2016 California Gas Report Workpapers

REDACTED – For External Distribution

Prepared by

SDGE

A Sempra Energy utility℠

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2016 CALIFORNIA GAS REPORT

HISTORICAL DATA
JULY 2016

San Diego Gas and Electric Company

Recorded Years 2011-2015

Annual Gas Supply and Sendout (MMCF/Day)

LINE	Actual Deliveries by End-Use		2011	2012	2013	2014	2015
1	**CORE**	Residential	88	83	85	68	67
2		Commercial	50	50	52	49	49
3		Industrial	0	0	0	0	0
4	*Subtotal -*	*CORE*	138	134	137	117	116
5	**NONCORE**	Commercial	0	0	0	0	0
6		Industrial	12	13	12	11	11
7		Non-EOR Cogen/EG	69	100	70	72	74
8		Electric Utilities	87	134	147	121	126
9	*Subtotal -*	*NONCORE*	169	247	229	204	211
10	**WHOLESALE**	All End Uses	0	0	0	0	0
11	*Subtotal -*	*Co Use & LUAF*	5	4	5	2	0
12	**SYSTEM TOTAL THROUGHPUT**		312	384	371	323	327
	Actual Transport & Exchange						
13	**CORE**	Residential	0	0	1	1	1
14		Commercial	10	11	12	11	12
15	**NONCORE**	Industrial	12	13	12	11	11
16		Non-EOR Cogen/EG	69	100	70	72	74
17		Electric Utilities	87	134	147	121	126
18	*Subtotal -*	*RETAIL*	179	258	242	216	224
19	**WHOLESALE**	All End Uses	0	0	0	0	0
20	**TOTAL TRANSPORT & EXCHANGE**		179	258	242	216	224
	Storage						
21		*Storage Injection*	0	0	0	0	0
22		*Storage Withdrawal*	0	0	0	0	0
	Actual Curtailment						
23		Residential	0	0	0	0	0
24		Com/Indl & Cogen	0	0	0	0	0
25		Electric Generation	0	0	0	0	0
26	**TOTAL CURTAILMENT**		0	0	0	0	0
27	**REFUSAL**		0	0	0	0	0
	ACTUAL DELIVERIES BY END-USE includes sales and transportation volumes						
		MMbtu/Mcf:	**1.018**	**1.017**	**1.024**	**1.035**	**1.040**

San Diego Gas and Electric Company
Recorded Years 2011-2015
Annual Gas Supply Taken (MMCF/Day)

LINE		2011	2012	2013	2014	2015
	CAPACITY AVAILABLE					
1	**California Sources**					
	Out of State gas					
2	California Offshore (POPCO/PIOC)					
3	El Paso Natural Gas Company					
4	Transwestern Pipeline company					
5	Kern River/Mojave Pipeline Company					
6	TransCanada GTN/PG&E					
7	Other					
8	**TOTAL Output of State**					
9	Underground storage withdrawal					
10	**TOTAL Gas Supply available**					
	Gas Supply Taken	**2011**	**2012**	**2013**	**2014**	**2015**
	California Source Gas					
11	Regular Purchases	0	0	0	0	0
12	Received for Exchange/Transport	0	0	0	0	0
13	**Total California Source Gas**	0	0	0	0	0
14	**Purchases from Other Utilities**	0	0	0	0	0
	Out-of-State Gas					
15	Pacific Interstate Companies	0	0	0	0	0
16	Additional Core Supplies	0	0	0	0	0
17	Supplemental Supplies-Utility	132	126	129	107	103
18	Out-of-State Transport-Others	179	258	242	216	224
19	**Total Out-of-State Gas**	312	384	371	323	327
20	**TOTAL Gas Supply Taken & Transported**	312	384	371	323	327

(MMCFD)

2016 CALIFORNIA GAS REPORT

FORECAST OF REQUIREMENTS - SUMMARY
JULY 2016

2016 CALIFORNIA GAS REPORT

AVERAGE TEMPERATURE YEAR
JULY 2016

TABLE 1-SDGE

SAN DIEGO GAS & ELECTRIC COMPANY

ANNUAL GAS SUPPLY AND REQUIREMENTS - MMCF/DAY
ESTIMATED YEARS 2016 THRU 2020

AVERAGE TEMPERATURE YEAR

LINE			2016	2017	2018	2019	2020	LINE
	CAPACITY AVAILABLE [1/ & 2/]							
1	California Source Gas		0	0	0	0	0	1
2	Southern Zone of SoCalGas [1/]		607	607	607	607	607	2
3	TOTAL CAPACITY AVAILABLE		607	607	607	607	607	3
	GAS SUPPLY TAKEN							
4	California Source Gas		0	0	0	0	0	4
5	Southern Zone of SoCalGas		338	336	322	317	315	5
6	TOTAL SUPPLY TAKEN		338	336	322	317	315	6
7	Net Underground Storage Withdrawal		0	0	0	0	0	7
8	TOTAL THROUGHPUT		338	336	322	317	315	8
	REQUIREMENTS FORECAST BY END-USE [3/]							
9	CORE [4/]	Residential	84	86	86	86	86	9
10		Commercial	44	45	45	44	44	10
11		Industrial	4	4	4	4	4	11
12		NGV	5	5	5	6	6	12
13		Subtotal-CORE	137	140	140	140	140	13
14	NONCORE	Commercial	7	7	7	7	7	14
15		Industrial	5	5	5	5	5	15
16		Electric Generation (EG)	186	181	167	162	160	16
17		Subtotal-NONCORE	198	193	179	174	172	17
18		Co. Use & LUAF	3	3	3	3	3	18
19	SYSTEM TOTAL THROUGHPUT		338	336	322	317	315	19
	TRANSPORTATION AND EXCHANGE							
20	CORE	All End Uses	13	14	14	14	14	20
21	NONCORE	Commercial/Industrial	13	12	12	12	12	21
22		Electric Generation (EG)	186	181	167	162	160	22
23	TOTAL TRANSPORTATION & EXCHANGE		212	207	193	188	186	23
	CURTAILMENT							
24		Core	0	0	0	0	0	24
25		Noncore	0	0	0	0	0	25
26		TOTAL - Curtailment	0	0	0	0	0	26

NOTES:

1/ Capacity to receive gas from the Southern Zone of SoCalGas is an annual value based on weighting winter and non-winter season values: 607 = (630 winter) x (151/365) + (590 non-winter) x (214/365).

2/ For 2016 and after, assume capacity at same levels.

3/ Requirement forecast by end-use includes sales, transportation, and exchange volumes.

4/ Core end-use demand exclusive of core aggregation transportation (CAT) in MDth/d: 129 131 131 131 131

TABLE 2-SDGE

SAN DIEGO GAS & ELECTRIC COMPANY

ANNUAL GAS SUPPLY AND REQUIREMENTS - MMCF/DAY
ESTIMATED YEARS 2021 THRU 2035

AVERAGE TEMPERATURE YEAR

LINE			2021	2022	2025	2030	2035	LINE
	CAPACITY AVAILABLE [1/ & 2/]							
1	California Source Gas		0	0	0	0	0	1
2	Southern Zone of SoCalGas [1/]		607	607	607	607	607	2
3	TOTAL CAPACITY AVAILABLE		607	607	607	607	607	3
	GAS SUPPLY TAKEN							
4	California Source Gas		0	0	0	0	0	4
5	Southern Zone of SoCalGas		315	315	310	303	306	5
6	TOTAL SUPPLY TAKEN		315	315	310	303	306	6
7	Net Underground Storage Withdrawal		0	0	0	0	0	7
8	TOTAL THROUGHPUT		315	315	310	303	306	8
	REQUIREMENTS FORECAST BY END-USE [3/]							
9	CORE [4/]	Residential	87	87	88	90	92	9
10		Commercial	43	42	39	38	38	10
11		Industrial	4	4	4	4	3	11
12		NGV	6	7	8	9	11	12
13		Subtotal-CORE	140	140	139	141	144	13
14	NONCORE	Commercial	7	7	7	7	8	14
15		Industrial	5	5	5	4	4	15
16		Electric Generation (EG)	160	160	156	148	147	16
17		Subtotal-NONCORE	172	172	168	159	159	17
18		Co. Use & LUAF	3	3	3	3	3	18
19	SYSTEM TOTAL THROUGHPUT		315	315	310	303	306	19
	TRANSPORTATION AND EXCHANGE							
20	CORE	All End Uses	14	14	14	15	16	20
21	NONCORE	Commercial/Industrial	12	12	11	12	12	21
22		Electric Generation (EG)	160	160	156	148	147	22
23	TOTAL TRANSPORTATION & EXCHANGE		186	186	181	175	175	23
	CURTAILMENT							
24		Core	0	0	0	0	0	24
25		Noncore	0	0	0	0	0	25
26		TOTAL - Curtailment	0	0	0	0	0	26

NOTES:

1/ Capacity to receive gas from the Southern Zone of SoCalGas is an annual value based on weighting winter and non-winter season values: 607 = (630 winter) x (151/365) + (590 non-winter) x (214/365).

2/ For 2016 and after, assume capacity at same levels.

3/ Requirement forecast by end-use includes sales, transportation, and exchange volumes.

4/ Core end-use demand exclusive of core aggregation transportation (CAT) in MDth/d: 131 131 130 131 133

Work Paper: TABLE 1-SDGE

SAN DIEGO GAS & ELECTRIC COMPANY

ANNUAL GAS SUPPLY AND REQUIREMENTS - MMCF/DAY
ESTIMATED FOR YEAR: 2016

AVERAGE TEMPERATURE with BASE HYDRO YEAR

LINE			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg	LINE
	CAPACITY AVAILABLE [1/ & 2/]															
1	California Source Gas		0	0	0	0	0	0	0	0	0	0	0	0	0	1
2	Southern Zone of SoCalGas [1/]		607	607	607	607	607	607	607	607	607	607	607	607	607	2
3	TOTAL CAPACITY AVAILABLE		607	607	607	607	607	607	607	607	607	607	607	607	607	3
	GAS SUPPLY TAKEN															
4	California Source Gas		0	0	0	0	0	0	0	0	0	0	0	0	0	4
5	Southern Zone of SoCalGas		368	366	340	319	301	342	346	349	366	298	299	365	338	5
6	TOTAL SUPPLY TAKEN		368	366	340	319	301	342	346	349	366	298	299	365	338	6
7	Net Underground Storage Withdrawal		0	0	0	0	0	0	0	0	0	0	0	0	0	7
8	TOTAL THROUGHPUT		368	366	340	319	301	342	346	349	366	298	299	365	338	8
	REQUIREMENTS FORECAST BY END-USE [3/]															
9	CORE [4/]	Residential	132	128	109	92	65	52	48	48	48	57	91	138	84	9
10		Commercial	54	54	45	45	44	40	36	33	34	36	50	60	44	10
11		Industrial	5	5	5	4	4	4	3	3	3	3	4	5	4	11
12		NGV	5	5	5	5	5	5	5	5	5	5	5	5	5	12
13		Subtotal-CORE	195	193	163	147	117	100	91	89	90	101	150	207	137	13
14																14
15																15
16																16
17	NONCORE	Subtotal-NONCORE	169	170	174	170	181	239	252	257	273	195	146	155	198	17
18		Co. Use & LUAF	3	3	3	3	3	3	3	3	3	3	3	3	3	18
19	SYSTEM TOTAL THROUGHPUT		368	366	340	319	301	342	346	349	366	298	299	365	338	19
	TRANSPORTATION AND EXCHANGE															
20	CORE	All End Uses	16	16	14	14	13	12	11	11	11	11	15	17	13	20
21																21
22	NONCORE	All End Uses	169	170	174	170	181	239	252	257	273	195	146	155	198	22
23	TOTAL TRANSPORTATION & EXCHANGE		185	186	188	184	194	251	263	268	284	206	161	172	212	23
	CURTAILMENT															
24		Core	0	0	0	0	0	0	0	0	0	0	0	0	0	24
25		Noncore	0	0	0	0	0	0	0	0	0	0	0	0	0	25
26		TOTAL - Curtailment	0	0	0	0	0	0	0	0	0	0	0	0	0	26

