAVED: "S:\Weather\2009Bcap\SoCalGas\GEV4DlyTemp(NLReg2)_Scg4WP.sas"                         */
/*                                                                                                   */
/*              Sep. 10th,2007 for Annual Max of Negative of Min. Temp.                              */
/*              Also, separately for and each of twelve(12) calendar months Jan-Dec.                 */
/*              Fit GEV models (3-parameter and 2-parameter), plus a simple T-Dist. model.           */
/*                                                                                                   */
/*****************************************************************************************************/

options mprint ;
/* %cour8p */
   %cour8l
MPRINT(COUR8L):   DM 'dlgprtsetup orient=landscape nodisplay';
MPRINT(COUR8L):   OPTIONS LS=158 PS=72;

 options ls=211 ps=69 ; **<<LANDSCAPE:  SAS-Monospace w/Roman 6pt. Font >>**;
*options ls=160 ps=90 ; **<<PORTRAIT:   SAS-Monospace w/Roman 6pt. Font >>**;

options date number notes ;

libname out2 'S:\Weather\2009Bcap\SoCalGas\' ;
NOTE: Libref OUT2 was successfully assigned as follows:
      Engine:        V612
      Physical Name: S:\Weather\2009Bcap\SoCalGas

proc contents data=out2.DlySys_d ;
run ;

NOTE: The PROCEDURE CONTENTS used 0.12 seconds.


data seriesD ;
  set out2.DlySys_d ;
  year = year(date) ;
  month = month(date) ;
  posAvg = avg ;
  negAvg = -avg ;
run ;

NOTE: The data set WORK.SERIESD has 21000 observations and 8 variables.
NOTE: The DATA statement used 0.51 seconds.


proc means data=seriesD noprint nway ;
 class year month ;
  var posAvg negAvg ;
 output out=mostat
                  mean=posAvg  negAvg
                   max=MxPosAvg MxNegAvg
                   min=MnPosAvg MnNegAvg    ;
run;

NOTE: The data set WORK.MOSTAT has 690 observations and 10 variables.
```

```
NOTE: The PROCEDURE MEANS used 0.1 seconds.


proc sort data=mostat ;
   by year month ;
run ;

NOTE: The data set WORK.MOSTAT has 690 observations and 10 variables.
NOTE: The PROCEDURE SORT used 0.12 seconds.


data mostat ;
   set mostat ;
   MxPRatio = MxPosAvg/ PosAvg  ;
   MnPRatio = MnPosAvg/ PosAvg  ;
   MxNRatio = MxNegAvg/ NegAvg  ;
   MnNRatio = MnNegAvg/ NegAvg  ;
run ;

NOTE: The data set WORK.MOSTAT has 690 observations and 14 variables.
NOTE: The DATA statement used 0.18 seconds.


/****************
***<< Print Summary Tables of Means/Minimums/Maximums of daily NEGATIVE-Temperatures (degrees-F). >>*** ;

proc transpose data=mostat out=AvTData prefix=AvT_ ;
   where (year < 2007) ;
   by year;
   id month ;
   var NegAvg  ;
run ;

data AvTData ;
   set AvTData ;

 if (mod(year,4)=0) then do ;
        AvTyr = (AvT_1 + AvT_3 + AvT_5 + AvT_7 + AvT_8 + AvT_10 + AvT_12)*31
               + (AvT_4 + AvT_6 + AvT_9 + AvT_11)*30
               + (AvT_2)*29 ;
        AvTyr = AvTyr / 366 ;
        end ;
 else do ;
        AvTyr = (AvT_1 + AvT_3 + AvT_5 + AvT_7 + AvT_8 + AvT_10 + AvT_12)*31
               + (AvT_4 + AvT_6 + AvT_9 + AvT_11)*30
               + (AvT_2)*28 ;
        AvTyr = AvTyr / 365 ;
        end ;

run ;

proc print data=AvTData ;
 id year ;
 var AvTyr AvT_1-AvT_12 ;
title3 'Monthly Mean NEGATIVE Temperature (Deg-F) from 1950 thru 2006.';
run ;


proc transpose data=mostat out=MnTData prefix=MnT_ ;
   where (year < 2007) ;
   by year;
   id month ;
   var MnNegAvg ;
```

```
run ;

data MnTData ;
   set MnTData ;
 MnTyr = min(of MnT_1-MnT_12) ;
run ;

proc print data=MnTData ;
 id year ;
 var MnTyr MnT_1-MnT_12 ;
title3 'Monthly MINIMUM NEGATIVE-Temperature (Deg-F) from 1950 thru 2006.';
run ;
****************/

proc transpose data=mostat out=MxTData prefix=MxT_ ;
   where (year < 2007) ;
   by year;
   id month ;
   var MxNegAvg ;
run ;

NOTE: The data set WORK.MXTDATA has 57 observations and 14 variables.
NOTE: The PROCEDURE TRANSPOSE used 0.11 seconds.


data MxTData ;
   set MxTData ;
 MxTyr = max(of MxT_1-MxT_12) ;
run ;

NOTE: The data set WORK.MXTDATA has 57 observations and 15 variables.
NOTE: The DATA statement used 0.14 seconds.


proc print data=MxTData ;
 id year ;
 var MxTyr MxT_1-MxT_12 ;
title3 'Monthly MAXIMUM NEGATIVE-Temperature (Deg-F) from 1950 thru 2006.';
run ;

NOTE: The PROCEDURE PRINT used 0.09 seconds.


/****************
***<< Descriptive Statistics: Maximums of daily NEGATIVE-Temperatures (Deg-F) for Year and each calendar month.
>>*** ;

proc corr data=MxTData ;
  var MxTyr MxT_1 - MxT_12 ;
title3 'Correlation Matrix of Monthly Maximum NEGATIVE-Temperatures (Deg-F) within same year.';
run ;

proc arima data=MxTData ;
  identify var=MxTyr ;
  identify var=MxT_1 ;
  identify var=MxT_2 ;
  identify var=MxT_3 ;
  identify var=MxT_4 ;
  identify var=MxT_5 ;
  identify var=MxT_6 ;
```

```
  identify var=MxT_7 ;
  identify var=MxT_8 ;
  identify var=MxT_9 ;
  identify var=MxT_10 ;
  identify var=MxT_11 ;
  identify var=MxT_12 ;
title3 "Auto-correlation analysis of each calendar month's Maximum NEGATIVE-Temperatures (Deg-F) within same year.";
run ;
proc univariate normal data=MxTData plot ;
  id year ;
  var MxTyr MxT_1 - MxT_12 ;
title3 "Probability plots and tests for NORMALity by each calendar month's Maximun NEGATIVE-Temperatures (Deg-F) time series.";
run ;
proc means data=MxTData ;
  var MxT_1 - MxT_12  MxTYr ;
run ;
****************/
***<< Statistical Estimation of GEV Models: Maximums of daily heating degrees for Year and each calendar month. >>*** ;
%macro RankIt(file=MxTData,var=MxTYr,rank=RankYr,prob=PrMxTYr,Nobser=57,PltValue=0.375) ;
proc sort data=&file ;
  by &var ;
run ;
data &file ;
   set &file ;
   retain &rank 0     alpha &pltvalue ;
  &rank = &rank + 1 ;
  &prob =  (&rank - alpha) / (&Nobser +(1 - 2*alpha)) ;
run ;
proc print data=&file ;
  var &var &rank &prob alpha year ;
run ;
%mend RankIt ;
%macro GEVfit(file=MxTData,ofile=MxTNL1,outfit=fit1,outest=est1,depvar=PrMxTYr,var=MxTYr,typeGEV=1,
              KappaI=0.25,GammaI=-47.05,ThetaI=2.77,YrLo=1950,YrHi=2006) ;
proc sort data=&file ;
   by year ;
run ;
proc model data=&file converge=0.001
           maxit=500 dw ;  outmodel=&ofile ;
     range year = &YrLo to &YrHi ;  **<< Dropped Jan-Jul 2007 data. >>** ;
     y = (&var - Gamma) / Theta ;
    %if &typeGEV=1 %then %do ;  ***<< 3-parameter GEV Model. >>>*** ;
        &depvar = exp( -(1 - Kappa * (y))**(1/Kappa) ) ;
        %let typmod = 3-parameter GEV Model. ;
        %end ;
    %if &typeGEV=2 %then %do ;  **<< 2-parameter "Double Exponential" or  "Gumbel" Model. >>** ;
        &depvar = exp( -exp(-(y)) ) ;
        %let typmod = 2-parameter Double Exponential or Gumbel Model. ;
```

```
        %end ;

    %if (&typeGEV NE 1) AND (&typeGEV NE 2) %then  %do ; **<< 2-parameter "T-Dist" Model. >>** ;
        dft=(&YrHi - &YrLo) +1 -2 ;
        &depvar = probt(y,dft) ;
        %let typmod = 2-parameter T-Dist Model. ;
        %end ;


  %if &typeGEV = 1 %then %do ;
  parms
        Kappa  &KappaI
        Gamma  &GammaI
        Theta  &ThetaI ;
  %end ;

  %if (&typeGEV NE 1)  %then %do ;
  parms
        Gamma  &GammaI
        Theta  &ThetaI ;
  %end ;


  fit &depvar   /out=&outfit  outall
                 outest=&outest corrb corrs outcov ;

title3 "Non-linear Estimation of &&typmod: for Maximum NEGATIVE Temperature (Deg-F)." ;
run ;
%mend GEVfit ;







/****************
****************/

proc means data=MxTData ;
  var MxT_1 - MxT_12  MxTYr ;
 output out=VarStat
        mean=mean1-mean12 meanYr
        std=stdev1-stdev12 stdevYr;
title3 "Calc. Means and Standard Deviantions to use as Starting Values in Non-Linear Estimations." ;
run ;

NOTE: The data set WORK.VARSTAT has 1 observations and 28 variables.
NOTE: The PROCEDURE MEANS used 0.06 seconds.




proc print data=VarStat ;
run ;

NOTE: The PROCEDURE PRINT used 0.0 seconds.




data _null_ ;
   set VarStat ;

  call symput('gamma_Yr',meanYr) ;
  call symput('theta_Yr',stdevYr) ;

  call symput('gamma_12',mean12) ;
  call symput('theta_12',stdev12) ;

  call symput('gamma_11',mean11) ;
  call symput('theta_11',stdev11) ;

  call symput('gamma_10',mean10) ;
  call symput('theta_10',stdev10) ;

  call symput('gamma_9',mean9) ;
```

```
324     call symput('theta_9',stdev9) ;
325
326     call symput('gamma_8',mean8) ;
327     call symput('theta_8',stdev8) ;
328
329     call symput('gamma_7',mean7) ;
330     call symput('theta_7',stdev7) ;
331
332     call symput('gamma_6',mean6) ;
333     call symput('theta_6',stdev6) ;
334
335     call symput('gamma_5',mean5) ;
336     call symput('theta_5',stdev5) ;
337
338     call symput('gamma_4',mean4) ;
339     call symput('theta_4',stdev4) ;
340
341     call symput('gamma_3',mean3) ;
342     call symput('theta_3',stdev3) ;
343
344     call symput('gamma_2',mean2) ;
345     call symput('theta_2',stdev2) ;
346
347     call symput('gamma_1',mean1) ;
348     call symput('theta_1',stdev1) ;
349
350   run ;

NOTE: Numeric values have been converted to character values at the places given by: (Line):(Column).
      311:26   312:26   314:26   315:26   317:26   318:26   320:26   321:26   323:25   324:25   326:25   327:25
329:25   330:25   332:25   333:25   335:25   336:25   338:25   339:25   341:25   342:25
      344:25   345:25   347:25   348:25
NOTE: The DATA statement used 0.07 seconds.