NOTES:
1/ Capacity to receive gas from the Southern Zone of SoCalGas is an annual value based on weighting winter and non-winter season values: 607 = (630 winter) x (151/365) + (590 non-winter) x (214/365).
2/ For 2016 and after, assume capacity at same levels.
3/ Requirement forecast by end-use includes sales, transportation, and exchange volumes.
4/ Core end-use demand exclusive of core aggregation transportation (CAT) in MDth/d: 187 184 155 138 108 91 83 81 82 93 141 197 128

Work Paper: TABLE 1-SDGE

SAN DIEGO GAS & ELECTRIC COMPANY

ANNUAL GAS SUPPLY AND REQUIREMENTS - MMCF/DAY
ESTIMATED FOR YEAR: 2017

AVERAGE TEMPERATURE with BASE HYDRO YEAR

LINE			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg	LINE
	CAPACITY AVAILABLE [1/ & 2/]															
1	California Source Gas		0	0	0	0	0	0	0	0	0	0	0	0	0	1
2	Southern Zone of SoCalGas [1/]		607	607	607	607	607	607	607	607	607	607	607	607	607	2
3	TOTAL CAPACITY AVAILABLE		607	607	607	607	607	607	607	607	607	607	607	607	607	3
	GAS SUPPLY TAKEN															
4	California Source Gas		0	0	0	0	0	0	0	0	0	0	0	0	0	4
5	Southern Zone of SoCalGas		361	374	310	302	270	343	347	351	370	304	323	390	336	5
6	TOTAL SUPPLY TAKEN		361	374	310	302	270	343	347	351	370	304	323	390	336	6
7	Net Underground Storage Withdrawal		0	0	0	0	0	0	0	0	0	0	0	0	0	7
8	TOTAL THROUGHPUT		361	374	310	302	270	343	347	351	370	304	323	390	337	8
	REQUIREMENTS FORECAST BY END-USE [3/]															
9	CORE [4/]	Residential	134	136	111	94	66	53	49	49	49	58	93	141	86	9
10		Commercial	56	58	46	46	45	41	37	34	35	37	51	61	45	10
11		Industrial	5	6	5	5	4	4	3	3	3	4	4	5	4	11
12		NGV	5	5	5	5	5	5	5	5	5	5	5	5	5	12
13		Subtotal-CORE	200	204	167	150	119	102	94	91	92	103	153	212	140	13
14																14
15																15
16																16
17	NONCORE	Subtotal-NONCORE	158	167	141	149	149	238	250	257	274	198	167	174	194	17
18		Co. Use & LUAF	3	3	3	3	2	3	3	3	3	3	3	4	3	18
19	SYSTEM TOTAL THROUGHPUT		361	374	310	302	270	343	347	351	370	304	323	390	337	19
	TRANSPORTATION AND EXCHANGE															
20	CORE	All End Uses	17	17	14	14	13	13	12	11	11	12	15	18	14	20
21																21
22	NONCORE	All End Uses	158	167	141	149	149	238	250	257	274	198	167	174	194	22
23	TOTAL TRANSPORTATION & EXCHANGE		175	184	155	163	162	250	262	268	286	209	182	192	207	23
	CURTAILMENT															
24		Core	0	0	0	0	0	0	0	0	0	0	0	0	0	24
25		Noncore	0	0	0	0	0	0	0	0	0	0	0	0	0	25
26		TOTAL - Curtailment	0	0	0	0	0	0	0	0	0	0	0	0	0	26

NOTES:
1/ Capacity to receive gas from the Southern Zone of SoCalGas is an annual value based on weighting winter and non-winter season values: 607 = (630 winter) x (151/365) + (590 non-winter) x (214/365).
2/ For 2016 and after, assume capacity at same levels.
3/ Requirement forecast by end-use includes sales, transportation, and exchange volumes.
4/ Core end-use demand exclusive of core aggregation transportation (CAT) in MDth/d: 190 194 158 141 110 93 85 83 84 95 144 202 131

Work Paper: TABLE 1-SDGE

SAN DIEGO GAS & ELECTRIC COMPANY

ANNUAL GAS SUPPLY AND REQUIREMENTS - MMCF/DAY
ESTIMATED FOR YEAR: 2018

AVERAGE TEMPERATURE with BASE HYDRO YEAR

LINE			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg	LINE
	CAPACITY AVAILABLE [1/ & 2/]															
1	California Source Gas		0	0	0	0	0	0	0	0	0	0	0	0	0	1
2	Southern Zone of SoCalGas [1/]		607	607	607	607	607	607	607	607	607	607	607	607	607	2
3	TOTAL CAPACITY AVAILABLE		607	607	607	607	607	607	607	607	607	607	607	607	607	3
	GAS SUPPLY TAKEN															
4	California Source Gas		0	0	0	0	0	0	0	0	0	0	0	0	0	4
5	Southern Zone of SoCalGas		377	384	309	303	276	298	296	296	312	308	322	393	322	5
6	TOTAL SUPPLY TAKEN		377	384	309	303	276	298	296	296	312	308	322	393	322	6
7	Net Underground Storage Withdrawal		0	0	0	0	0	0	0	0	0	0	0	0	0	7
8	TOTAL THROUGHPUT		377	384	309	303	276	298	296	296	312	308	322	393	322	8
	REQUIREMENTS FORECAST BY END-USE [3/]															
9	CORE [4/]	Residential	135	136	111	94	66	53	49	49	49	58	93	141	86	9
10		Commercial	55	57	46	46	44	40	36	34	35	36	51	61	45	10
11		Industrial	5	6	5	5	4	4	3	3	3	4	4	5	4	11
12		NGV	5	6	5	5	5	5	5	5	5	5	5	5	5	12
13		Subtotal-CORE	200	204	167	150	119	103	94	91	93	103	154	212	140	13
14																14
15																15
16																16
17	NONCORE	Subtotal-NONCORE	174	175	139	150	154	192	200	202	217	202	165	177	179	17
18		Co. Use & LUAF	3	4	3	3	3	3	3	3	3	3	3	4	3	18
19	SYSTEM TOTAL THROUGHPUT		377	384	309	303	276	298	296	296	312	308	322	393	322	19
	TRANSPORTATION AND EXCHANGE															
20	CORE	All End Uses	17	18	15	15	14	13	12	11	12	12	15	18	14	20
21																21
22	NONCORE	All End Uses	174	175	139	150	154	192	200	202	217	202	165	177	179	22
23	TOTAL TRANSPORTATION & EXCHANGE		191	193	154	165	167	205	212	213	228	214	181	195	193	23
	CURTAILMENT															
24		Core	0	0	0	0	0	0	0	0	0	0	0	0	0	24
25		Noncore	0	0	0	0	0	0	0	0	0	0	0	0	0	25
26		TOTAL - Curtailment	0	0	0	0	0	0	0	0	0	0	0	0	0	26

NOTES:
1/ Capacity to receive gas from the Southern Zone of SoCalGas is an annual value based on weighting winter and non-winter season values: 607 = (630 winter) x (151/365) + (590 non-winter) x (214/365).
2/ For 2016 and after, assume capacity at same levels.
3/ Requirement forecast by end-use includes sales, transportation, and exchange volumes.
4/ Core end-use demand exclusive of core aggregation transportation (CAT) in MDth/d: 190 194 158 141 110 93 85 83 84 95 144 202 131

Work Paper: TABLE 1-SDGE

SAN DIEGO GAS & ELECTRIC COMPANY

ANNUAL GAS SUPPLY AND REQUIREMENTS - MMCF/DAY
ESTIMATED FOR YEAR: 2019

AVERAGE TEMPERATURE with BASE HYDRO YEAR

LINE			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg	LINE
	CAPACITY AVAILABLE [1/ & 2/]															
1	California Source Gas		0	0	0	0	0	0	0	0	0	0	0	0	0	1
2	Southern Zone of SoCalGas [1/]		607	607	607	607	607	607	607	607	607	607	607	607	607	2
3	TOTAL CAPACITY AVAILABLE		607	607	607	607	607	607	607	607	607	607	607	607	607	3
	GAS SUPPLY TAKEN															
4	California Source Gas		0	0	0	0	0	0	0	0	0	0	0	0	0	4
5	Southern Zone of SoCalGas		373	359	303	293	267	297	295	294	311	311	321	387	317	5
6	TOTAL SUPPLY TAKEN		373	359	303	293	267	297	295	294	311	311	321	387	317	6
7	Net Underground Storage Withdrawal		0	0	0	0	0	0	0	0	0	0	0	0	0	7
8	TOTAL THROUGHPUT		373	359	303	293	267	297	295	294	311	311	321	387	317	8
	REQUIREMENTS FORECAST BY END-USE [3/]															
9	CORE [4/]	Residential	135	136	111	95	66	53	49	49	49	58	94	142	86	9
10		Commercial	54	56	45	45	44	40	36	33	34	36	50	60	44	10
11		Industrial	5	6	5	5	4	4	3	3	3	4	4	5	4	11
12		NGV	5	6	5	6	5	6	5	5	6	5	6	5	6	12
13		Subtotal-CORE	200	204	167	150	119	103	94	91	93	103	154	212	140	13
14																14
15																15
16																16
17	NONCORE	Subtotal-NONCORE	170	152	134	139	146	192	198	201	215	205	164	171	174	17
18		Co. Use & LUAF	3	3	3	3	2	3	3	3	3	3	3	4	3	18
19	SYSTEM TOTAL THROUGHPUT		373	359	303	293	267	297	295	294	311	311	321	387	317	19
	TRANSPORTATION AND EXCHANGE															
20	CORE	All End Uses	17	18	15	15	14	13	12	11	12	12	15	18	14	20
21																21
22	NONCORE	All End Uses	170	152	134	139	146	192	198	201	215	205	164	171	174	22
23	TOTAL TRANSPORTATION & EXCHANGE		187	169	148	154	160	204	210	212	227	217	180	189	188	23
	CURTAILMENT															
24		Core	0	0	0	0	0	0	0	0	0	0	0	0	0	24
25		Noncore	0	0	0	0	0	0	0	0	0	0	0	0	0	25
26		TOTAL - Curtailment	0	0	0	0	0	0	0	0	0	0	0	0	0	26

NOTES:
1/ Capacity to receive gas from the Southern Zone of SoCalGas is an annual value based on weighting winter and non-winter season values: 607 = (630 winter) x (151/365) + (590 non-winter) x (214/365).
2/ For 2016 and after, assume capacity at same levels.
3/ Requirement forecast by end-use includes sales, transportation, and exchange volumes.
4/ Core end-use demand exclusive of core aggregation transportation (CAT) in MDth/d: 190 194 158 141 110 93 85 83 84 95 144 202 131