351
352
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356
357   *********<<< Analysis for "Annual" Data  (i.e., SUFIX "mm" = "_Yr"  >>>******************;
358
359
360
361
362
363   %RankIt(file=MxTData,var=MxTYr,rank=RankYr,prob=PrMxTYr,Nobser=57,PltValue=0.375) ;
MPRINT(RANKIT):   PROC SORT DATA=MXTDATA ;
MPRINT(RANKIT):   BY MXTYR ;
MPRINT(RANKIT):   RUN ;

NOTE: The data set WORK.MXTDATA has 57 observations and 15 variables.
NOTE: The PROCEDURE SORT used 0.07 seconds.


MPRINT(RANKIT):   DATA MXTDATA ;
MPRINT(RANKIT):   SET MXTDATA ;
MPRINT(RANKIT):   RETAIN RANKYR 0 ALPHA 0.375 ;
MPRINT(RANKIT):   RANKYR = RANKYR + 1 ;
MPRINT(RANKIT):   PRMXTYR = (RANKYR - ALPHA) / (57 +(1 - 2*ALPHA)) ;
MPRINT(RANKIT):   RUN ;

NOTE: The data set WORK.MXTDATA has 57 observations and 18 variables.
NOTE: The DATA statement used 0.14 seconds.


MPRINT(RANKIT):   PROC PRINT DATA=MXTDATA ;
MPRINT(RANKIT):   VAR MXTYR RANKYR PRMXTYR ALPHA YEAR ;
MPRINT(RANKIT):   RUN ;

NOTE: The PROCEDURE PRINT used 0.0 seconds.


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372
373  %GEVfit(file=MxTData,ofile=MxTNL1,outfit=fit1,outest=est1,depvar=PrMxTYr,var=MxTYr,typeGEV=1,
374          KappaI=0.25,GammaI=&gamma_Yr,ThetaI=&theta_Yr,YrLo=1950,YrHi=2006) ;
MPRINT(GEVFIT):   PROC SORT DATA=MXTDATA ;
MPRINT(GEVFIT):   BY YEAR ;
MPRINT(GEVFIT):   RUN ;

NOTE: The data set WORK.MXTDATA has 57 observations and 18 variables.
NOTE: The PROCEDURE SORT used 0.1 seconds.


MPRINT(GEVFIT):   PROC MODEL DATA=MXTDATA CONVERGE=0.001 MAXIT=500 DW ;
MPRINT(GEVFIT):   OUTMODEL%MXTNL1 ;
MPRINT(GEVFIT):   RANGE YEAR = 1950 TO 2006 ;
MPRINT(GEVFIT):   **<< DROPPED JAN-JUL 2007 DATA. >>** ;
MPRINT(GEVFIT):   Y % (MXTYR - GAMMA) / THETA ;
MPRINT(GEVFIT):   ***<< 3-PARAMETER GEV MODEL. >>>*** ;
MPRINT(GEVFIT):   PRMXTYR % EXP( -(1 - KAPPA * (Y))**(1/KAPPA) ) ;
MPRINT(GEVFIT):   PARMS KAPPA 0.25 GAMMA -45.28325702 THETA 2.7908621426 ;

MPRINT(GEVFIT):   FIT PRMXTYR /OUT=FIT1 OUTALL OUTEST=EST1 CORRB CORRS OUTCOV ;
MPRINT(GEVFIT):   TITLE3 "Non-linear Estimation of 3-parameter GEV Model.: for Maximum NEGATIVE Temperature (Deg-F)." ;
MPRINT(GEVFIT):   RUN ;

NOTE: At OLS Iteration 4 CONVERGE=0.001 Criteria Met.
NOTE: The data set WORK.FIT1 has 171 observations and 6 variables.
NOTE: The data set WORK.EST1 has 4 observations and 6 variables.
375
376

NOTE: The PROCEDURE MODEL used 0.14 seconds.


377  proc print data=fit1 ;
378  run ;

NOTE: The PROCEDURE PRINT used 0.0 seconds.


379
380
381
382  proc transpose data=fit1 out=pred1 prefix=probP ;
383     where (_type_ = "PREDICT" ) ;
384     by year;
385     var prmxtyr ;
386  run ;

NOTE: The data set WORK.PRED1 has 57 observations and 3 variables.
NOTE: The PROCEDURE TRANSPOSE used 0.07 seconds.


387
388  data comb1 ;
389     merge MxTData pred1 ;
390    by year ;
391     ProbP = ProbP1 ;
392    keep year MxTYr PrMxTYr ProbP ;
393  run ;

NOTE: The data set WORK.COMB1 has 57 observations and 4 variables.
NOTE: The DATA statement used 0.09 seconds.


394
395
396  proc print data=comb1 ;
397  run ;

NOTE: The PROCEDURE PRINT used 0.01 seconds.
```

```
proc plot data=comb1 ;
  plot prmxtyr*MxTYr='*'
       ProbP*MxTYr='-' / overlay ;
run ;

NOTE: The PROCEDURE PLOT used 0.0 seconds.


proc print data=est1 ;
run ;

NOTE: The PROCEDURE PRINT used 0.0 seconds.


/*****************
data out2.est1_Yr ;   ***<<< Save a copy of the "G.E.V. Model" estimation results!  >>>*** ;
  set est1 ;
run ;
*****************/
data comb  ;
   merge MxTData pred1 ;
  by year ;

 ***<< "Log(PrMxTYr) - Log(ProgP)" to calc. RMSE of Proportional Errors Models! >>** ;
   LgPrRat1 = Log(PrMxTYr/ProbP1) ;

 label   LgPrRat1 = "Log(PrMxTYr/ProbP1)- GEV" ;

   if (PrMxTYr <= (1/3)) then Quantile=1 ;  **<< "Lower Third" >>** ;
   if (PrMxTYr > (1/3)) AND (PrMxTYr <= (2/3)) then Quantile=2 ; **<< "Middle Third" >>** ;
   if (PrMxTYr > (2/3)) then Quantile=3 ;  **<< "Upper Third" >>** ;

  keep year MxTYr Quantile PrMxTYr ProbP1 LgPrRat1 ;
run ;

NOTE: The data set WORK.COMB has 57 observations and 6 variables.
NOTE: The DATA statement used 0.09 seconds.


proc print data=comb  ;
  var year MxTYr Quantile  PrMxTYr ProbP1  LgPrRat1 ;
title3 "Est'd CDFs and Logarithms of 'Empirical CDF rel. to Fitted CDF' values by Models." ;
run ;

NOTE: The PROCEDURE PRINT used 0.01 seconds.


proc means data=comb  n mean std min max var uss ;
  var LgPrRat1 ;
title3 "Stats for Logarithms of 'Empirical CDF rel. to Fitted CDF' values by Models to calc. RMSE of Prop. Model Spec" ;
```

```
run ;

NOTE: The PROCEDURE MEANS used 0.0 seconds.


proc sort data=comb ;
  by Quantile ;
run ;

NOTE: The data set WORK.COMB has 57 observations and 6 variables.
NOTE: The PROCEDURE SORT used 0.09 seconds.


proc means data=comb  n mean std min max var uss ;
  by Quantile ;
  var LgPrRat1 ;
title3 "Stats By Quantile for Logarithms of 'Empirical CDF rel. to Fitted CDF' values by Models to calc. RMSE of
Prop. Model Spec" ;
run ;

NOTE: The PROCEDURE MEANS used 0.0 seconds.


quit ;
```

IX. Attachment 2: SAS Program Output

CONTENTS PROCEDURE

```
Data Set Name: OUT2.DLYSYS_D                      Observations:         21000
Member Type:   DATA                               Variables:            4
Engine:        V612                               Indexes:              0
Created:       13:43 Friday, July 20, 2007        Observation Length:   32
Last Modified: 13:43 Friday, July 20, 2007        Deleted Observations: 0
Protection:                                       Compressed:           NO
Data Set Type:                                    Sorted:               NO
Label:
```

-----Engine/Host Dependent Information-----