Work Paper: TABLE 1-SDGE

SAN DIEGO GAS & ELECTRIC COMPANY

ANNUAL GAS SUPPLY AND REQUIREMENTS - MMCF/DAY
ESTIMATED FOR YEAR: 2020

AVERAGE TEMPERATURE with BASE HYDRO YEAR

LINE			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg	LINE
	CAPACITY AVAILABLE [1/ & 2/]															
1	California Source Gas		0	0	0	0	0	0	0	0	0	0	0	0	0	1
2	Southern Zone of SoCalGas [1/]		607	607	607	607	607	607	607	607	607	607	607	607	607	2
3	TOTAL CAPACITY AVAILABLE		607	607	607	607	607	607	607	607	607	607	607	607	607	3
	GAS SUPPLY TAKEN															
4	California Source Gas		0	0	0	0	0	0	0	0	0	0	0	0	0	4
5	Southern Zone of SoCalGas		372	349	305	291	263	297	295	294	310	309	318	383	315	5
6	TOTAL SUPPLY TAKEN		372	349	305	291	263	297	295	294	310	309	318	383	315	6
7	Net Underground Storage Withdrawal		0	0	0	0	0	0	0	0	0	0	0	0	0	7
8	TOTAL THROUGHPUT		372	349	305	291	263	297	295	294	310	309	318	383	315	8
	REQUIREMENTS FORECAST BY END-USE [3/]															
9	CORE [4/]	Residential	136	132	112	95	67	53	49	49	49	59	94	142	86	9
10		Commercial	54	54	45	45	43	39	35	33	34	35	49	59	44	10
11		Industrial	5	5	5	4	4	4	3	3	3	4	4	5	4	11
12		NGV	6	6	6	6	6	6	6	6	6	6	6	6	6	12
13		Subtotal-CORE	200	198	167	150	119	103	94	91	93	103	154	212	140	13
14																14
15																15
16																16
17	NONCORE	Subtotal-NONCORE	169	148	135	138	142	192	198	200	214	203	161	167	172	17
18		Co. Use & LUAF	3	3	3	3	2	3	3	3	3	3	3	4	3	18
19	SYSTEM TOTAL THROUGHPUT		372	349	305	291	263	297	295	294	310	309	318	383	315	19
	TRANSPORTATION AND EXCHANGE															
20	CORE	All End Uses	17	17	15	15	14	13	12	12	12	12	16	18	14	20
21																21
22	NONCORE	All End Uses	169	148	135	138	142	192	198	200	214	203	161	167	172	22
23	TOTAL TRANSPORTATION & EXCHANGE		186	165	150	152	155	205	210	211	226	215	177	185	187	23
	CURTAILMENT															
24		Core	0	0	0	0	0	0	0	0	0	0	0	0	0	24
25		Noncore	0	0	0	0	0	0	0	0	0	0	0	0	0	25
26		TOTAL - Curtailment	0	0	0	0	0	0	0	0	0	0	0	0	0	26

NOTES:
1/ Capacity to receive gas from the Southern Zone of SoCalGas is an annual value based on weighting winter and non-winter season values: 607 = (630 winter) x (151/365) + (590 non-winter) x (214/365).
2/ For 2016 and after, assume capacity at same levels.
3/ Requirement forecast by end-use includes sales, transportation, and exchange volumes.
4/ Core end-use demand exclusive of core aggregation transportation (CAT) in MDth/d: 191 187 158 141 110 93 85 83 84 95 144 202 131

Work Paper: TABLE 2-SDGE

SAN DIEGO GAS & ELECTRIC COMPANY

ANNUAL GAS SUPPLY AND REQUIREMENTS - MMCF/DAY
ESTIMATED FOR YEAR: 2021

AVERAGE TEMPERATURE with BASE HYDRO YEAR

LINE			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg	LINE
	CAPACITY AVAILABLE [1/ & 2/]															
1	California Source Gas		0	0	0	0	0	0	0	0	0	0	0	0	0	1
2	Southern Zone of SoCalGas [1/]		607	607	607	607	607	607	607	607	607	607	607	607	607	2
3	TOTAL CAPACITY AVAILABLE		607	607	607	607	607	607	607	607	607	607	607	607	607	3
	GAS SUPPLY TAKEN															
4	California Source Gas		0	0	0	0	0	0	0	0	0	0	0	0	0	4
5	Southern Zone of SoCalGas		365	373	310	303	267	256	270	304	312	294	335	393	315	5
6	TOTAL SUPPLY TAKEN		365	373	310	303	267	256	270	304	312	294	335	393	315	6
7	Net Underground Storage Withdrawal		0	0	0	0	0	0	0	0	0	0	0	0	0	7
8	TOTAL THROUGHPUT		365	373	310	303	267	256	270	304	312	294	335	393	315	8
	REQUIREMENTS FORECAST BY END-USE [3/]															
9	CORE [4/]	Residential	136	137	112	95	67	54	49	49	50	59	94	143	87	9
10		Commercial	53	55	44	44	42	39	35	32	33	35	48	58	43	10
11		Industrial	5	6	5	4	4	4	3	3	3	4	4	5	4	11
12		NGV	6	7	6	6	6	6	6	6	6	6	6	6	6	12
13		Subtotal-CORE	200	204	167	150	119	102	93	91	92	103	153	211	140	13
14																14
15																15
16																16
17	NONCORE	Subtotal-NONCORE	163	166	140	150	146	152	174	211	216	188	179	177	172	17
18		Co. Use & LUAF	3	3	3	3	2	2	2	3	3	3	3	4	3	18
19	SYSTEM TOTAL THROUGHPUT		365	373	310	303	267	256	270	304	312	294	335	393	315	19
	TRANSPORTATION AND EXCHANGE															
20	CORE	All End Uses	17	18	15	15	14	13	12	12	12	12	16	18	14	20
21																21
22	NONCORE	All End Uses	163	166	140	150	146	152	174	211	216	188	179	177	172	22
23	TOTAL TRANSPORTATION & EXCHANGE		179	184	155	165	160	165	186	222	228	200	194	195	186	23
	CURTAILMENT															
24		Core	0	0	0	0	0	0	0	0	0	0	0	0	0	24
25		Noncore	0	0	0	0	0	0	0	0	0	0	0	0	0	25
26		TOTAL - Curtailment	0	0	0	0	0	0	0	0	0	0	0	0	0	26

NOTES:
1/ Capacity to receive gas from the Southern Zone of SoCalGas is an annual value based on weighting winter and non-winter season values: 607 = (630 winter) x (151/365) + (590 non-winter) x (214/365).
2/ For 2016 and after, assume capacity at same levels.
3/ Requirement forecast by end-use includes sales, transportation, and exchange volumes.
4/ Core end-use demand exclusive of core aggregation transportation (CAT) in MDth/d: 190 194 158 141 109 93 85 82 84 94 143 201 131

Work Paper: TABLE 2-SDGE

SAN DIEGO GAS & ELECTRIC COMPANY

ANNUAL GAS SUPPLY AND REQUIREMENTS - MMCF/DAY
ESTIMATED FOR YEAR: 2022

AVERAGE TEMPERATURE with BASE HYDRO YEAR

LINE			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg	LINE
	CAPACITY AVAILABLE [1/ & 2/]															
1	California Source Gas		0	0	0	0	0	0	0	0	0	0	0	0	0	1
2	Southern Zone of SoCalGas [1/]		607	607	607	607	607	607	607	607	607	607	607	607	607	2
3	TOTAL CAPACITY AVAILABLE		607	607	607	607	607	607	607	607	607	607	607	607	607	3
	GAS SUPPLY TAKEN															
4	California Source Gas		0	0	0	0	0	0	0	0	0	0	0	0	0	4
5	Southern Zone of SoCalGas		380	371	306	289	250	254	286	303	317	296	331	389	315	5
6	TOTAL SUPPLY TAKEN		380	371	306	289	250	254	286	303	317	296	331	389	315	6
7	Net Underground Storage Withdrawal		0	0	0	0	0	0	0	0	0	0	0	0	0	7
8	TOTAL THROUGHPUT		380	371	306	289	250	254	286	303	317	296	331	389	314	8
	REQUIREMENTS FORECAST BY END-USE [3/]															
9	CORE [4/]	Residential	136	138	112	95	67	54	49	49	50	59	94	143	87	9
10		Commercial	52	53	43	43	41	38	34	32	32	34	47	57	42	10
11		Industrial	5	5	5	4	4	4	3	3	3	3	4	4	4	11
12		NGV	6	7	6	7	6	7	6	6	7	6	7	6	7	12
13		Subtotal-CORE	199	203	166	149	118	102	93	90	92	103	153	211	140	13
14																14
15																15
16																16
17	NONCORE	Subtotal-NONCORE	178	164	137	136	130	151	189	210	222	191	176	174	172	17
18		Co. Use & LUAF	3	3	3	3	2	2	3	3	3	3	3	4	3	18
19	SYSTEM TOTAL THROUGHPUT		380	371	306	289	250	254	286	303	317	296	331	389	314	19
	TRANSPORTATION AND EXCHANGE															
20	CORE	All End Uses	17	18	15	15	14	13	12	12	12	12	16	18	14	20
21																21
22	NONCORE	All End Uses	178	164	137	136	130	151	189	210	222	191	176	174	172	22
23	TOTAL TRANSPORTATION & EXCHANGE		195	182	152	151	144	164	202	222	234	203	192	192	186	23
	CURTAILMENT															
24		Core	0	0	0	0	0	0	0	0	0	0	0	0	0	24
25		Noncore	0	0	0	0	0	0	0	0	0	0	0	0	0	25
26		TOTAL - Curtailment	0	0	0	0	0	0	0	0	0	0	0	0	0	26

NOTES:
1/ Capacity to receive gas from the Southern Zone of SoCalGas is an annual value based on weighting winter and non-winter season values: 607 = (630 winter) x (151/365) + (590 non-winter) x (214/365).
2/ For 2016 and after, assume capacity at same levels.
3/ Requirement forecast by end-use includes sales, transportation, and exchange volumes.
4/ Core end-use demand exclusive of core aggregation transportation (CAT) in MDth/d: 189 193 157 140 109 92 84 82 83 94 142 200 130

Work Paper: TABLE 2-SDGE

SAN DIEGO GAS & ELECTRIC COMPANY

ANNUAL GAS SUPPLY AND REQUIREMENTS - MMCF/DAY
ESTIMATED FOR YEAR: 2025

AVERAGE TEMPERATURE with BASE HYDRO YEAR

LINE			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg	LINE
	CAPACITY AVAILABLE [1/ & 2/]															
1	California Source Gas		0	0	0	0	0	0	0	0	0	0	0	0	0	1
2	Southern Zone of SoCalGas [1/]		607	607	607	607	607	607	607	607	607	607	607	607	607	2
3	TOTAL CAPACITY AVAILABLE		607	607	607	607	607	607	607	607	607	607	607	607	607	3
	GAS SUPPLY TAKEN															
4	California Source Gas		0	0	0	0	0	0	0	0	0	0	0	0	0	4
5	Southern Zone of SoCalGas		370	371	311	296	270	258	271	280	293	292	324	377	310	5
6	TOTAL SUPPLY TAKEN		370	371	311	296	270	258	271	280	293	292	324	377	310	6
7	Net Underground Storage Withdrawal		0	0	0	0	0	0	0	0	0	0	0	0	0	7
8	TOTAL THROUGHPUT		370	371	311	296	270	258	271	280	293	292	324	377	309	8
	REQUIREMENTS FORECAST BY END-USE [3/]															
9	CORE [4/]	Residential	138	139	114	97	68	54	50	50	50	60	96	145	88	9
10		Commercial	48	50	40	40	39	35	32	30	30	32	44	53	39	10
11		Industrial	4	5	4	4	4	3	3	3	3	3	4	4	4	11
12		NGV	7	8	7	8	7	8	7	7	8	7	8	7	8	12
13		Subtotal-CORE	198	203	166	149	117	101	92	90	91	102	152	209	139	13
14																14
15																15
16																16
17	NONCORE	Subtotal-NONCORE	169	165	143	144	151	155	177	187	199	187	170	164	168	17
18		Co. Use & LUAF	3	3	3	3	2	2	2	3	3	3	3	3	3	18
19	SYSTEM TOTAL THROUGHPUT		370	371	311	296	270	258	271	280	293	292	324	377	309	19
	TRANSPORTATION AND EXCHANGE															
20	CORE	All End Uses	17	18	15	15	14	13	12	12	12	12	16	18	14	20
21																21
22	NONCORE	All End Uses	169	165	143	144	151	155	177	187	199	187	170	164	168	22
23	TOTAL TRANSPORTATION & EXCHANGE		186	183	158	159	165	168	189	199	211	199	185	182	182	23
	CURTAILMENT															
24		Core	0	0	0	0	0	0	0	0	0	0	0	0	0	24
25		Noncore	0	0	0	0	0	0	0	0	0	0	0	0	0	25
26		TOTAL - Curtailment	0	0	0	0	0	0	0	0	0	0	0	0	0	26