```
Data Set Page Size:       8192
Number of Data Set Pages: 83
File Format:              607
First Data Page:          1
Max Obs per Page:         254
Obs in First Data Page:   229
```

-----Alphabetic List of Variables and Attributes-----

#	Variable	Type	Len	Pos	Format	Informat	Label
4	AVG	Num	8	24			
3	CDD	Num	8	16			
1	DATE	Num	8	0	YYMMDD8.	YYMMDD.	DATE
2	HDD	Num	8	8			

Data Analysis for Maximum/Minimum Daily SysAvg Temperatures (Un-Rounded).
Fit of Probability Model to Empirical CDF using NL-OLS Regression Methods.
Monthly MAXIMUM NEGATIVE-Temperature (Deg-F) from 1950 thru 2006.

YEAR	MXTYR	MXT_1	MXT_2	MXT_3	MXT_4	MXT_5	MXT_6	MXT_7	MXT_8	MXT_9	MXT_10	MXT_11	MXT_12
1950	-40.9183	-40.9183	-45.0309	-50.6980	-53.8151	-54.7181	-60.2020	-68.2032	-67.7307	-64.0708	-63.1306	-52.1389	-51.8156
1951	-44.5976	-46.2885	-44.6835	-46.0473	-54.1593	-55.4942	-62.0715	-68.0392	-64.4889	-65.6125	-55.7540	-49.1660	-44.5976
1952	-43.1127	-43.1127	-46.8780	-45.9001	-53.2172	-60.9574	-59.6656	-68.4091	-69.2871	-61.9533	-61.0544	-46.9622	-47.1245
1953	-45.6944	-48.5670	-45.6944	-45.8429	-50.5556	-53.9157	-58.8051	-72.1189	-65.4629	-64.5738	-57.3008	-50.5122	-49.2611
1954	-45.7266	-47.6747	-49.5010	-49.0421	-56.6919	-56.3848	-61.4700	-69.7204	-67.4059	-63.9522	-58.4575	-51.4478	-45.7266
1955	-45.8405	-46.1598	-45.9999	-51.4955	-53.7804	-52.8762	-58.5254	-66.2440	-71.0526	-63.4701	-58.0043	-49.7967	-45.8405
1956	-44.9376	-48.5611	-44.9376	-51.5237	-50.4258	-58.2291	-65.0088	-66.1543	-66.3468	-70.3272	-53.5182	-53.5197	-48.6827
1957	-39.5106	-39.5106	-49.0264	-51.1614	-51.2577	-57.6415	-65.1280	-71.1565	-66.5313	-67.5519	-57.1781	-52.2147	-52.8553
1958	-46.3200	-50.2357	-53.7443	-49.7749	-51.1693	-60.7190	-66.2454	-69.5691	-72.6722	-66.4429	-62.7581	-46.3200	-52.9509
1959	-48.2742	-51.5517	-48.2742	-57.6774	-59.6718	-58.2296	-66.5294	-74.3827	-68.4063	-65.9227	-60.1894	-58.6028	-48.7768
1960	-42.3773	-42.3773	-48.4002	-52.2086	-53.3744	-57.3592	-66.2734	-69.1094	-69.4832	-67.1967	-59.0686	-50.3970	-45.6696
1961	-47.2724	-50.8979	-53.3212	-53.4290	-54.5046	-58.9468	-60.4804	-69.1039	-68.6472	-64.2766	-55.7973	-51.8086	-47.2724
1962	-43.4605	-43.4605	-45.2642	-46.9431	-57.8712	-54.9372	-57.8178	-68.2038	-70.0797	-66.1326	-60.9339	-54.8585	-47.9104
1963	-42.6634	-42.6634	-52.8886	-48.0317	-51.2141	-60.4437	-60.5433	-68.2398	-70.3210	-67.4875	-62.4023	-53.0858	-48.9380
1964	-45.2679	-47.5898	-49.7929	-48.2096	-52.0983	-52.5155	-58.9257	-68.3026	-67.8691	-65.7274	-61.5203	-45.2679	-45.6579
1965	-44.8386	-44.8386	-47.8390	-51.7063	-48.2403	-57.5491	-58.9825	-68.2346	-71.1326	-64.2985	-60.8709	-51.6710	-46.3873
1966	-46.7472	-46.7472	-48.2209	-47.3474	-57.5673	-58.5316	-62.8474	-69.7731	-68.7017	-66.7299	-63.4473	-52.6452	-47.3241
1967	-40.8227	-49.5660	-52.8626	-51.1507	-48.1869	-57.8414	-58.8463	-72.1557	-74.6289	-70.2575	-64.7694	-51.6433	-40.8227
1968	-40.6646	-46.2174	-52.3831	-53.8226	-55.4464	-56.9789	-61.5246	-67.7807	-68.3734	-64.7656	-59.6491	-54.2979	-40.6646
1969	-44.8695	-44.8695	-47.3801	-48.6289	-53.6741	-55.6541	-62.6936	-68.6035	-72.0494	-67.1531	-59.2281	-56.3347	-48.8588
1970	-46.8395	-47.0105	-54.2545	-51.9971	-51.7666	-57.5537	-61.9765	-71.3083	-71.1595	-65.9486	-58.2075	-53.2640	-46.8395
1971	-43.0352	-43.0352	-48.9632	-48.7365	-52.7209	-55.7858	-58.4771	-68.6935	-70.5249	-62.7990	-49.2473	-52.4035	-44.7042
1972	-41.4527	-45.9910	-49.9478	-55.3826	-54.2799	-56.8509	-65.8108	-70.0259	-70.0547	-66.1924	-55.9821	-53.7719	-41.4527
1973	-45.1152	-45.1152	-52.1136	-49.1287	-55.3944	-58.0825	-63.6435	-67.2313	-67.9027	-65.8271	-61.9101	-49.7465	-50.8663
1974	-43.0357	-43.0357	-51.8365	-48.2493	-55.5989	-58.3259	-65.3704	-68.5846	-70.7465	-66.6510	-56.3246	-55.0899	-44.8741
1975	-44.6574	-44.6574	-47.9921	-49.7435	-47.3570	-56.3139	-61.2364	-69.2099	-68.4586	-67.2450	-59.1765	-47.8011	-48.6515
1976	-44.8893	-44.8893	-49.4852	-45.4270	-50.3203	-57.9625	-60.4401	-70.6023	-67.6337	-67.4457	-62.8448	-51.7497	-51.2957
1977	-48.4115	-48.4115	-51.9002	-48.6781	-53.4387	-53.9351	-64.6083	-69.2738	-72.8009	-65.6203	-60.4860	-54.1167	-53.2783
1978	-41.7090	-51.1514	-48.2519	-54.1496	-51.2672	-59.4244	-65.6986	-68.6657	-68.5766	-65.7315	-59.3326	-48.9885	-41.7090
1979	-41.3919	-41.3919	-45.8522	-49.7428	-56.2625	-58.7635	-63.8454	-66.4377	-69.7559	-69.1085	-59.9719	-51.6410	-49.5125
1980	-50.3768	-50.3768	-54.7678	-52.8708	-53.2038	-57.1815	-60.4939	-71.7167	-69.8779	-66.1002	-59.0129	-56.0461	-51.7200
1981	-49.3495	-49.3495	-52.2001	-52.3554	-54.8037	-61.3543	-68.1083	-72.8923	-72.7502	-68.1353	-58.0807	-50.8778	-53.0239
1982	-45.3700	-45.3700	-52.3062	-49.2748	-50.3162	-57.7777	-62.6896	-66.6740	-69.5272	-63.7542	-61.7388	-52.1082	-48.4154
1983	-48.7163	-48.7163	-51.6368	-54.5892	-52.4995	-57.6504	-62.5190	-68.9611	-70.3569	-63.9702	-65.4058	-49.4946	-49.4734
1984	-46.9387	-49.6055	-53.8744	-56.9148	-54.9328	-59.3652	-66.0078	-73.0291	-74.6374	-70.7266	-60.6443	-50.0103	-46.9387
1985	-45.1652	-47.4235	-45.1652	-49.0860	-54.8622	-58.9718	-62.8074	-71.4047	-69.3085	-64.6834	-61.8016	-47.5297	-46.8065
1986	-48.6176	-56.1532	-48.6176	-50.3428	-57.6992	-59.4629	-66.2437	-68.9688	-72.1164	-61.0838	-61.4565	-58.2226	-52.9465
1987	-43.5032	-44.3662	-46.0077	-50.7665	-56.2742	-59.9866	-66.4674	-66.9273	-68.0183	-67.0169	-62.0412	-52.7038	-43.5032
1988	-43.3276	-50.0196	-51.3240	-54.3772	-53.9840	-55.3539	-59.0162	-70.7512	-69.9194	-64.1953	-63.9406	-50.9867	-43.3276
1989	-40.6421	-42.9652	-40.6421	-52.1899	-55.3728	-58.1553	-64.2909	-71.1422	-69.3183	-62.7900	-59.7738	-56.1194	-51.9548
1990	-39.0510	-48.8377	-43.4403	-49.1345	-58.1469	-61.0587	-63.1220	-71.9270	-69.7638	-68.9071	-63.3810	-52.4093	-39.0510
1991	-48.6652	-51.7661	-56.1423	-48.6652	-57.4699	-55.7956	-63.6607	-67.8875	-70.2961	-66.5090	-57.6141	-52.6907	-50.5800
1992	-47.4024	-48.1599	-51.8713	-53.3449	-61.2215	-66.5537	-64.3894	-67.9333	-68.9651	-70.0242	-63.4069	-55.4792	-47.4024
1993	-46.1631	-46.1631	-50.8600	-53.4783	-60.3073	-63.4357	-59.6859	-70.9967	-70.0326	-67.4525	-63.2595	-54.9295	-50.1589
1994	-47.1736	-51.6097	-50.0541	-51.7135	-54.1858	-57.0848	-66.7722	-70.9065	-73.3826	-67.0793	-62.0435	-47.1736	-50.0169
1995	-49.8793	-49.9718	-54.1227	-52.5921	-52.0618	-56.5449	-57.7074	-69.7173	-71.6251	-67.2143	-62.7438	-60.5064	-49.8793
1996	-44.9600	-47.7931	-44.9600	-54.9768	-59.6587	-62.8110	-63.9200	-71.5748	-71.9000	-68.8149	-54.3917	-53.3720	-52.5625
1997	-48.3607	-48.3607	-53.5183	-53.2627	-55.7346	-66.8710	-64.7330	-70.4457	-71.8313	-71.7448	-62.3917	-54.8566	-49.0615
1998	-43.6996	-50.7301	-52.4312	-49.9064	-49.9848	-55.2384	-61.0526	-70.2079	-72.5190	-64.9650	-60.8509	-55.3366	-43.6996
1999	-49.0383	-49.0383	-49.9853	-50.1448	-50.2300	-57.5467	-57.2890	-69.1483	-68.8947	-67.6164	-64.4302	-54.9701	-52.0835
2000	-48.8114	-49.7875	-49.0202	-48.8114	-55.6612	-61.2809	-64.6786	-69.2288	-69.4263	-67.1507	-57.1913	-50.4226	-51.1616
2001	-47.1589	-47.3384	-47.1589	-51.9366	-50.0810	-62.8882	-66.4468	-69.2261	-70.3780	-68.8565	-62.9730	-51.7265	-49.1444
2002	-45.8350	-45.8350	-49.0274	-50.2363	-56.2738	-57.7097	-64.7967	-69.9058	-69.8958	-63.2328	-58.8869	-58.5578	-48.8063
2003	-47.1264	-54.6311	-52.8533	-53.0693	-53.4142	-58.5656	-62.9161	-73.0022	-73.4882	-70.1809	-57.5439	-53.0856	-47.1264
2004	-48.2675	-49.1275	-50.7909	-53.7009	-56.5720	-63.6295	-65.8962	-68.8128	-70.1843	-65.5951	-56.1447	-48.2675	-48.2971
2005	-47.2984	-47.2984	-54.0102	-53.5888	-57.5386	-60.9376	-65.3049	-70.7168	-70.7986	-65.7663	-60.5273	-55.2603	-50.6921
2006	-45.7944	-51.5953	-48.3804	-45.7944	-53.6916	-62.4372	-68.4140	-74.6936	-72.0289	-68.1588	-62.1909	-52.1181	-48.0708

Data Analysis for Maximum/Minimum Daily SysAvg Temperatures (Un-Rounded).
Fit GEV Probability Model to Empirical CDF using NL-OLS Regression Methods.
Calc. Means and Standard Deviantions to use as Starting Values in Non-Linear Estimations.

Variable	N	Mean	Std Dev	Minimum	Maximum
MXT_1	57	-47.3488728	3.3751385	-56.1531833	-39.5106000
MXT_2	57	-49.6120792	3.3405536	-56.1423333	-40.6421000
MXT_3	57	-50.8596500	2.8398266	-57.6774333	-45.4270333
MXT_4	57	-54.0615754	3.1150843	-61.2214667	-47.3570000
MXT_5	57	-58.3959541	3.0029136	-66.8709500	-52.5155000
MXT_6	57	-62.8617947	2.9484778	-68.4139500	-57.2890333
MXT_7	57	-69.6900942	1.9448986	-74.6935667	-66.1542500
MXT_8	57	-69.9916719	2.1045850	-74.6374000	-64.4888500
MXT_9	57	-66.3543137	2.2864658	-71.7447667	-61.0837667
MXT_10	57	-60.0418085	3.1060017	-65.4058000	-49.2473000
MXT_11	57	-52.3951658	3.1802632	-60.5064000	-45.2679167
MXT_12	57	-48.0039453	3.4477349	-53.2783000	-39.0510333
MXTYR	57	-45.2832570	2.7908621	-50.3768000	-39.0510333

Fit GEV Probability Model to Empirical CDF using NL-OLS Regression Methods.
Calc. Means and Standard Deviantions to use as Starting Values in Non-Linear Estimations.

OBS	_TYPE_	_FREQ_	MEAN1	MEAN2	MEAN3	MEAN4	MEAN5	MEAN6	MEAN7	MEAN8	MEAN9	MEAN10	MEAN11	MEAN12
1	0	57	-47.3489	-49.6121	-50.8597	-54.0616	-58.3960	-62.8618	-69.6901	-69.9917	-66.3543	-60.0418	-52.3952	-48.0039

OBS	MEANYR	STDEV1	STDEV2	STDEV3	STDEV4	STDEV5	STDEV6	STDEV7	STDEV8	STDEV9	STDEV10	STDEV11	STDEV12	STDEVYR
1	-45.2833	3.37514	3.34055	2.83983	3.11508	3.00291	2.94848	1.94490	2.10459	2.28647	3.10600	3.18026	3.44773	2.79086

Fit a Probability Model to Empirical CDF using NL-OLS Regression Methods.
Calc. Means and Standard Deviantions to use as Starting Values in Non-Linear Estimations.

OBS	MXTYR	RANKYR	PRMXTYR	ALPHA	YEAR
1	-50.3768	1	0.01092	0.375	1980
2	-49.8793	2	0.02838	0.375	1995
3	-49.3495	3	0.04585	0.375	1981
4	-49.0383	4	0.06332	0.375	1999
5	-48.8114	5	0.08079	0.375	2000
6	-48.7163	6	0.09825	0.375	1983
7	-48.6652	7	0.11572	0.375	1991
8	-48.6176	8	0.13319	0.375	1986
9	-48.4115	9	0.15066	0.375	1977
10	-48.3607	10	0.16812	0.375	1997
11	-48.2742	11	0.18559	0.375	1959
12	-48.2675	12	0.20306	0.375	2004
13	-47.4024	13	0.22052	0.375	1992
14	-47.2984	14	0.23799	0.375	2005
15	-47.2724	15	0.25546	0.375	1961
16	-47.1736	16	0.27293	0.375	1994
17	-47.1589	17	0.29039	0.375	2001
18	-47.1264	18	0.30786	0.375	2003
19	-46.9387	19	0.32533	0.375	1984
20	-46.8395	20	0.34279	0.375	1970
21	-46.7472	21	0.36026	0.375	1966
22	-46.3200	22	0.37773	0.375	1958
23	-46.1631	23	0.39520	0.375	1993
24	-45.8405	24	0.41266	0.375	1955
25	-45.8350	25	0.43013	0.375	2002
26	-45.7944	26	0.44760	0.375	2006
27	-45.7266	27	0.46507	0.375	1954
28	-45.6944	28	0.48253	0.375	1953
29	-45.3700	29	0.50000	0.375	1982
30	-45.2679	30	0.51747	0.375	1964
31	-45.1652	31	0.53493	0.375	1985
32	-45.1152	32	0.55240	0.375	1973
33	-44.9600	33	0.56987	0.375	1996
34	-44.9376	34	0.58734	0.375	1956
35	-44.8893	35	0.60480	0.375	1976
36	-44.8695	36	0.62227	0.375	1969
37	-44.8386	37	0.63974	0.375	1965
38	-44.6574	38	0.65721	0.375	1975
39	-44.5976	39	0.67467	0.375	1951
40	-43.6996	40	0.69214	0.375	1998
41	-43.5032	41	0.70961	0.375	1987
42	-43.4605	42	0.72707	0.375	1962
43	-43.3276	43	0.74454	0.375	1988
44	-43.1127	44	0.76201	0.375	1952
45	-43.0357	45	0.77948	0.375	1974
46	-43.0352	46	0.79694	0.375	1971
47	-42.6634	47	0.81441	0.375	1963
48	-42.3773	48	0.83188	0.375	1960
49	-41.7090	49	0.84934	0.375	1978
50	-41.4527	50	0.86681	0.375	1972
51	-41.3919	51	0.88428	0.375	1979
52	-40.9183	52	0.90175	0.375	1950
53	-40.8227	53	0.91921	0.375	1967
54	-40.6646	54	0.93668	0.375	1968
55	-40.6421	55	0.95415	0.375	1989
56	-39.5106	56	0.97162	0.375	1957
57	-39.0510	57	0.98908	0.375	1990

MODEL Procedure

Model Summary

Model Variables	1
Parameters	4
RANGE Variable	YEAR
Equations	1
Number of Statements	3

Model Variables: PRMXTYR

Parameters: GAMMA: -45.28 THETA: 2.791 KAPPA: 0.25 MXTNL1

Equations: PRMXTYR

Fit GEV Probability Model to Empirical CDF using NL-OLS Regression Methods.
Non-linear Estimation of 3-parameter GEV Model.: for Maximum NEGATIVE Temperature (Deg-F).

MODEL Procedure

The Equation to Estimate is:

PRMXTYR = F(GAMMA, THETA, KAPPA)

MODEL Procedure
OLS Estimation

OLS Estimation Summary

Dataset Option	Dataset
DATA=	MXTDATA
OUT=	FIT1
OUTEST=	EST1

Parameters Estimated	3

RANGE Processed	YEAR
First	1950
Last	2006

Minimization Summary

Method	GAUSS
Iterations	4

Final Convergence	Criteria
R	0.00003406
PPC(KAPPA)	0.000061
RPC(KAPPA)	0.001778
Object	1.2881E-6
Trace(S)	0.00055178
Objective Value	0.00052274

Observations Processed

Read	57
Solved	57

Fit GEV Probability Model to Empirical CDF using NL-OLS Regression Methods.
Non-linear Estimation of 3-parameter GEV Model.: for Maximum NEGATIVE Temperature (Deg-F).

MODEL Procedure
OLS Estimation

Nonlinear OLS Summary of Residual Errors

Equation	DF Model	DF Error	SSE	MSE	Root MSE	R-Square	Adj R-Sq	Durbin Watson
PRMXTYR	3	54	0.02980	0.0005518	0.02349	0.9937	0.9934	1.841

Nonlinear OLS Parameter Estimates

Parameter	Estimate	Approx. Std Err	'T' Ratio	Approx. Prob>|T|
GAMMA	-46.502656	0.03471	-1339.56	0.0001
THETA	2.702588	0.05989	45.12	0.0001
KAPPA	0.126360	0.03430	3.68	0.0005

Number of Observations		Statistics for System	
Used	57	Objective	0.000523
Missing	0	Objective*N	0.0298

RANGE of Fit: YEAR = 1950 TO 2006

Correlations of Estimates

CorrB	GAMMA	THETA	KAPPA
GAMMA	1.0000	-0.0234	0.3840
THETA	-0.0234	1.0000	0.6189
KAPPA	0.3840	0.6189	1.0000

Fit GEV Probability Model to Empirical CDF using NL-OLS Regression Methods.
Non-linear Estimation of 3-parameter GEV Model.: for Maximum NEGATIVE Temperature (Deg-F).

MODEL Procedure

Model Summary

Model Variables	1
Parameters	4
RANGE Variable	YEAR
Equations	1
Number of Statements	4

Model Variables: PRMXTYR

Parameters: MXTNL1 GAMMA: -46.5(-1340) THETA: 2.703(45) KAPPA: 0.1264(3.7)

Equations: PRMXTYR

Data Analysis for Maximum/Minimum Daily SysAvg Temperatures (Un-Rounded).

Fit GEV Probability Model to Empirical CDF using NL-OLS Regression Methods.