NOTES:
1/ Capacity to receive gas from the Southern Zone of SoCalGas is an annual value based on weighting winter and non-winter season values: 607 = (630 winter) x (151/365) + (590 non-winter) x (214/365).
2/ For 2016 and after, assume capacity at same levels.
3/ Requirement forecast by end-use includes sales, transportation, and exchange volumes.
4/ Core end-use demand exclusive of core aggregation transportation (CAT) in MDth/d: 189 192 157 139 108 91 83 81 82 93 141 199 129

Work Paper: TABLE 2-SDGE

SAN DIEGO GAS & ELECTRIC COMPANY

ANNUAL GAS SUPPLY AND REQUIREMENTS - MMCF/DAY
ESTIMATED FOR YEAR: 2030

AVERAGE TEMPERATURE with BASE HYDRO YEAR

LINE			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg	LINE
	CAPACITY AVAILABLE [1/ & 2/]															
1	California Source Gas		0	0	0	0	0	0	0	0	0	0	0	0	0	1
2	Southern Zone of SoCalGas [1/]		607	607	607	607	607	607	607	607	607	607	607	607	607	2
3	TOTAL CAPACITY AVAILABLE		607	607	607	607	607	607	607	607	607	607	607	607	607	3
	GAS SUPPLY TAKEN															
4	California Source Gas		0	0	0	0	0	0	0	0	0	0	0	0	0	4
5	Southern Zone of SoCalGas		362	375	301	283	246	255	263	271	286	293	332	381	303	5
6	TOTAL SUPPLY TAKEN		362	375	301	283	246	255	263	271	286	293	332	381	303	6
7	Net Underground Storage Withdrawal		0	0	0	0	0	0	0	0	0	0	0	0	0	7
8	TOTAL THROUGHPUT		362	375	301	283	246	255	263	271	286	293	332	381	304	8
	REQUIREMENTS FORECAST BY END-USE [3/]															
9	CORE [4/]	Residential	141	142	116	99	69	56	51	51	51	61	98	148	90	9
10		Commercial	47	48	39	39	38	34	31	29	30	31	43	52	38	10
11		Industrial	4	5	4	4	3	3	3	3	3	3	4	4	4	11
12		NGV	9	10	9	9	9	9	9	9	9	9	9	9	9	12
13		Subtotal-CORE	201	206	168	151	119	102	94	91	93	104	154	212	141	13
14																14
15																15
16																16
17	NONCORE	Subtotal-NONCORE	158	166	130	129	125	150	167	178	189	186	175	166	160	17
18		Co. Use & LUAF	3	3	3	3	2	2	2	2	3	3	3	3	3	18
19	SYSTEM TOTAL THROUGHPUT		362	375	301	283	246	255	263	271	286	293	332	381	304	19
	TRANSPORTATION AND EXCHANGE															
20	CORE	All End Uses	18	19	16	16	15	14	13	13	13	13	16	19	15	20
21																21
22	NONCORE	All End Uses	158	166	130	129	125	150	167	178	189	186	175	166	160	22
23	TOTAL TRANSPORTATION & EXCHANGE		176	185	146	145	140	165	180	191	203	199	192	184	175	23
	CURTAILMENT															
24		Core	0	0	0	0	0	0	0	0	0	0	0	0	0	24
25		Noncore	0	0	0	0	0	0	0	0	0	0	0	0	0	25
26		TOTAL - Curtailment	0	0	0	0	0	0	0	0	0	0	0	0	0	26

NOTES:
1/ Capacity to receive gas from the Southern Zone of SoCalGas is an annual value based on weighting winter and non-winter season values: 607 = (630 winter) x (151/365) + (590 non-winter) x (214/365).
2/ For 2016 and after, assume capacity at same levels.
3/ Requirement forecast by end-use includes sales, transportation, and exchange volumes.
4/ Core end-use demand exclusive of core aggregation transportation (CAT) in MDth/d: 191 194 158 141 108 92 84 82 83 94 143 201 131

Work Paper: TABLE 2-SDGE

SAN DIEGO GAS & ELECTRIC COMPANY

ANNUAL GAS SUPPLY AND REQUIREMENTS - MMCF/DAY
ESTIMATED FOR YEAR: 2035

AVERAGE TEMPERATURE with BASE HYDRO YEAR

LINE			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg	LINE
	CAPACITY AVAILABLE [1/ & 2/]															
1	California Source Gas		0	0	0	0	0	0	0	0	0	0	0	0	0	1
2	Southern Zone of SoCalGas [1/]		607	607	607	607	607	607	607	607	607	607	607	607	607	2
3	TOTAL CAPACITY AVAILABLE		607	607	607	607	607	607	607	607	607	607	607	607	607	3
	GAS SUPPLY TAKEN															
4	California Source Gas		0	0	0	0	0	0	0	0	0	0	0	0	0	4
5	Southern Zone of SoCalGas		366	379	305	286	249	257	265	274	287	295	335	386	306	5
6	TOTAL SUPPLY TAKEN		366	379	305	286	249	257	265	274	287	295	335	386	306	6
7	Net Underground Storage Withdrawal		0	0	0	0	0	0	0	0	0	0	0	0	0	7
8	TOTAL THROUGHPUT		366	379	305	286	249	257	265	274	287	295	335	386	307	8
	REQUIREMENTS FORECAST BY END-USE [3/]															
9	CORE [4/]	Residential	144	146	119	101	71	57	52	52	52	62	100	151	92	9
10		Commercial	47	48	39	39	38	34	31	29	29	31	43	51	38	10
11		Industrial	4	5	4	4	3	3	3	3	3	3	3	4	3	11
12		NGV	11	12	11	11	11	11	11	11	11	11	11	11	11	12
13		Subtotal-CORE	206	210	172	155	122	105	96	94	96	107	157	217	144	13
14																14
15																15
16																16
17	NONCORE	Subtotal-NONCORE	157	165	129	128	125	150	166	177	189	185	175	165	159	17
18		Co. Use & LUAF	3	3	3	3	2	2	2	3	3	3	3	4	3	18
19	SYSTEM TOTAL THROUGHPUT		366	379	305	286	249	257	265	274	287	295	335	386	307	19
	TRANSPORTATION AND EXCHANGE															
20	CORE	All End Uses	19	20	17	17	16	15	14	14	14	14	18	20	16	20
21																21
22	NONCORE	All End Uses	157	165	129	128	125	150	166	177	189	185	175	165	159	22
23	TOTAL TRANSPORTATION & EXCHANGE		176	185	146	145	140	165	181	191	203	200	192	185	176	23
	CURTAILMENT															
24		Core	0	0	0	0	0	0	0	0	0	0	0	0	0	24
25		Noncore	0	0	0	0	0	0	0	0	0	0	0	0	0	25
26		TOTAL - Curtailment	0	0	0	0	0	0	0	0	0	0	0	0	0	26

NOTES:
1/ Capacity to receive gas from the Southern Zone of SoCalGas is an annual value based on weighting winter and non-winter season values: 607 = (630 winter) x (151/365) + (590 non-winter) x (214/365).
2/ For 2016 and after, assume capacity at same levels.
3/ Requirement forecast by end-use includes sales, transportation, and exchange volumes.
4/ Core end-use demand exclusive of core aggregation transportation (CAT) in MDth/d: 194 198 162 143 110 93 85 83 85 96 145 205 133

2016 CALIFORNIA GAS REPORT

COLD TEMPERATURE YEAR
JULY 2016

TABLE 3-SDGE

SAN DIEGO GAS & ELECTRIC COMPANY

ANNUAL GAS SUPPLY AND REQUIREMENTS - MMCF/DAY
ESTIMATED YEARS 2016 THRU 2020

COLD TEMPERATURE YEAR (1 IN 35 COLD YEAR EVENT) & DRY HYDRO YEAR

LINE			2016	2017	2018	2019	2020	LINE
	CAPACITY AVAILABLE [1/ & 2/]							
1	California Source Gas		0	0	0	0	0	1
2	Southern Zone of SoCalGas [1/]		607	607	607	607	607	2
3	TOTAL CAPACITY AVAILABLE		607	607	607	607	607	3
	GAS SUPPLY TAKEN							
4	California Source Gas		0	0	0	0	0	4
5	Southern Zone of SoCalGas		351	357	346	342	338	5
6	TOTAL SUPPLY TAKEN		351	357	346	342	338	6
7	Net Underground Storage Withdrawal		0	0	0	0	0	7
8	TOTAL THROUGHPUT		351	357	346	342	338	8
	REQUIREMENTS FORECAST BY END-USE [3/]							
9	CORE [4/]	Residential	94	96	97	97	97	9
10		Commercial	47	49	48	47	47	10
11		Industrial	4	4	4	4	4	11
12		NGV	5	5	5	6	6	12
13		Subtotal-CORE	150	154	154	154	154	13
14	NONCORE	Commercial	7	7	7	7	7	14
15		Industrial	5	5	5	5	5	15
16		Electric Generation (EG)	186	188	177	173	169	16
17		Subtotal-NONCORE	198	200	189	185	181	17
18		Co. Use & LUAF	3	3	3	3	3	18
19	SYSTEM TOTAL THROUGHPUT		351	357	346	342	338	19
	TRANSPORTATION AND EXCHANGE							
20	CORE	All End Uses	14	15	15	15	15	20
21	NONCORE	Commercial/Industrial	13	12	12	12	12	21
22		Electric Generation (EG)	186	188	177	173	169	22
23	TOTAL TRANSPORTATION & EXCHANGE		213	215	204	200	196	23
	CURTAILMENT							
24		Core	0	0	0	0	0	24
25		Noncore	0	0	0	0	0	25
26		TOTAL - Curtailment	0	0	0	0	0	26

NOTES:
1/ Capacity to receive gas from the Southern Zone of SoCalGas is an annual value based on weighting winter and non-winter season values: 607 = (630 winter) x (151/365) + (590 non-winter) x (214/365).
2/ For 2016 and after, assume capacity at same levels.
3/ Requirement forecast by end-use includes sales, transportation, and exchange volumes.
4/ Core end-use demand exclusive of core aggregation transportation (CAT) in MDth/d: 141 145 145 145 145