Non-linear Estimation of 3-parameter GEV Model.: for Maximum NEGATIVE Temperature (Deg-F).

OBS	YEAR	_ESTYPE_	_TYPE_	_WEIGHT_	PRMXTYR	MXTYR
1	1950	OLS	ACTUAL	1	0.90175	-40.9183
2	1950	OLS	PREDICT	1	0.91283	-40.9183
3	1950	OLS	RESIDUAL	1	-0.01109	-40.9183
4	1951	OLS	ACTUAL	1	0.67467	-44.5976
5	1951	OLS	PREDICT	1	0.62007	-44.5976
6	1951	OLS	RESIDUAL	1	0.05461	-44.5976
7	1952	OLS	ACTUAL	1	0.76201	-43.1127
8	1952	OLS	PREDICT	1	0.77476	-43.1127
9	1952	OLS	RESIDUAL	1	-0.01275	-43.1127
10	1953	OLS	ACTUAL	1	0.48253	-45.6944
11	1953	OLS	PREDICT	1	0.47845	-45.6944
12	1953	OLS	RESIDUAL	1	0.00409	-45.6944
13	1954	OLS	ACTUAL	1	0.46507	-45.7266
14	1954	OLS	PREDICT	1	0.47407	-45.7266
15	1954	OLS	RESIDUAL	1	-0.00900	-45.7266
16	1955	OLS	ACTUAL	1	0.41266	-45.8405
17	1955	OLS	PREDICT	1	0.45856	-45.8405
18	1955	OLS	RESIDUAL	1	-0.04589	-45.8405
19	1956	OLS	ACTUAL	1	0.58734	-44.9376
20	1956	OLS	PREDICT	1	0.57807	-44.9376
21	1956	OLS	RESIDUAL	1	0.00926	-44.9376
22	1957	OLS	ACTUAL	1	0.97162	-39.5106
23	1957	OLS	PREDICT	1	0.95735	-39.5106
24	1957	OLS	RESIDUAL	1	0.01427	-39.5106
25	1958	OLS	ACTUAL	1	0.37773	-46.3200
26	1958	OLS	PREDICT	1	0.39283	-46.3200
27	1958	OLS	RESIDUAL	1	-0.01510	-46.3200
28	1959	OLS	ACTUAL	1	0.18559	-48.2742
29	1959	OLS	PREDICT	1	0.15302	-48.2742
30	1959	OLS	RESIDUAL	1	0.03257	-48.2742
31	1960	OLS	ACTUAL	1	0.83188	-42.3773
32	1960	OLS	PREDICT	1	0.83240	-42.3773
33	1960	OLS	RESIDUAL	1	-0.00052	-42.3773
34	1961	OLS	ACTUAL	1	0.25546	-47.2724
35	1961	OLS	PREDICT	1	0.26637	-47.2724
36	1961	OLS	RESIDUAL	1	-0.01091	-47.2724
37	1962	OLS	ACTUAL	1	0.72707	-43.4605
38	1962	OLS	PREDICT	1	0.74308	-43.4605
39	1962	OLS	RESIDUAL	1	-0.01601	-43.4605
40	1963	OLS	ACTUAL	1	0.81441	-42.6634
41	1963	OLS	PREDICT	1	0.81145	-42.6634
42	1963	OLS	RESIDUAL	1	0.00296	-42.6634
43	1964	OLS	ACTUAL	1	0.51747	-45.2679
44	1964	OLS	PREDICT	1	0.53546	-45.2679
45	1964	OLS	RESIDUAL	1	-0.01799	-45.2679
46	1965	OLS	ACTUAL	1	0.63974	-44.8386
47	1965	OLS	PREDICT	1	0.59051	-44.8386
48	1965	OLS	RESIDUAL	1	0.04923	-44.8386
49	1966	OLS	ACTUAL	1	0.36026	-46.7472
50	1966	OLS	PREDICT	1	0.33483	-46.7472
51	1966	OLS	RESIDUAL	1	0.02543	-46.7472
52	1967	OLS	ACTUAL	1	0.91921	-40.8227
53	1967	OLS	PREDICT	1	0.91675	-40.8227
54	1967	OLS	RESIDUAL	1	0.00247	-40.8227
55	1968	OLS	ACTUAL	1	0.93668	-40.6646
56	1968	OLS	PREDICT	1	0.92290	-40.6646
57	1968	OLS	RESIDUAL	1	0.01379	-40.6646
58	1969	OLS	ACTUAL	1	0.62227	-44.8695
59	1969	OLS	PREDICT	1	0.58665	-44.8695
60	1969	OLS	RESIDUAL	1	0.03562	-44.8695
61	1970	OLS	ACTUAL	1	0.34279	-46.8395
62	1970	OLS	PREDICT	1	0.32250	-46.8395
63	1970	OLS	RESIDUAL	1	0.02029	-46.8395

OBS	YEAR	_ESTYPE_	_TYPE_	_WEIGHT_	PRMXTYR	MXTYR
64	1971	OLS	ACTUAL	1	0.79694	-43.0352
65	1971	OLS	PREDICT	1	0.78143	-43.0352
66	1971	OLS	RESIDUAL	1	0.01552	-43.0352
67	1972	OLS	ACTUAL	1	0.86681	-41.4527
68	1972	OLS	PREDICT	1	0.88811	-41.4527
69	1972	OLS	RESIDUAL	1	-0.02130	-41.4527
70	1973	OLS	ACTUAL	1	0.55240	-45.1152
71	1973	OLS	PREDICT	1	0.55536	-45.1152
72	1973	OLS	RESIDUAL	1	-0.00296	-45.1152
73	1974	OLS	ACTUAL	1	0.77948	-43.0357
74	1974	OLS	PREDICT	1	0.78138	-43.0357
75	1974	OLS	RESIDUAL	1	-0.00191	-43.0357
76	1975	OLS	ACTUAL	1	0.65721	-44.6574
77	1975	OLS	PREDICT	1	0.61284	-44.6574
78	1975	OLS	RESIDUAL	1	0.04437	-44.6574
79	1976	OLS	ACTUAL	1	0.60480	-44.8893
80	1976	OLS	PREDICT	1	0.58416	-44.8893
81	1976	OLS	RESIDUAL	1	0.02064	-44.8893
82	1977	OLS	ACTUAL	1	0.15066	-48.4115
83	1977	OLS	PREDICT	1	0.13987	-48.4115
84	1977	OLS	RESIDUAL	1	0.01079	-48.4115
85	1978	OLS	ACTUAL	1	0.84934	-41.7090
86	1978	OLS	PREDICT	1	0.87440	-41.7090
87	1978	OLS	RESIDUAL	1	-0.02505	-41.7090
88	1979	OLS	ACTUAL	1	0.88428	-41.3919
89	1979	OLS	PREDICT	1	0.89118	-41.3919
90	1979	OLS	RESIDUAL	1	-0.00690	-41.3919
91	1980	OLS	ACTUAL	1	0.01092	-50.3768
92	1980	OLS	PREDICT	1	0.02390	-50.3768
93	1980	OLS	RESIDUAL	1	-0.01298	-50.3768
94	1981	OLS	ACTUAL	1	0.04585	-49.3495
95	1981	OLS	PREDICT	1	0.06799	-49.3495
96	1981	OLS	RESIDUAL	1	-0.02214	-49.3495
97	1982	OLS	ACTUAL	1	0.50000	-45.3700
98	1982	OLS	PREDICT	1	0.52199	-45.3700
99	1982	OLS	RESIDUAL	1	-0.02199	-45.3700
100	1983	OLS	ACTUAL	1	0.09825	-48.7163
101	1983	OLS	PREDICT	1	0.11302	-48.7163
102	1983	OLS	RESIDUAL	1	-0.01477	-48.7163
103	1984	OLS	ACTUAL	1	0.32533	-46.9387
104	1984	OLS	PREDICT	1	0.30938	-46.9387
105	1984	OLS	RESIDUAL	1	0.01594	-46.9387
106	1985	OLS	ACTUAL	1	0.53493	-45.1652
107	1985	OLS	PREDICT	1	0.54887	-45.1652
108	1985	OLS	RESIDUAL	1	-0.01394	-45.1652
109	1986	OLS	ACTUAL	1	0.13319	-48.6176
110	1986	OLS	PREDICT	1	0.12135	-48.6176
111	1986	OLS	RESIDUAL	1	0.01184	-48.6176
112	1987	OLS	ACTUAL	1	0.70961	-43.5032
113	1987	OLS	PREDICT	1	0.73900	-43.5032
114	1987	OLS	RESIDUAL	1	-0.02939	-43.5032
115	1988	OLS	ACTUAL	1	0.74454	-43.3276
116	1988	OLS	PREDICT	1	0.75553	-43.3276
117	1988	OLS	RESIDUAL	1	-0.01099	-43.3276
118	1989	OLS	ACTUAL	1	0.95415	-40.6421
119	1989	OLS	PREDICT	1	0.92374	-40.6421
120	1989	OLS	RESIDUAL	1	0.03041	-40.6421
121	1990	OLS	ACTUAL	1	0.98908	-39.0510
122	1990	OLS	PREDICT	1	0.96684	-39.0510
123	1990	OLS	RESIDUAL	1	0.02224	-39.0510
124	1991	OLS	ACTUAL	1	0.11572	-48.6652
125	1991	OLS	PREDICT	1	0.11729	-48.6652
126	1991	OLS	RESIDUAL	1	-0.00157	-48.6652

Fit GEV Probability Model to Empirical CDF using NL-OLS Regression Methods.
Non-linear Estimation of 3-parameter GEV Model.: for Maximum NEGATIVE Temperature (Deg-F).

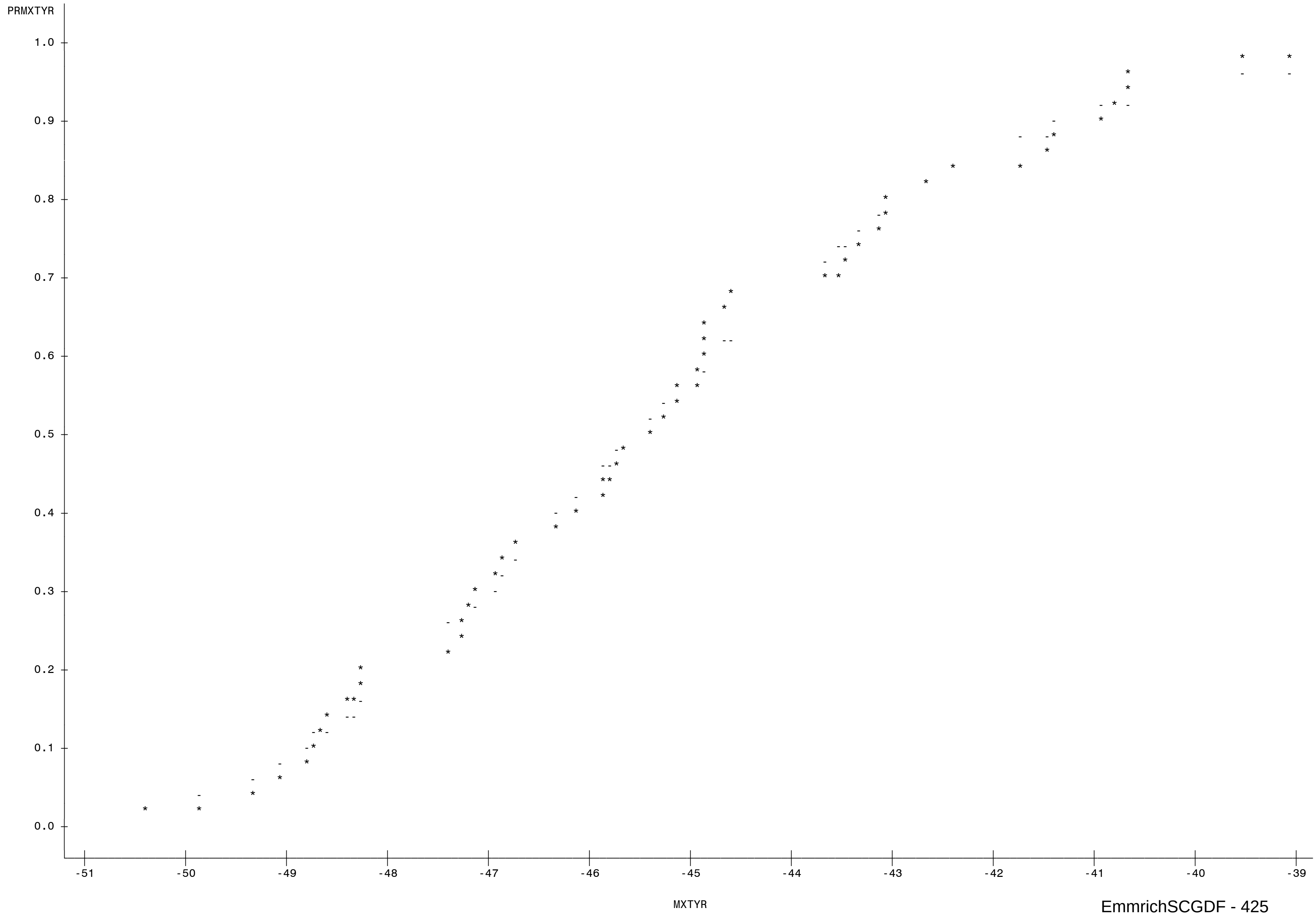
OBS	YEAR	_ESTYPE_	_TYPE_	_WEIGHT_	PRMXTYR	MXTYR
127	1992	OLS	ACTUAL	1	0.22052	-47.4024
128	1992	OLS	PREDICT	1	0.25018	-47.4024
129	1992	OLS	RESIDUAL	1	-0.02966	-47.4024
130	1993	OLS	ACTUAL	1	0.39520	-46.1631
131	1993	OLS	PREDICT	1	0.41435	-46.1631
132	1993	OLS	RESIDUAL	1	-0.01916	-46.1631
133	1994	OLS	ACTUAL	1	0.27293	-47.1736
134	1994	OLS	PREDICT	1	0.27889	-47.1736
135	1994	OLS	RESIDUAL	1	-0.00597	-47.1736
136	1995	OLS	ACTUAL	1	0.02838	-49.8793
137	1995	OLS	PREDICT	1	0.04117	-49.8793
138	1995	OLS	RESIDUAL	1	-0.01278	-49.8793
139	1996	OLS	ACTUAL	1	0.56987	-44.9600
140	1996	OLS	PREDICT	1	0.57524	-44.9600
141	1996	OLS	RESIDUAL	1	-0.00537	-44.9600
142	1997	OLS	ACTUAL	1	0.16812	-48.3607
143	1997	OLS	PREDICT	1	0.14466	-48.3607
144	1997	OLS	RESIDUAL	1	0.02346	-48.3607
145	1998	OLS	ACTUAL	1	0.69214	-43.6996
146	1998	OLS	PREDICT	1	0.71966	-43.6996
147	1998	OLS	RESIDUAL	1	-0.02752	-43.6996
148	1999	OLS	ACTUAL	1	0.06332	-49.0383
149	1999	OLS	PREDICT	1	0.08830	-49.0383
150	1999	OLS	RESIDUAL	1	-0.02498	-49.0383
151	2000	OLS	ACTUAL	1	0.08079	-48.8114
152	2000	OLS	PREDICT	1	0.10533	-48.8114
153	2000	OLS	RESIDUAL	1	-0.02454	-48.8114
154	2001	OLS	ACTUAL	1	0.29039	-47.1589
155	2001	OLS	PREDICT	1	0.28078	-47.1589
156	2001	OLS	RESIDUAL	1	0.00961	-47.1589
157	2002	OLS	ACTUAL	1	0.43013	-45.8350
158	2002	OLS	PREDICT	1	0.45930	-45.8350
159	2002	OLS	RESIDUAL	1	-0.02917	-45.8350
160	2003	OLS	ACTUAL	1	0.30786	-47.1264
161	2003	OLS	PREDICT	1	0.28495	-47.1264