TABLE 4-SDGE

SAN DIEGO GAS & ELECTRIC COMPANY

ANNUAL GAS SUPPLY AND REQUIREMENTS - MMCF/DAY
ESTIMATED YEARS 2021 THRU 2035

COLD TEMPERATURE YEAR (1 IN 35 COLD YEAR EVENT) & DRY HYDRO YEAR

LINE			2021	2022	2025	2030	2035	LINE
	CAPACITY AVAILABLE [1/ & 2/]							
1	California Source Gas		0	0	0	0	0	1
2	Southern Zone of SoCalGas [1/]		607	607	607	607	607	2
3	TOTAL CAPACITY AVAILABLE		607	607	607	607	607	3
	GAS SUPPLY TAKEN							
4	California Source Gas		0	0	0	0	0	4
5	Southern Zone of SoCalGas		339	341	336	329	333	5
6	TOTAL SUPPLY TAKEN		339	341	336	329	333	6
7	Net Underground Storage Withdrawal		0	0	0	0	0	7
8	TOTAL THROUGHPUT		339	341	336	329	333	8
	REQUIREMENTS FORECAST BY END-USE [3/]							
9	CORE [4/]	Residential	97	98	99	101	103	9
10		Commercial	46	45	42	41	41	10
11		Industrial	4	4	4	4	4	11
12		NGV	6	7	8	9	11	12
13		Subtotal-CORE	153	154	153	155	159	13
14	NONCORE	Commercial	7	7	7	7	8	14
15		Industrial	5	5	5	4	4	15
16		Electric Generation (EG)	171	172	168	160	159	16
17		Subtotal-NONCORE	183	184	180	171	171	17
18		Co. Use & LUAF	3	3	3	3	3	18
19	SYSTEM TOTAL THROUGHPUT		339	341	336	329	333	19
	TRANSPORTATION AND EXCHANGE							
20	CORE	All End Uses	15	15	15	16	17	20
21	NONCORE	Commercial/Industrial	12	12	11	12	12	21
22		Electric Generation (EG)	171	172	168	160	159	22
23	TOTAL TRANSPORTATION & EXCHANGE		198	199	194	188	188	23
	CURTAILMENT							
24		Core	0	0	0	0	0	24
25		Noncore	0	0	0	0	0	25
26		TOTAL - Curtailment	0	0	0	0	0	26

NOTES:
1/ Capacity to receive gas from the Southern Zone of SoCalGas is an annual value based on weighting winter and non-winter season values: 607 = (630 winter) x (151/365) + (590 non-winter) x (214/365).
2/ For 2016 and after, assume capacity at same levels.
3/ Requirement forecast by end-use includes sales, transportation, and exchange volumes.
4/ Core end-use demand exclusive of core aggregation transportation (CAT) in MDth/d: 143 145 143 145 148

Work Paper: TABLE 3-SDGE

SAN DIEGO GAS & ELECTRIC COMPANY

ANNUAL GAS SUPPLY AND REQUIREMENTS - MMCF/DAY
ESTIMATED FOR YEAR: 2016

COLD TEMPERATURE with DRY HYDRO YEAR

LINE			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg	LINE
	CAPACITY AVAILABLE [1/ & 2/]															
1	California Source Gas		0	0	0	0	0	0	0	0	0	0	0	0	0	1
2	Southern Zone of SoCalGas [1/]		607	607	607	607	607	607	607	607	607	607	607	607	607	2
3	TOTAL CAPACITY AVAILABLE		607	607	607	607	607	607	607	607	607	607	607	607	607	3
	GAS SUPPLY TAKEN															
4	California Source Gas		0	0	0	0	0	0	0	0	0	0	0	0	0	4
5	Southern Zone of SoCalGas		399	396	361	336	309	345	347	349	366	302	317	400	351	5
6	TOTAL SUPPLY TAKEN		399	396	361	336	309	345	347	349	366	302	317	400	351	6
7	Net Underground Storage Withdrawal		0	0	0	0	0	0	0	0	0	0	0	0	0	7
8	TOTAL THROUGHPUT		399	396	361	336	309	345	347	349	366	302	317	400	352	8
	REQUIREMENTS FORECAST BY END-USE [3/]															
9	CORE [4/]	Residential	156	152	126	105	70	53	48	48	48	60	104	164	94	9
10		Commercial	60	60	49	49	47	41	36	33	34	36	54	67	47	10
11		Industrial	5	6	5	5	4	4	3	3	3	4	4	5	4	11
12		NGV	5	5	5	5	5	5	5	5	5	5	5	5	5	12
13		Subtotal-CORE	226	222	184	163	125	103	92	89	90	104	167	241	150	13
14																14
15																15
16																16
17	NONCORE	Subtotal-NONCORE	169	170	174	170	181	239	252	257	273	195	146	155	198	17
18		Co. Use & LUAF	4	4	3	3	3	3	3	3	3	3	3	4	3	18
19	SYSTEM TOTAL THROUGHPUT		399	396	361	336	309	345	347	349	366	302	317	400	352	19
	TRANSPORTATION AND EXCHANGE															
20	CORE	All End Uses	18	18	15	15	14	13	11	11	11	11	16	19	14	20
21																21
22	NONCORE	All End Uses	169	170	174	170	181	239	252	257	273	195	146	155	198	22
23	TOTAL TRANSPORTATION & EXCHANGE		187	187	189	184	195	251	263	268	284	206	162	174	213	23
	CURTAILMENT															
24		Core	0	0	0	0	0	0	0	0	0	0	0	0	0	24
25		Noncore	0	0	0	0	0	0	0	0	0	0	0	0	0	25
26		TOTAL - Curtailment	0	0	0	0	0	0	0	0	0	0	0	0	0	26

NOTES:
1/ Capacity to receive gas from the Southern Zone of SoCalGas is an annual value based on weighting winter and non-winter season values: 607 = (630 winter) x (151/365) + (590 non-winter) x (214/365).
2/ For 2016 and after, assume capacity at same levels.
3/ Requirement forecast by end-use includes sales, transportation, and exchange volumes.
4/ Core end-use demand exclusive of core aggregation transportation (CAT) in MDth/d: 217 212 176 154 115 94 84 81 83 96 158 231 142

Work Paper: TABLE 3-SDGE

SAN DIEGO GAS & ELECTRIC COMPANY

ANNUAL GAS SUPPLY AND REQUIREMENTS - MMCF/DAY
ESTIMATED FOR YEAR: 2017

COLD TEMPERATURE with DRY HYDRO YEAR

LINE			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg	LINE
	CAPACITY AVAILABLE [1/ & 2/]															
1	California Source Gas		0	0	0	0	0	0	0	0	0	0	0	0	0	1
2	Southern Zone of SoCalGas [1/]		607	607	607	607	607	607	607	607	607	607	607	607	607	2
3	TOTAL CAPACITY AVAILABLE		607	607	607	607	607	607	607	607	607	607	607	607	607	3
	GAS SUPPLY TAKEN															
4	California Source Gas		0	0	0	0	0	0	0	0	0	0	0	0	0	4
5	Southern Zone of SoCalGas		400	419	336	330	293	349	353	355	373	313	345	430	357	5
6	TOTAL SUPPLY TAKEN		400	419	336	330	293	349	353	355	373	313	345	430	357	6
7	Net Underground Storage Withdrawal		0	0	0	0	0	0	0	0	0	0	0	0	0	7
8	TOTAL THROUGHPUT		400	419	336	330	293	349	353	355	373	313	345	430	357	8
	REQUIREMENTS FORECAST BY END-USE [3/]															
9	CORE [4/]	Residential	159	160	128	107	71	54	49	49	49	61	106	167	96	9
10		Commercial	62	63	50	50	48	42	37	34	35	37	56	69	49	10
11		Industrial	5	6	5	5	4	4	3	3	3	4	5	5	4	11
12		NGV	5	5	5	5	5	5	5	5	5	5	5	5	5	12
13		Subtotal-CORE	231	235	188	167	128	106	94	91	93	107	171	246	154	13
14																14
15																15
16																16
17	NONCORE	Subtotal-NONCORE	165	180	145	160	162	241	255	261	278	203	171	180	200	17
18		Co. Use & LUAF	4	4	3	3	3	3	3	3	3	3	3	4	3	18
19	SYSTEM TOTAL THROUGHPUT		400	419	336	330	293	349	353	355	373	313	345	430	357	19
	TRANSPORTATION AND EXCHANGE															
20	CORE	All End Uses	18	19	15	15	14	13	12	11	11	12	16	20	15	20
21																21
22	NONCORE	All End Uses	165	180	145	160	162	241	255	261	278	203	171	180	200	22
23	TOTAL TRANSPORTATION & EXCHANGE		183	199	160	175	176	254	267	272	289	215	188	199	215	23
	CURTAILMENT															
24		Core	0	0	0	0	0	0	0	0	0	0	0	0	0	24
25		Noncore	0	0	0	0	0	0	0	0	0	0	0	0	0	25
26		TOTAL - Curtailment	0	0	0	0	0	0	0	0	0	0	0	0	0	26

NOTES:
1/ Capacity to receive gas from the Southern Zone of SoCalGas is an annual value based on weighting winter and non-winter season values: 607 = (630 winter) x (151/365) + (590 non-winter) x (214/365).
2/ For 2016 and after, assume capacity at same levels.
3/ Requirement forecast by end-use includes sales, transportation, and exchange volumes.
4/ Core end-use demand exclusive of core aggregation transportation (CAT) in MDth/d: 221 224 180 157 118 96 86 83 84 98 161 236 145

Work Paper: TABLE 3-SDGE

SAN DIEGO GAS & ELECTRIC COMPANY

ANNUAL GAS SUPPLY AND REQUIREMENTS - MMCF/DAY
ESTIMATED FOR YEAR: 2018

COLD TEMPERATURE with DRY HYDRO YEAR

LINE			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg	LINE
	CAPACITY AVAILABLE [1/ & 2/]															
1	California Source Gas		0	0	0	0	0	0	0	0	0	0	0	0	0	1
2	Southern Zone of SoCalGas [1/]		607	607	607	607	607	607	607	607	607	607	607	607	607	2
3	TOTAL CAPACITY AVAILABLE		607	607	607	607	607	607	607	607	607	607	607	607	607	3
	GAS SUPPLY TAKEN															
4	California Source Gas		0	0	0	0	0	0	0	0	0	0	0	0	0	4
5	Southern Zone of SoCalGas		420	424	343	333	305	308	306	303	318	315	347	440	346	5
6	TOTAL SUPPLY TAKEN		420	424	343	333	305	308	306	303	318	315	347	440	346	6
7	Net Underground Storage Withdrawal		0	0	0	0	0	0	0	0	0	0	0	0	0	7
8	TOTAL THROUGHPUT		420	424	343	333	305	308	306	303	318	315	347	440	346	8
	REQUIREMENTS FORECAST BY END-USE [3/]															
9	CORE [4/]	Residential	159	160	129	107	71	54	49	49	49	61	106	168	97	9
10		Commercial	61	63	49	49	47	42	37	34	35	37	55	68	48	10
11		Industrial	5	6	5	5	4	4	3	3	3	4	5	5	4	11
12		NGV	5	6	5	5	5	5	5	5	5	5	5	5	5	12
13		Subtotal-CORE	231	235	188	167	128	106	94	91	93	107	171	246	154	13
14																14
15																15
16																16
17	NONCORE	Subtotal-NONCORE	185	185	152	163	175	199	208	209	222	205	173	190	189	17
18		Co. Use & LUAF	4	4	3	3	3	3	3	3	3	3	3	4	3	18
19	SYSTEM TOTAL THROUGHPUT		420	424	343	333	305	308	306	303	318	315	347	440	346	19
	TRANSPORTATION AND EXCHANGE															
20	CORE	All End Uses	18	19	16	15	14	13	12	11	12	12	16	20	15	20
21																21
22	NONCORE	All End Uses	185	185	152	163	175	199	208	209	222	205	173	190	189	22
23	TOTAL TRANSPORTATION & EXCHANGE		203	204	167	178	189	212	220	220	234	217	189	209	204	23
	CURTAILMENT															
24		Core	0	0	0	0	0	0	0	0	0	0	0	0	0	24
25		Noncore	0	0	0	0	0	0	0	0	0	0	0	0	0	25
26		TOTAL - Curtailment	0	0	0	0	0	0	0	0	0	0	0	0	0	26