162	2003	OLS	RESIDUAL	1	0.02291	-47.1264
163	2004	OLS	ACTUAL	1	0.20306	-48.2675
164	2004	OLS	PREDICT	1	0.15368	-48.2675
165	2004	OLS	RESIDUAL	1	0.04937	-48.2675
166	2005	OLS	ACTUAL	1	0.23799	-47.2984
167	2005	OLS	PREDICT	1	0.26311	-47.2984
168	2005	OLS	RESIDUAL	1	-0.02512	-47.2984
169	2006	OLS	ACTUAL	1	0.44760	-45.7944
170	2006	OLS	PREDICT	1	0.46484	-45.7944
171	2006	OLS	RESIDUAL	1	-0.01725	-45.7944

Fit GEV Probability Model to Empirical CDF using NL-OLS Regression Methods.
Non-linear Estimation of 3-parameter GEV Model.: for Maximum NEGATIVE Temperature (Deg-F).

OBS	YEAR	MXTYR	PRMXTYR	PROBP
1	1950	-40.9183	0.90175	0.91283
2	1951	-44.5976	0.67467	0.62007
3	1952	-43.1127	0.76201	0.77476
4	1953	-45.6944	0.48253	0.47845
5	1954	-45.7266	0.46507	0.47407
6	1955	-45.8405	0.41266	0.45856
7	1956	-44.9376	0.58734	0.57807
8	1957	-39.5106	0.97162	0.95735
9	1958	-46.3200	0.37773	0.39283
10	1959	-48.2742	0.18559	0.15302
11	1960	-42.3773	0.83188	0.83240
12	1961	-47.2724	0.25546	0.26637
13	1962	-43.4605	0.72707	0.74308
14	1963	-42.6634	0.81441	0.81145
15	1964	-45.2679	0.51747	0.53546
16	1965	-44.8386	0.63974	0.59051
17	1966	-46.7472	0.36026	0.33483
18	1967	-40.8227	0.91921	0.91675
19	1968	-40.6646	0.93668	0.92290
20	1969	-44.8695	0.62227	0.58665
21	1970	-46.8395	0.34279	0.32250
22	1971	-43.0352	0.79694	0.78143
23	1972	-41.4527	0.86681	0.88811
24	1973	-45.1152	0.55240	0.55536
25	1974	-43.0357	0.77948	0.78138
26	1975	-44.6574	0.65721	0.61284
27	1976	-44.8893	0.60480	0.58416
28	1977	-48.4115	0.15066	0.13987
29	1978	-41.7090	0.84934	0.87440
30	1979	-41.3919	0.88428	0.89118
31	1980	-50.3768	0.01092	0.02390
32	1981	-49.3495	0.04585	0.06799
33	1982	-45.3700	0.50000	0.52199
34	1983	-48.7163	0.09825	0.11302
35	1984	-46.9387	0.32533	0.30938
36	1985	-45.1652	0.53493	0.54887
37	1986	-48.6176	0.13319	0.12135
38	1987	-43.5032	0.70961	0.73900
39	1988	-43.3276	0.74454	0.75553
40	1989	-40.6421	0.95415	0.92374
41	1990	-39.0510	0.98908	0.96684
42	1991	-48.6652	0.11572	0.11729
43	1992	-47.4024	0.22052	0.25018
44	1993	-46.1631	0.39520	0.41435
45	1994	-47.1736	0.27293	0.27889
46	1995	-49.8793	0.02838	0.04117
47	1996	-44.9600	0.56987	0.57524
48	1997	-48.3607	0.16812	0.14466
49	1998	-43.6996	0.69214	0.71966
50	1999	-49.0383	0.06332	0.08830
51	2000	-48.8114	0.08079	0.10533
52	2001	-47.1589	0.29039	0.28078
53	2002	-45.8350	0.43013	0.45930
54	2003	-47.1264	0.30786	0.28495
55	2004	-48.2675	0.20306	0.15368
56	2005	-47.2984	0.23799	0.26311
57	2006	-45.7944	0.44760	0.46484

Data Analysis for Maximum/Minimum Daily SysAvg Temperatures (Un-Rounded). 08:10 Wednesday, February 6, 2008 15
Fit GEV Probability Model to Empirical CDF using NL-OLS Regression Methods.
Non-linear Estimation of 3-parameter GEV Model.: for Maximum NEGATIVE Temperature (Deg-F).

Plot of PRMXTYR*MXTYR. Symbol used is '*'.
Plot of PROBP*MXTYR. Symbol used is '-'.



NOTE: 22 obs hidden.

Data Analysis for Maximum/Minimum Daily SysAvg Temperatures (Un-Rounded).

Fit GEV Probability Model to Empirical CDF using NL-OLS Regression Methods.

Non-linear Estimation of 3-parameter GEV Model.: for Maximum NEGATIVE Temperature (Deg-F).

OBS	_NAME_	_TYPE_	_NUSED_	GAMMA	THETA	KAPPA
1		OLS	57	-46.5027	2.70259	0.12636
2	GAMMA	OLS	57	0.0012	-0.00005	0.00046
3	THETA	OLS	57	-0.0000	0.00359	0.00127
4	KAPPA	OLS	57	0.0005	0.00127	0.00118

Data Analysis for Maximum/Minimum Daily SysAvg Temperatures (Un-Rounded). 08:10 Wednesday, February 6, 2008 17
Fit GEV Probability Model to Empirical CDF using NL-OLS Regression Methods.
Est'd CDFs and Logarithms of 'Empirical CDF rel. to Fitted CDF' values by Models.

OBS	YEAR	MXTYR	QUANTILE	PRMXTYR	PROBP1	LGPRRAT1
1	1950	-40.9183	3	0.90175	0.91283	-0.01222
2	1951	-44.5976	3	0.67467	0.62007	0.08440
3	1952	-43.1127	3	0.76201	0.77476	-0.01659
4	1953	-45.6944	2	0.48253	0.47845	0.00850
5	1954	-45.7266	2	0.46507	0.47407	-0.01917
6	1955	-45.8405	2	0.41266	0.45856	-0.10545
7	1956	-44.9376	2	0.58734	0.57807	0.01590
8	1957	-39.5106	3	0.97162	0.95735	0.01479
9	1958	-46.3200	2	0.37773	0.39283	-0.03920
10	1959	-48.2742	1	0.18559	0.15302	0.19297
11	1960	-42.3773	3	0.83188	0.83240	-0.00063
12	1961	-47.2724	1	0.25546	0.26637	-0.04181
13	1962	-43.4605	3	0.72707	0.74308	-0.02178
14	1963	-42.6634	3	0.81441	0.81145	0.00364
15	1964	-45.2679	2	0.51747	0.53546	-0.03418
16	1965	-44.8386	2	0.63974	0.59051	0.08007
17	1966	-46.7472	2	0.36026	0.33483	0.07321
18	1967	-40.8227	3	0.91921	0.91675	0.00269
19	1968	-40.6646	3	0.93668	0.92290	0.01483
20	1969	-44.8695	2	0.62227	0.58665	0.05895
21	1970	-46.8395	2	0.34279	0.32250	0.06101
22	1971	-43.0352	3	0.79694	0.78143	0.01966
23	1972	-41.4527	3	0.86681	0.88811	-0.02427
24	1973	-45.1152	2	0.55240	0.55536	-0.00534
25	1974	-43.0357	3	0.77948	0.78138	-0.00244
26	1975	-44.6574	2	0.65721	0.61284	0.06990
27	1976	-44.8893	2	0.60480	0.58416	0.03473
28	1977	-48.4115	1	0.15066	0.13987	0.07430
29	1978	-41.7090	3	0.84934	0.87440	-0.02907
30	1979	-41.3919	3	0.88428	0.89118	-0.00777
31	1980	-50.3768	1	0.01092	0.02390	-0.78343
32	1981	-49.3495	1	0.04585	0.06799	-0.39400
33	1982	-45.3700	2	0.50000	0.52199	-0.04304
34	1983	-48.7163	1	0.09825	0.11302	-0.14002
35	1984	-46.9387	1	0.32533	0.30938	0.05025
36	1985	-45.1652	2	0.53493	0.54887	-0.02573
37	1986	-48.6176	1	0.13319	0.12135	0.09306
38	1987	-43.5032	3	0.70961	0.73900	-0.04059
39	1988	-43.3276	3	0.74454	0.75553	-0.01465
40	1989	-40.6421	3	0.95415	0.92374	0.03239
41	1990	-39.0510	3	0.98908	0.96684	0.02274
42	1991	-48.6652	1	0.11572	0.11729	-0.01349
43	1992	-47.4024	1	0.22052	0.25018	-0.12619
44	1993	-46.1631	2	0.39520	0.41435	-0.04733
45	1994	-47.1736	1	0.27293	0.27889	-0.02163
46	1995	-49.8793	1	0.02838	0.04117	-0.37180
47	1996	-44.9600	2	0.56987	0.57524	-0.00938
48	1997	-48.3607	1	0.16812	0.14466	0.15032
49	1998	-43.6996	3	0.69214	0.71966	-0.03898
50	1999	-49.0383	1	0.06332	0.08830	-0.33256
51	2000	-48.8114	1	0.08079	0.10533	-0.26529
52	2001	-47.1589	1	0.29039	0.28078	0.03367
53	2002	-45.8350	2	0.43013	0.45930	-0.06562
54	2003	-47.1264	1	0.30786	0.28495	0.07735
55	2004	-48.2675	1	0.20306	0.15368	0.27859
56	2005	-47.2984	1	0.23799	0.26311	-0.10033
57	2006	-45.7944	2	0.44760	0.46484	-0.03781

Fit GEV Probability Model to Empirical CDF using NL-OLS Regression Methods.
Stats for Logarithms of 'Empirical CDF rel. to Fitted CDF' values by Models to calc. RMSE of Prop. Model Spec

Analysis Variable : LGPRRAT1 Log(PrMxTYr/ProbP1)- GEV

N	Mean	Std Dev	Minimum	Maximum	Variance	USS
57	-0.0295413	0.1531354	-0.7834254	0.2785932	0.0234505	1.3629689

Analysis Variable : LGPRRAT1 Log(PrMxTYr/ProbP1)- GEV

QUANTILE=1

N	Mean	Std Dev	Minimum	Maximum	Variance	USS
19	-0.0863177	0.2534104	-0.7834254	0.2785932	0.0642168	1.2974668

QUANTILE=2

N	Mean	Std Dev	Minimum	Maximum	Variance	USS
19	-0.0015774	0.0527769	-0.1054493	0.0800692	0.0027854	0.0501846

QUANTILE=3

N	Mean	Std Dev	Minimum	Maximum	Variance	USS
19	-0.000728883	0.0291618	-0.0405884	0.0844017	0.000850412	0.0153175

2 0 0 9 B C A P

SOCALGAS DEMAND-SIDE-MANAGEMENT SAVINGS
FEBRUARY 2008

	2007 therms	2008 therms								
SoCalGas EE Program TOTAL	**23,305,854**	**26,672,877**								
PUC Goal	**19,300,000**	**23,300,000**	**27,200,000**	**28,300,000**	**29,900,000**	**32,300,000**	**35,800,000**	35,800,000	35,800,000	35,800,000
Difference	**4,005,854**	**3,372,877**								

SoCalGas	2007 therms	2008 therms	Avg. Wt.	**Commercial**
Core Residential	4,823,502	5,333,331	19%	
Core Commercial	11,521,439	13,373,330	48%	59%
Core Industrial	4,728,940	5,271,658	22%	27%
NonCore Commercial	275,714	332,857	1%	2%
NonCore Industrial retail	643,334	776,667	3%	4%
NonCore Industrial refinery	1,312,925	1,585,034	6%	8%
Total	**23,305,854**	**26,672,877**		

Proportionally scale it down to match
PUC Goal for 2006,2007, and 2008

ANNUAL NET SAVINGS	2007 Mdth	2008 Mdth	2009 Mdth	2010 Mdth	2011 Mdth	2012 Mdth	2013 Mdth	2014 Mdth	2015 Mdth	2016 Mdth
Core Residential	399	466	544	566	598	646	716	716	716	716
Core Commercial	954	1,168	1,364	1,419	1,499	1,619	1,795	1,795	1,795	1,795
Core Industrial	392	461	538	559	591	638	708	708	708	708
NonCore Commercial	23	29	34	35	37	40	45	45	45	45
NonCore Industrial retail	53	68	79	82	87	94	104	104	104	104
NonCore Industrial refinery	109	138	162	168	178	192	213	213	213	213
Total	**1,930**	**2,330**	**2,720**	**2,830**	**2,990**	**3,230**	**3,580**	**3,580**	**3,580**	**3,580**

Cumulative Savings (Mdth)	2007 Mdth	2008 Mdth	2009 Mdth	2010 Mdth	2011 Mdth	2012 Mdth	2013 Mdth	2014 Mdth	2015 Mdth	2016 Mdth
Core Residential	**399**	**865**	**1,409**	**1,975**	**2,573**	**3,219**	**3,935**	**4,650**	**5,366**	**6,082**
Core Commercial	**954**	**2,122**	**3,486**	**4,905**	**6,404**	**8,024**	**9,819**	**11,614**	**13,408**	**15,203**
Core Industrial	**392**	**852**	**1,390**	**1,949**	**2,540**	**3,178**	**3,886**	**4,593**	**5,301**	**6,009**
NonCore Commercial	**23**	**52**	**86**	**121**	**158**	**199**	**243**	**288**	**333**	**377**
NonCore Industrial regular	**53**	**121**	**200**	**283**	**370**	**464**	**568**	**672**	**777**	**881**
NonCore Industrial refinery	**109**	**247**	**409**	**577**	**755**	**947**	**1,159**	**1,372**	**1,585**	**1,798**
Total Load Impacts	**1,930**	**4,260**	**6,980**	**9,810**	**12,800**	**16,030**	**19,610**	**23,190**	**26,770**	**30,350**

	MMCF factor:	**1.0302**								
Cumulative Savings (MMCF)	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Core Residential	388	840	1,368	1,917	2,498	3,124	3,819	4,514	5,209	5,904
Core Commercial	926	2,060	3,384	4,761	6,216	7,788	9,531	11,273	13,015	14,758
Core Industrial	380	827	1,349	1,892	2,466	3,085	3,772	4,459	5,146	5,832
NonCore Commercial	22	50	83	118	154	193	236	280	323	366
NonCore Industrial	157	358	591	835	1,092	1,369	1,677	1,984	2,292	2,600
Total Cumulative Load	**1,873**	**4,135**	**6,775**	**9,522**	**12,425**	**15,560**	**19,035**	**22,510**	**25,985**	**29,460**

SoCalGas EE Program TOTAL									
PUC Goal	35,800,000	35,800,000	35,800,000	35,800,000	35,800,000	35,800,000	35,800,000	35,800,000	35,800,000
Difference									

SoCalGas
Core Residential
Core Commercial
Core Industrial
NonCore Commercial
NonCore Industrial retail
NonCore Industrial refinery
Total

Proportionally scale it down to match
PUC Goal for 2006,2007, and 2008

ANNUAL NET SAVINGS	**2017 Mdth**	**2018 Mdth**	**2019 Mdth**	**2020 Mdth**	**2021 Mdth**	**2022 Mdth**	**2023 Mdth**	**2024 Mdth**	**2025 Mdth**
Core Residential	716	716	716	716	716	716	716	716	716
Core Commercial	1,795	1,795	1,795	1,795	1,795	1,795	1,795	1,795	1,795
Core Industrial	708	708	708	708	708	708	708	708	708
NonCore Commercial	45	45	45	45	45	45	45	45	45
NonCore Industrial retail	104	104	104	104	104	104	104	104	104
NonCore Industrial refinery	213	213	213	213	213	213	213	213	213
Total	**3,580**	**3,580**	**3,580**	**3,580**	**3,580**	**3,580**	**3,580**	**3,580**	**3,580**

Cumulative Savings (Mdth)	**2017 Mdth**	**2018 Mdth**	**2019 Mdth**	**2020 Mdth**	**2021 Mdth**	**2022 Mdth**	**2023 Mdth**	**2024 Mdth**	**2025 Mdth**
Core Residential	**6,798**	**7,514**	**8,230**	**8,313**	**8,842**	**9,158**	**9,408**	**9,580**	**9,730**
Core Commercial	**16,998**	**18,793**	**20,588**	**21,846**	**22,998**	**23,839**	**24,466**	**24,897**	**25,273**
Core Industrial	**6,716**	**7,424**	**8,131**	**8,591**	**8,805**	**9,121**	**9,368**	**9,538**	**9,686**
NonCore Commercial	**422**	**467**	**512**	**541**	**558**	**580**	**596**	**606**	**616**
NonCore Industrial regular	**985**	**1,089**	**1,194**	**1,263**	**1,302**	**1,353**	**1,390**	**1,415**	**1,437**
NonCore Industrial refinery	**2,010**	**2,223**	**2,436**	**2,578**	**2,658**	**2,762**	**2,836**	**2,887**	**2,932**
Total Load Impacts	**33,930**	**37,510**	**41,090**	**43,132**	**45,163**	**46,813**	**48,063**	**48,923**	**49,673**

Cumulative Savings (MMCF)	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**
Core Residential	6,599	7,294	7,988	8,069	8,583	8,890	9,132	9,299	9,445
Core Commercial	16,500	18,242	19,985	21,205	22,324	23,140	23,748	24,167	24,532
Core Industrial	6,519	7,206	7,893	8,339	8,547	8,854	9,093	9,258	9,402
NonCore Commercial	410	453	497	526	542	563	578	589	598
NonCore Industrial	2,908	3,215	3,523	3,729	3,844	3,995	4,102	4,176	4,240
Total Cumulative Load	**32,935**	**36,410**	**39,885**	**41,867**	**43,840**	**45,441**	**46,655**	**47,489**	**48,217**

2009 BCAP

CONVERSION OF ENERGY TO VOLUME, PERCENTAGES OF COMPANY USE FUEL AND UN-ACCOUNTED-FOR GAS FOR SOCALGAS

FEBRUARY 2008

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I. Conversion Between Energy and Volumetric Units

The estimated conversion of Dth to Mcf was calculated from SoCalGas' system-wide gas consumption for year 2006. The data shown in Table 1 below show the monthly data.

This conversion factor is used to develop a volumetric (e.g., Mcf unit) load estimate from the gas demand forecasts which are developed on an energy (e.g., Dth unit) basis.

Table 1

Billing System Data to Calculate "Dth/Mcf" Factor for SoCalGas

year	month	customer type	dth	mcf
2006	1	System Total	94,247,004	91,038,947
2006	2	System Total	108,025,337	104,580,538
2006	3	System Total	71,321,757	69,144,775
2006	4	System Total	87,857,874	85,164,278
2006	5	System Total	74,208,631	72,107,501
2006	6	System Total	68,881,641	67,106,017
2006	7	System Total	72,018,383	70,139,904
2006	8	System Total	84,383,269	82,204,879
2006	9	System Total	73,789,411	71,864,470
2006	10	System Total	72,452,478	70,517,169
2006	11	System Total	71,523,157	69,371,824
2006	12	System Total	85,085,194	82,272,208
2006		System Total	963,794,136	935,512,511
		Dth/Mcf	**1.0302**	

Dth/Mcf = (963,794,136 Dth) / (935,512,511 Mcf) = 1.0302

II. Company-Use-Fuel (Co-Use-Fuel) as Percent of Receipts