NOTES:
1/ Capacity to receive gas from the Southern Zone of SoCalGas is an annual value based on weighting winter and non-winter season values: 607 = (630 winter) x (151/365) + (590 non-winter) x (214/365).
2/ For 2016 and after, assume capacity at same levels.
3/ Requirement forecast by end-use includes sales, transportation, and exchange volumes.
4/ Core end-use demand exclusive of core aggregation transportation (CAT) in MDth/d: 221 224 180 157 118 96 86 83 84 98 161 236 145

Work Paper: TABLE 3-SDGE

SAN DIEGO GAS & ELECTRIC COMPANY

ANNUAL GAS SUPPLY AND REQUIREMENTS - MMCF/DAY
ESTIMATED FOR YEAR: 2019

COLD TEMPERATURE with DRY HYDRO YEAR

LINE			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg	LINE
	CAPACITY AVAILABLE [1/ & 2/]															
1	California Source Gas		0	0	0	0	0	0	0	0	0	0	0	0	0	1
2	Southern Zone of SoCalGas [1/]		607	607	607	607	607	607	607	607	607	607	607	607	607	2
3	TOTAL CAPACITY AVAILABLE		607	607	607	607	607	607	607	607	607	607	607	607	607	3
	GAS SUPPLY TAKEN															
4	California Source Gas		0	0	0	0	0	0	0	0	0	0	0	0	0	4
5	Southern Zone of SoCalGas		420	418	334	322	293	307	303	301	315	318	349	435	342	5
6	TOTAL SUPPLY TAKEN		420	418	334	322	293	307	303	301	315	318	349	435	342	6
7	Net Underground Storage Withdrawal		0	0	0	0	0	0	0	0	0	0	0	0	0	7
8	TOTAL THROUGHPUT		420	418	334	322	293	307	303	301	315	318	349	435	342	8
	REQUIREMENTS FORECAST BY END-USE [3/]															
9	CORE [4/]	Residential	160	161	129	108	71	54	49	49	49	61	106	168	97	9
10		Commercial	60	62	49	49	47	41	36	33	34	36	55	67	47	10
11		Industrial	5	6	5	5	4	4	3	3	3	4	4	5	4	11
12		NGV	5	6	5	6	5	6	5	5	6	5	6	5	6	12
13		Subtotal-CORE	231	235	189	167	128	106	94	91	93	107	171	246	154	13
14																14
15																15
16																16
17	NONCORE	Subtotal-NONCORE	185	179	143	152	162	198	205	207	220	208	175	185	185	17
18		Co. Use & LUAF	4	4	3	3	3	3	3	3	3	3	3	4	3	18
19	SYSTEM TOTAL THROUGHPUT		420	418	334	322	293	307	303	301	315	318	349	435	342	19
	TRANSPORTATION AND EXCHANGE															
20	CORE	All End Uses	18	19	16	15	14	13	12	11	12	12	17	20	15	20
21																21
22	NONCORE	All End Uses	185	179	143	152	162	198	205	207	220	208	175	185	185	22
23	TOTAL TRANSPORTATION & EXCHANGE		204	198	158	168	177	212	217	219	231	220	191	205	200	23
	CURTAILMENT															
24		Core	0	0	0	0	0	0	0	0	0	0	0	0	0	24
25		Noncore	0	0	0	0	0	0	0	0	0	0	0	0	0	25
26		TOTAL - Curtailment	0	0	0	0	0	0	0	0	0	0	0	0	0	26

NOTES:
1/ Capacity to receive gas from the Southern Zone of SoCalGas is an annual value based on weighting winter and non-winter season values: 607 = (630 winter) x (151/365) + (590 non-winter) x (214/365).
2/ For 2016 and after, assume capacity at same levels.
3/ Requirement forecast by end-use includes sales, transportation, and exchange volumes.
4/ Core end-use demand exclusive of core aggregation transportation (CAT) in MDth/d: 221 224 180 157 118 96 86 83 84 98 161 236 145

Work Paper: TABLE 3-SDGE

SAN DIEGO GAS & ELECTRIC COMPANY

ANNUAL GAS SUPPLY AND REQUIREMENTS - MMCF/DAY
ESTIMATED FOR YEAR: 2020

COLD TEMPERATURE with DRY HYDRO YEAR

LINE			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg	LINE
	CAPACITY AVAILABLE [1/ & 2/]															
1	California Source Gas		0	0	0	0	0	0	0	0	0	0	0	0	0	1
2	Southern Zone of SoCalGas [1/]		607	607	607	607	607	607	607	607	607	607	607	607	607	2
3	TOTAL CAPACITY AVAILABLE		607	607	607	607	607	607	607	607	607	607	607	607	607	3
	GAS SUPPLY TAKEN															
4	California Source Gas		0	0	0	0	0	0	0	0	0	0	0	0	0	4
5	Southern Zone of SoCalGas		414	399	336	319	281	306	301	299	313	316	347	430	338	5
6	TOTAL SUPPLY TAKEN		414	399	336	319	281	306	301	299	313	316	347	430	338	6
7	Net Underground Storage Withdrawal		0	0	0	0	0	0	0	0	0	0	0	0	0	7
8	TOTAL THROUGHPUT		414	399	336	319	281	306	301	299	313	316	347	430	338	8
	REQUIREMENTS FORECAST BY END-USE [3/]															
9	CORE [4/]	Residential	161	156	130	108	72	55	49	49	50	61	107	169	97	9
10		Commercial	60	59	48	48	46	41	36	33	34	36	54	67	47	10
11		Industrial	5	6	5	5	4	4	3	3	3	4	4	5	4	11
12		NGV	6	6	6	6	6	6	6	6	6	6	6	6	6	12
13		Subtotal-CORE	231	227	189	167	128	106	95	91	93	107	171	246	154	13
14																14
15																15
16																16
17	NONCORE	Subtotal-NONCORE	179	168	144	149	151	198	204	205	218	206	172	179	181	17
18		Co. Use & LUAF	4	4	3	3	3	3	3	3	3	3	3	4	3	18
19	SYSTEM TOTAL THROUGHPUT		414	399	336	319	281	306	301	299	313	316	347	430	338	19
	TRANSPORTATION AND EXCHANGE															
20	CORE	All End Uses	18	19	16	16	15	13	12	12	12	12	17	20	15	20
21																21
22	NONCORE	All End Uses	179	168	144	149	151	198	204	205	218	206	172	179	181	22
23	TOTAL TRANSPORTATION & EXCHANGE		197	187	160	165	165	211	216	216	229	219	189	199	196	23
	CURTAILMENT															
24		Core	0	0	0	0	0	0	0	0	0	0	0	0	0	24
25		Noncore	0	0	0	0	0	0	0	0	0	0	0	0	0	25
26		TOTAL - Curtailment	0	0	0	0	0	0	0	0	0	0	0	0	0	26

NOTES:
1/ Capacity to receive gas from the Southern Zone of SoCalGas is an annual value based on weighting winter and non-winter season values: 607 = (630 winter) x (151/365) + (590 non-winter) x (214/365).
2/ For 2016 and after, assume capacity at same levels.
3/ Requirement forecast by end-use includes sales, transportation, and exchange volumes.
4/ Core end-use demand exclusive of core aggregation transportation (CAT) in MDth/d: 221 217 180 157 118 96 86 83 84 98 161 236 145

Work Paper: TABLE 4-SDGE

SAN DIEGO GAS & ELECTRIC COMPANY

ANNUAL GAS SUPPLY AND REQUIREMENTS - MMCF/DAY
ESTIMATED FOR YEAR: 2021

COLD TEMPERATURE with DRY HYDRO YEAR

LINE			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg	LINE
	CAPACITY AVAILABLE [1/ & 2/]															
1	California Source Gas		0	0	0	0	0	0	0	0	0	0	0	0	0	1
2	Southern Zone of SoCalGas [1/]		607	607	607	607	607	607	607	607	607	607	607	607	607	2
3	TOTAL CAPACITY AVAILABLE		607	607	607	607	607	607	607	607	607	607	607	607	607	3
	GAS SUPPLY TAKEN															
4	California Source Gas		0	0	0	0	0	0	0	0	0	0	0	0	0	4
5	Southern Zone of SoCalGas		407	420	341	333	290	277	292	311	319	303	358	441	339	5
6	TOTAL SUPPLY TAKEN		407	420	341	333	290	277	292	311	319	303	358	441	339	6
7	Net Underground Storage Withdrawal		0	0	0	0	0	0	0	0	0	0	0	0	0	7
8	TOTAL THROUGHPUT		407	420	341	333	290	277	292	311	319	303	358	441	340	8
	REQUIREMENTS FORECAST BY END-USE [3/]															
9	CORE [4/]	Residential	161	162	130	108	72	55	49	49	50	61	107	169	97	9
10		Commercial	59	60	47	47	45	40	35	32	33	35	53	65	46	10
11		Industrial	5	6	5	5	4	4	3	3	3	4	4	5	4	11
12		NGV	6	7	6	6	6	6	6	6	6	6	6	6	6	12
13		Subtotal-CORE	231	235	188	166	127	105	94	91	93	107	171	246	154	13
14																14
15																15
16																16
17	NONCORE	Subtotal-NONCORE	172	182	149	163	160	168	195	217	223	194	185	191	183	17
18		Co. Use & LUAF	4	4	3	3	3	3	3	3	3	3	3	4	3	18
19	SYSTEM TOTAL THROUGHPUT		407	420	341	333	290	277	292	311	319	303	358	441	340	19
	TRANSPORTATION AND EXCHANGE															
20	CORE	All End Uses	18	19	16	16	15	13	12	12	12	12	17	20	15	20
21																21
22	NONCORE	All End Uses	172	182	149	163	160	168	195	217	223	194	185	191	183	22
23	TOTAL TRANSPORTATION & EXCHANGE		191	201	165	179	175	182	207	229	235	206	201	211	198	23
	CURTAILMENT															
24		Core	0	0	0	0	0	0	0	0	0	0	0	0	0	24
25		Noncore	0	0	0	0	0	0	0	0	0	0	0	0	0	25
26		TOTAL - Curtailment	0	0	0	0	0	0	0	0	0	0	0	0	0	26

NOTES:
1/ Capacity to receive gas from the Southern Zone of SoCalGas is an annual value based on weighting winter and non-winter season values: 607 = (630 winter) x (151/365) + (590 non-winter) x (214/365).
2/ For 2016 and after, assume capacity at same levels.
3/ Requirement forecast by end-use includes sales, transportation, and exchange volumes.
4/ Core end-use demand exclusive of core aggregation transportation (CAT) in MDth/d: 221 224 179 157 117 95 85 82 84 98 160 235 144

Work Paper: TABLE 4-SDGE

SAN DIEGO GAS & ELECTRIC COMPANY

ANNUAL GAS SUPPLY AND REQUIREMENTS - MMCF/DAY
ESTIMATED FOR YEAR: 2022

COLD TEMPERATURE with DRY HYDRO YEAR

LINE			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg	LINE
	CAPACITY AVAILABLE [1/ & 2/]															
1	California Source Gas		0	0	0	0	0	0	0	0	0	0	0	0	0	1
2	Southern Zone of SoCalGas [1/]		607	607	607	607	607	607	607	607	607	607	607	607	607	2
3	TOTAL CAPACITY AVAILABLE		607	607	607	607	607	607	607	607	607	607	607	607	607	3
	GAS SUPPLY TAKEN															
4	California Source Gas		0	0	0	0	0	0	0	0	0	0	0	0	0	4
5	Southern Zone of SoCalGas		423	418	344	320	277	279	300	310	323	304	355	434	341	5
6	TOTAL SUPPLY TAKEN		423	418	344	320	277	279	300	310	323	304	355	434	341	6
7	Net Underground Storage Withdrawal		0	0	0	0	0	0	0	0	0	0	0	0	0	7
8	TOTAL THROUGHPUT		423	418	344	320	277	279	300	310	323	304	355	434	340	8
	REQUIREMENTS FORECAST BY END-USE [3/]															
9	CORE [4/]	Residential	161	162	130	109	72	55	50	49	50	62	107	170	98	9
10		Commercial	57	59	46	46	44	39	34	32	32	35	52	64	45	10
11		Industrial	5	6	5	5	4	4	3	3	3	4	4	5	4	11
12		NGV	6	7	6	7	6	7	6	6	7	6	7	6	7	12
13		Subtotal-CORE	230	234	188	166	127	105	94	90	92	106	170	245	153	13
14																14
15																15
16																16
17	NONCORE	Subtotal-NONCORE	189	180	153	151	147	171	203	217	228	195	182	185	183	17
18		Co. Use & LUAF	4	4	3	3	3	3	3	3	3	3	3	4	3	18
19	SYSTEM TOTAL THROUGHPUT		423	418	344	320	277	279	300	310	323	304	355	434	340	19
	TRANSPORTATION AND EXCHANGE															
20	CORE	All End Uses	18	19	16	16	15	13	12	12	12	12	17	20	15	20
21																21
22	NONCORE	All End Uses	189	180	153	151	147	171	203	217	228	195	182	185	183	22
23	TOTAL TRANSPORTATION & EXCHANGE		207	199	169	166	162	185	215	228	240	207	199	205	199	23
	CURTAILMENT															
24		Core	0	0	0	0	0	0	0	0	0	0	0	0	0	24
25		Noncore	0	0	0	0	0	0	0	0	0	0	0	0	0	25
26		TOTAL - Curtailment	0	0	0	0	0	0	0	0	0	0	0	0	0	26

NOTES:
1/ Capacity to receive gas from the Southern Zone of SoCalGas is an annual value based on weighting winter and non-winter season values: 607 = (630 winter) x (151/365) + (590 non-winter) x (214/365).
2/ For 2016 and after, assume capacity at same levels.
3/ Requirement forecast by end-use includes sales, transportation, and exchange volumes.
4/ Core end-use demand exclusive of core aggregation transportation (CAT) in MDth/d: 220 223 179 156 116 95 85 82 83 97 159 234 144

Work Paper: TABLE 4-SDGE

SAN DIEGO GAS & ELECTRIC COMPANY

ANNUAL GAS SUPPLY AND REQUIREMENTS - MMCF/DAY
ESTIMATED FOR YEAR: 2025

COLD TEMPERATURE with DRY HYDRO YEAR

LINE			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg	LINE
	CAPACITY AVAILABLE [1/ & 2/]															
1	California Source Gas		0	0	0	0	0	0	0	0	0	0	0	0	0	1
2	Southern Zone of SoCalGas [1/]		607	607	607	607	607	607	607	607	607	607	607	607	607	2
3	TOTAL CAPACITY AVAILABLE		607	607	607	607	607	607	607	607	607	607	607	607	607	3
	GAS SUPPLY TAKEN															
4	California Source Gas		0	0	0	0	0	0	0	0	0	0	0	0	0	4
5	Southern Zone of SoCalGas		407	412	345	325	294	280	293	289	300	305	352	429	336	5
6	TOTAL SUPPLY TAKEN		407	412	345	325	294	280	293	289	300	305	352	429	336	6
7	Net Underground Storage Withdrawal		0	0	0	0	0	0	0	0	0	0	0	0	0	7
8	TOTAL THROUGHPUT		407	412	345	325	294	280	293	289	300	305	352	429	335	8
	REQUIREMENTS FORECAST BY END-USE [3/]															
9	CORE [4/]	Residential	163	164	132	110	73	56	50	50	50	62	109	172	99	9
10		Commercial	54	55	43	43	41	37	32	30	30	32	48	60	42	10
11		Industrial	5	6	5	4	4	4	3	3	3	3	4	5	4	11
12		NGV	7	8	7	8	7	8	7	7	8	7	8	7	8	12
13		Subtotal-CORE	229	233	187	165	125	104	93	90	92	106	169	244	153	13
14																14
15																15
16																16
17	NONCORE	Subtotal-NONCORE	174	175	155	157	165	173	197	196	206	197	181	181	180	17
18		Co. Use & LUAF	4	4	3	3	3	3	3	3	3	3	3	4	3	18
19	SYSTEM TOTAL THROUGHPUT		407	412	345	325	294	280	293	289	300	305	352	429	335	19
	TRANSPORTATION AND EXCHANGE															
20	CORE	All End Uses	18	19	16	16	15	14	12	12	12	13	17	19	15	20
21																21
22	NONCORE	All End Uses	174	175	155	157	165	173	197	196	206	197	181	181	180	22
23	TOTAL TRANSPORTATION & EXCHANGE		192	195	171	173	180	187	209	208	218	209	197	201	195	23
	CURTAILMENT															
24		Core	0	0	0	0	0	0	0	0	0	0	0	0	0	24
25		Noncore	0	0	0	0	0	0	0	0	0	0	0	0	0	25
26		TOTAL - Curtailment	0	0	0	0	0	0	0	0	0	0	0	0	0	26

NOTES:
1/ Capacity to receive gas from the Southern Zone of SoCalGas is an annual value based on weighting winter and non-winter season values: 607 = (630 winter) x (151/365) + (590 non-winter) x (214/365).
2/ For 2016 and after, assume capacity at same levels.
3/ Requirement forecast by end-use includes sales, transportation, and exchange volumes.
4/ Core end-use demand exclusive of core aggregation transportation (CAT) in MDth/d: 219 222 178 155 115 94 84 81 82 97 158 233 143

Work Paper: TABLE 4-SDGE

SAN DIEGO GAS & ELECTRIC COMPANY

ANNUAL GAS SUPPLY AND REQUIREMENTS - MMCF/DAY
ESTIMATED FOR YEAR: 2030

COLD TEMPERATURE with DRY HYDRO YEAR

LINE			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg	LINE
	CAPACITY AVAILABLE [1/ & 2/]															
1	California Source Gas		0	0	0	0	0	0	0	0	0	0	0	0	0	1
2	Southern Zone of SoCalGas [1/]		607	607	607	607	607	607	607	607	607	607	607	607	607	2
3	TOTAL CAPACITY AVAILABLE		607	607	607	607	607	607	607	607	607	607	607	607	607	3
	GAS SUPPLY TAKEN															
4	California Source Gas		0	0	0	0	0	0	0	0	0	0	0	0	0	4
5	Southern Zone of SoCalGas		412	418	331	311	268	272	281	284	293	299	356	436	329	5
6	TOTAL SUPPLY TAKEN		412	418	331	311	268	272	281	284	293	299	356	436	329	6
7	Net Underground Storage Withdrawal		0	0	0	0	0	0	0	0	0	0	0	0	0	7
8	TOTAL THROUGHPUT		412	418	331	311	268	272	281	284	293	299	356	436	329	8
	REQUIREMENTS FORECAST BY END-USE [3/]															
9	CORE [4/]	Residential	167	168	135	112	74	57	51	51	51	64	111	175	101	9
10		Commercial	52	53	42	42	40	36	31	29	30	31	47	58	41	10
11		Industrial	4	5	4	4	4	3	3	3	3	3	4	4	4	11
12		NGV	9	10	9	9	9	9	9	9	9	9	9	9	9	12
13		Subtotal-CORE	232	236	190	168	127	105	95	91	93	107	171	247	155	13
14																14
15																15
16																16
17	NONCORE	Subtotal-NONCORE	176	177	138	140	139	164	184	189	197	189	181	185	172	17
18		Co. Use & LUAF	4	4	3	3	2	2	3	3	3	3	3	4	3	18
19	SYSTEM TOTAL THROUGHPUT		412	418	331	311	268	272	281	284	293	299	356	436	329	19
	TRANSPORTATION AND EXCHANGE															
20	CORE	All End Uses	19	20	17	17	15	15	13	13	13	14	17	20	16	20
21																21
22	NONCORE	All End Uses	176	177	138	140	139	164	184	189	197	189	181	185	172	22
23	TOTAL TRANSPORTATION & EXCHANGE		195	197	155	156	154	179	197	202	210	202	199	205	188	23
	CURTAILMENT															
24		Core	0	0	0	0	0	0	0	0	0	0	0	0	0	24
25		Noncore	0	0	0	0	0	0	0	0	0	0	0	0	0	25
26		TOTAL - Curtailment	0	0	0	0	0	0	0	0	0	0	0	0	0	26

NOTES:
1/ Capacity to receive gas from the Southern Zone of SoCalGas is an annual value based on weighting winter and non-winter season values: 607 = (630 winter) x (151/365) + (590 non-winter) x (214/365).
2/ For 2016 and after, assume capacity at same levels.
3/ Requirement forecast by end-use includes sales, transportation, and exchange volumes.
4/ Core end-use demand exclusive of core aggregation transportation (CAT) in MDth/d: 222 225 180 157 116 94 84 82 83 98 160 236 144

Work Paper: TABLE 4-SDGE

SAN DIEGO GAS & ELECTRIC COMPANY

ANNUAL GAS SUPPLY AND REQUIREMENTS - MMCF/DAY
ESTIMATED FOR YEAR: 2035

COLD TEMPERATURE with DRY HYDRO YEAR

LINE			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg	LINE
	CAPACITY AVAILABLE [1/ & 2/]															
1	California Source Gas		0	0	0	0	0	0	0	0	0	0	0	0	0	1
2	Southern Zone of SoCalGas [1/]		607	607	607	607	607	607	607	607	607	607	607	607	607	2
3	TOTAL CAPACITY AVAILABLE		607	607	607	607	607	607	607	607	607	607	607	607	607	3
	GAS SUPPLY TAKEN															
4	California Source Gas		0	0	0	0	0	0	0	0	0	0	0	0	0	4
5	Southern Zone of SoCalGas		416	422	335	314	270	275	283	286	295	301	359	440	333	5
6	TOTAL SUPPLY TAKEN		416	422	335	314	270	275	283	286	295	301	359	440	333	6
7	Net Underground Storage Withdrawal		0	0	0	0	0	0	0	0	0	0	0	0	0	7
8	TOTAL THROUGHPUT		416	422	335	314	270	275	283	286	295	301	359	440	332	8
	REQUIREMENTS FORECAST BY END-USE [3/]															
9	CORE [4/]	Residential	171	172	138	115	76	58	52	52	53	65	113	179	103	9
10		Commercial	52	53	42	42	40	36	31	29	29	31	47	58	41	10
11		Industrial	4	5	4	4	3	3	3	3	3	3	4	4	4	11
12		NGV	11	12	11	11	11	11	11	11	11	11	11	11	11	12
13		Subtotal-CORE	237	241	194	171	130	108	97	94	96	110	175	252	158	13
14																14
15																15
16																16
17	NONCORE	Subtotal-NONCORE	175	177	137	139	138	164	183	189	196	188	181	184	171	17
18		Co. Use & LUAF	4	4	3	3	2	3	3	3	3	3	3	4	3	18
19	SYSTEM TOTAL THROUGHPUT		416	422	335	314	270	275	283	286	295	301	359	440	332	19
	TRANSPORTATION AND EXCHANGE															
20	CORE	All End Uses	20	21	18	18	16	16	14	14	14	15	19	21	17	20
21																21
22	NONCORE	All End Uses	175	177	137	139	138	164	183	189	196	188	181	184	171	22
23	TOTAL TRANSPORTATION & EXCHANGE		195	198	155	157	155	179	197	202	210	203	199	206	188	23
	CURTAILMENT															
24		Core	0	0	0	0	0	0	0	0	0	0	0	0	0	24
25		Noncore	0	0	0	0	0	0	0	0	0	0	0	0	0	25
26		TOTAL - Curtailment	0	0	0	0	0	0	0	0	0	0	0	0	0	26