For SoCalGas, data on gas consumed for Company uses is tracked via the SoCalGas gas accounting system. Three categories of use are identified: Transmission, Storeage and "Other." Further, to facilitate the calculations of gas consumed for Company uses, a simple percentage is calculated using the total gas available for disposition as the denominator. We calculated these percentages over the time frame of January 2005 through December 2006. Table 2, below, shows the monthly data and the summary calculations.

Table 2

Company Use Fuel Data as Percentage of "Receipts"

Date (MMM-yy)	Trans-mission (Dth)	Storage (Dth)	"Other" (Dth)	Total (Dth)	"Receipts" PGA: Net Avail.-for Disposition (Dth)
Jan-05	169,013	55,643	20,060	244,716	99,350,195
Feb-05	150,241	31,625	24,889	206,755	84,742,623
Mar-05	139,248	15,325	13,050	167,623	83,487,412
Apr-05	140,480	90,174	13,748	244,402	73,269,960
May-05	184,432	327,420	25,654	537,506	71,188,933
Jun-05	205,031	441,224	80,323	726,578	65,944,067
Jul-05	163,364	366,658	182,432	712,454	78,252,734
Aug-05	223,990	227,919	44,755	496,664	76,082,556
Sep-05	204,348	90,118	19,232	313,698	64,368,229
Oct-05	68,224	166,837	74,338	309,399	67,031,166
Nov-05	81,075	320,998	60,415	462,488	73,883,403
Dec-05	82,843	71,514	17,976	172,333	92,154,666
Jan-06	126,681	93,385	21,639	241,705	95,937,371
Feb-06	175,223	48,480	16,295	239,998	80,391,907
Mar-06	95,592	23,554	14,263	133,409	97,761,487
Apr-06	149,411	22,388	20,397	192,196	81,430,417
May-06	175,412	223,722	25,978	425,112	71,514,706
Jun-06	138,731	388,831	22,545	550,107	73,911,684
Jul-06	180,730	249,989	39,765	470,484	92,262,184
Aug-06	287,965	196,077	15,321	499,363	74,532,487
Sep-06	190,144	216,842	32,307	439,293	72,239,506
Oct-06	183,138	374,304	24,197	581,639	72,179,328
Nov-06	162,290	314,512	20,831	497,633	77,442,057
Dec-06	146,897	121,595	14,890	283,382	102,487,012
24-Month (Jan'05-Dec'06) Total:	**3,824,503**	**4,479,134**	**845,300**	**9,148,937**	**1,921,846,090**
As %-of-Receipts:	**0.199%**	**0.233%**	**0.044%**	**0.476%**	

III. Un-Accounted-For (UAF) as a Percent of Receipts

Annual percentages of SoCalGas Un-Accounted-For (UAF) as a percentage of gas receipts is shown in the Table 3, below:

Table 3

SoCalGas UAF Annual Percentages

	2004	**2005**	**2006**	**Average**
SoCalGas	0.97%	0.93%	0.73%	0.88%

These annual percentages were computed from SoCalGas' gas accounting data for each respective year. The data in Table 4, below provide the monthly data. UAF is calculated from this data as: UAF = Adjusted Deliveries – Adjusted Receipts. The percentages in Table 3 are shown as the *negative* of the percentages calculated at the bottom of Table 4.

Table 4

Southern California Gas Company

Date (MMM-yy)	Adj'd Total Receipts (Dth)	Adj'd Total Deliveries (Dth)	Un-Accounted-For (UAF) = Deliveries *less* Receipts (Dth)
Jan-04	96,913,194	96,619,263	-293,931
Feb-04	95,679,418	97,734,823	2,055,405
Mar-04	80,851,640	76,431,298	-4,420,342
Apr-04	74,389,896	75,659,474	1,269,578
May-04	73,427,249	71,817,310	-1,609,939
Jun-04	69,405,426	68,054,730	-1,350,696
Jul-04	81,809,499	81,740,866	-68,633
Aug-04	81,454,284	80,312,694	-1,141,590
Sep-04	79,377,708	78,490,249	-887,459
Oct-04	79,154,242	78,675,237	-479,005
Nov-04	94,371,016	93,091,232	-1,279,784
Dec-04	105,077,391	103,428,698	-1,648,693
Jan-05	100,779,363	101,161,485	382,122
Feb-05	84,944,052	83,237,007	-1,707,045
Mar-05	83,536,374	81,438,706	-2,097,668
Apr-05	73,302,293	73,146,218	-156,075
May-05	71,201,674	69,502,277	-1,699,397
Jun-05	65,962,534	65,075,556	-886,978
Jul-05	78,281,397	78,433,156	151,759
Aug-05	75,710,870	76,399,525	688,655
Sep-05	64,368,229	63,810,092	-558,137
Oct-05	67,031,166	66,495,195	-535,971
Nov-05	73,883,403	72,852,888	-1,030,515
Dec-05	92,154,666	90,910,169	-1,244,497
Jan-06	95,937,371	95,743,836	-193,535
Feb-06	82,157,092	82,155,085	-2,007
Mar-06	97,761,487	95,637,438	-2,124,049
Apr-06	81,430,417	81,086,526	-343,891
May-06	71,514,706	70,333,553	-1,181,153
Jun-06	73,911,684	73,386,938	-524,746
Jul-06	92,262,184	92,595,045	332,861
Aug-06	74,532,487	74,094,021	-438,466
Sep-06	72,239,506	71,769,036	-470,470
Oct-06	72,179,328	71,609,004	-570,324
Nov-06	77,442,057	77,580,909	138,852
Dec-06	102,487,012	100,590,897	-1,896,115
12-Month (Jan'04-Dec'04) Total:	**1,011,910,963**	**1,002,055,874**	**-9,855,089**
UAF as %-of-Receipts:			**-0.97%**
12-Month (Jan'05-Dec'05) Total:	**931,156,021**	**922,462,274**	**-8,693,747**
UAF as %-of-Receipts:			**-0.93%**
12-Month (Jan'06-Dec'06) Total:	**993,855,331**	**986,582,288**	**-7,273,043**
UAF as %-of-Receipts:			**-0.73%**

IV. Calculations of Company Use and Un-Accounted-For Load

SoCalGas prepares forecasts of gas demand—gas received through customers' meters. Consequently, to calculate the projected quantities of Co-Use-Fuel and UAF, the basis for the percentages developed above needs to be changed so they represent gas load as a *percentage of gas demand*—not gas receipts (or gas available for disposition).

The equation below states an identity:

(1) $Q_{out} = Q_{in} -$ (Co-Use-Fuel) – (UAF), where

Q_{out} = Gas Demand through customers' meters,
Q_{in} = Gas Available for Disposition ("receipts"),
Co-Use-Fuel = F x Q_{in} ,
UAF = U x Q_{in} ,
F = Co-Use-Fuel as a proportion (or %) of Q_{in}, and
U = UAF as a proportion (or %) of Q_{in}.

By substituting the relationships for Co-Use-Fuel and UAF into equation (1), the following result yields a relationship between Q_{out} and Q_{in}:

(2) $Q_{out} = Q_{in} (1 - F - U)$, and
(3) $Q_{in} = Q_{out} [1 / (1 - F - U)]$.

These equations will be used to change the basis of the percentages of Co-Use-Fuel and UAF from a "receipts basis" to a "demand basis."

The total amount of gas load for Co-Use-Fuel or UAF is numerically the same regardless of the basis for the respective percentages:

(4) Co-Use-Fuel = $F \times Q_{in} = f \times Q_{out}$, and substituting for Q_{in} from (3)yields,

(5) $F \times Q_{out} [1 / (1 - F - U)] = f \times Q_{out}$,

(5') $[F / (1 - F - U)] \times Q_{out} = f \times Q_{out}$.

Consequently, the percentage of gas demand to use to calculate Co-Use-Fuel is:

(6) $f = [F / (1 - F - U)]$; similarly,

the percentage of gas demand to use to calculate Co-Use-Fuel is:

(7) $u = [U / (1 - F - U)]$.

Since Co-Use-Fuel is separated into several components (denoted with subscript "c" in the formulas below), the component loads also can be calculated from gas demand using the following formula:

(8) $f_c = [F_c / (1 - F - U)]$; where $F = \sum_{i=1, ..., N} (F_i)$, or

(9) $f_c = (F_c / F) \times f$.

Example: From the Co-Use-Fuel percentages in Table 2 and the UAF percentage, 0.88%, of Table 3, we calculate:

$f = 0.483\% = [0.476\% / (100\% - 0.476\% - 0.880\%)]$,

$u = 0.892\% = [0.880\% / (100\% - 0.476\% - 0.880\%)]$, and

$f_c = (F_c / F) \times f = 0.202\% = (0.199\% / 0.476\%) \times 0.483\%$,

where "c" means the *transmission* fuel component of company use fuel.