NOTES:
1/ Capacity to receive gas from the Southern Zone of SoCalGas is an annual value based on weighting winter and non-winter season values: 607 = (630 winter) x (151/365) + (590 non-winter) x (214/365).
2/ For 2016 and after, assume capacity at same levels.
3/ Requirement forecast by end-use includes sales, transportation, and exchange volumes.
4/ Core end-use demand exclusive of core aggregation transportation (CAT) in MDth/d: 226 229 184 160 118 96 86 83 85 99 163 240 147

2016 CALIFORNIA GAS REPORT

FORECAST OF REQUIREMENTS – DETAIL
JULY 2016

2016 CALIFORNIA GAS REPORT

CUSTOMER FORECAST
JULY 2016

San Diego Gas & Electric

Historical Meters by Segment

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Residential	739,874	753,182	765,256	775,938	788,196	798,253	805,013	808,545	812,174	817,006	821,874	826,197	831,403	835,753	839,947
Core C/I	28,735	29,036	29,277	29,454	29,513	29,588	29,860	30,158	30,123	30,150	30,114	30,096	30,026	30,012	30,035
NGV	190	194	212	252	276	114	28	29	26	27	29	24	25	25	25
Non-Core C/I	53	51	54	55	56	56	57	53	55	58	57	58	53	51	51
Electric Generation	60	67	66	71	75	77	71	68	64	65	61	64	66	63	67
TOTAL	768,912	782,530	794,866	805,771	818,117	828,088	835,029	838,853	842,442	847,305	852,135	856,440	861,573	865,904	870,125
Customer Growth	12,698	13,618	12,336	10,905	12,346	9,972	6,941	3,824	3,589	4,863	4,830	4,306	5,133	4,331	4,221

San Diego Gas & Electric

Meter Forecast by Segment

	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Residential	847,283	857,317	868,013	879,317	891,074	903,120	915,302	927,570	939,910	952,114
Core C/I	30,118	30,153	30,175	30,200	30,226	30,248	30,270	30,297	30,324	30,348
NGV	25	26	26	27	27	28	28	29	29	30
Non-Core C/I	51	51	51	51	51	51	51	51	51	52
Electric Generation	70	72	72	72	72	72	72	72	72	72
TOTAL	877,548	887,619	898,337	909,667	921,451	933,519	945,723	958,018	970,385	982,615
Customer Growth	7,423	10,071	10,718	11,330	11,784	12,068	12,204	12,295	12,367	12,230

San Diego Gas & Electric

Meter Forecast by Segment

	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Residential	964,711	977,375	989,709	1,001,731	1,013,746	1,025,848	1,038,024	1,050,397	1,063,058	1,076,033
Core C/I	30,375	30,404	30,429	30,454	30,483	30,510	30,540	30,573	30,606	30,639
NGV	30	36	37	38	38	39	39	40	40	41
Non-Core C/I	52	52	52	52	52	52	52	52	52	52
Electric Generation	72	72	72	72	72	72	72	72	72	72
TOTAL	995,239	1,007,939	1,020,298	1,032,346	1,044,390	1,056,521	1,068,726	1,081,133	1,093,828	1,106,836
Customer Growth	12,624	12,700	12,359	12,048	12,044	12,130	12,205	12,407	12,694	13,009

2016 CALIFORNIA GAS REPORT

EUFORECASTER
JULY 2016

Refer to the 2016 California Gas Report workpapers of Southern California Gas Company for documentation of the EUForecaster model. This model is used to forecast gas demands for the residential, core commercial and core industrial markets.

2016 CALIFORNIA GAS REPORT

RESIDENTIAL DEMAND FORECAST
JULY 2016

San Diego Gas & Electric Residential End-Use Model

I. Residential End-Use Model Description

Introduction:

San Diego Gas & Electric (SDG&E) used the End Use Forecaster model to generate annual gas demand forecasts for the residential market. 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 four residential groups are:

- Single-Family(SF);
- Multi-Family (MF);
- 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 2015 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 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. An adjustment to the forecast offsets the throughput by the energy efficiency savings. Annual conservation benefits associated with AMI are estimated by SDG&E to represent 1% of the core gas throughput.

Figures 2-5 illustrate the monthly forecasts for each weather scenario.

Data Sources:

The information used to perform the modeling and to generate the forecast includes historical 2015 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 2015 data is in Figure 6.

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 SDG&E service territory. Data on meter decay rates were obtained from the Energy Information Administration (EIA). See Figure 7 for the meter 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 8 for the appliance UEC's.

Fuel Costs and Price Elasticity:

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 9 illustrates the gas price forecasts.

Electric Price Data:

Both average prices (cents/kWh) and marginal prices (cents/kWh) were developed as electricity price inputs. Forecasts for the SDG&E residential customer class were developed based on the California Energy Commission's December 2015 updated forecast rates for California energy demand (forecast for the SDG&E planning area, under "Mid-Case" demand for electricity) for the SDG&E service area through our forecast time horizon.

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 and MF housing types, 1.034 for the MM housing type and 1.125 for the SM housing type. These various ratios were the same as those used to construct the marginal electricity prices for the SDG&E residential end-use model.

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 SDG&E company data. See Figures 11 and 12 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 13 for the building decay rates.
Data on equipment lives and decay rates are based on EIA, RASS, Energy Star, and SDG&E company data. See Figure 14 for the average lifetimes of gas appliances.

Saturations, Fuel and Efficiency Shares:

Saturation values, fuel shares, and efficiency shares were extracted from SDG&E company data files and RASS survey results. Please see Figures 15-18 for saturations, fuel, and efficiency shares.

AMI:
Mass deployment of AMI gas modules began in 2009. The conservation benefits estimated by SDG&E represent approximately 1% of core gas throughput.

II. Residential End-Use Model Data

San Diego Gas & Electric
2016 California Gas Report
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	4	4	4	2	2	2	2	1	1	1	1	1	1	1	1
Multi-Family	4	4	4	4	2	2	2	2	0	0	0	0	0	0	1	1
Master Meter	4	4	4	4	2	2	2	2	0	0	0	0	0	0	1	1
Sub-Meter	4	4	4	4	2	2	2	2	0	0	0	0	0	0	1	1

San Diego Gas & Electric
2016 California Gas Report
Figure 2: Average Temperature Year Demand Forecast (MDth)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	TOTAL
2015	4,251	3,871	3,499	2,875	2,083	1,618	1,542	1,534	1,496	1,835	2,846	4,453	31,902
2016	4,255	3,874	3,502	2,877	2,085	1,620	1,543	1,535	1,497	1,836	2,848	4,457	31,929
2017	4,334	3,947	3,567	2,931	2,124	1,650	1,572	1,564	1,525	1,870	2,902	4,540	32,526
2018	4,344	3,956	3,576	2,938	2,129	1,654	1,576	1,568	1,529	1,875	2,909	4,551	32,604
2019	4,361	3,971	3,589	2,949	2,137	1,660	1,581	1,574	1,535	1,882	2,919	4,568	32,727
2020	4,378	3,986	3,603	2,961	2,145	1,666	1,588	1,580	1,541	1,889	2,931	4,585	32,852
2021	4,387	3,995	3,611	2,967	2,150	1,670	1,591	1,583	1,544	1,893	2,937	4,595	32,922
2022	4,399	4,006	3,621	2,975	2,155	1,675	1,595	1,587	1,548	1,898	2,945	4,608	33,013
2023	4,415	4,020	3,634	2,986	2,163	1,681	1,601	1,593	1,554	1,905	2,956	4,625	33,133
2024	4,433	4,037	3,649	2,998	2,172	1,688	1,608	1,600	1,560	1,913	2,968	4,644	33,269
2025	4,451	4,054	3,664	3,011	2,181	1,695	1,614	1,606	1,567	1,921	2,980	4,663	33,407
2026	4,468	4,069	3,678	3,022	2,190	1,701	1,620	1,613	1,573	1,928	2,992	4,681	33,534
2027	4,491	4,089	3,696	3,037	2,200	1,710	1,629	1,621	1,580	1,938	3,006	4,704	33,701
2028	4,511	4,108	3,713	3,051	2,211	1,717	1,636	1,628	1,588	1,947	3,020	4,726	33,856
2029	4,529	4,124	3,728	3,063	2,219	1,724	1,642	1,634	1,594	1,955	3,032	4,744	33,989
2030	4,547	4,141	3,743	3,076	2,228	1,731	1,649	1,641	1,600	1,963	3,044	4,763	34,127
2031	4,568	4,159	3,759	3,089	2,238	1,739	1,656	1,648	1,608	1,971	3,058	4,785	34,278
2032	4,587	4,177	3,775	3,102	2,247	1,746	1,663	1,655	1,614	1,979	3,071	4,804	34,421
2033	4,607	4,196	3,792	3,116	2,258	1,754	1,671	1,663	1,622	1,988	3,085	4,826	34,577
2034	4,629	4,215	3,810	3,131	2,268	1,762	1,679	1,670	1,629	1,998	3,099	4,849	34,739
2035	4,652	4,237	3,829	3,147	2,280	1,771	1,687	1,679	1,637	2,008	3,115	4,873	34,915

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Figure 3: Cold Temperature Year Demand Forecast (MDth)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	TOTAL
2015	5,028	4,568	4,061	3,273	2,240	1,657	1,544	1,535	1,500	1,921	3,236	5,288	35,851
2016	5,032	4,572	4,064	3,276	2,242	1,658	1,545	1,536	1,501	1,922	3,238	5,292	35,879
2017	5,126	4,657	4,140	3,337	2,284	1,689	1,574	1,564	1,529	1,958	3,299	5,391	36,550
2018	5,138	4,668	4,150	3,345	2,289	1,693	1,578	1,568	1,533	1,963	3,306	5,404	36,635
2019	5,157	4,685	4,165	3,357	2,298	1,699	1,584	1,574	1,538	1,970	3,319	5,423	36,770
2020	5,177	4,703	4,181	3,370	2,306	1,706	1,590	1,580	1,544	1,978	3,331	5,444	36,908
2021	5,187	4,712	4,189	3,376	2,311	1,709	1,593	1,583	1,547	1,982	3,338	5,455	36,983
2022	5,201	4,725	4,200	3,385	2,317	1,714	1,597	1,587	1,551	1,987	3,347	5,469	37,081
2023	5,219	4,742	4,215	3,397	2,326	1,720	1,603	1,593	1,557	1,994	3,359	5,489	37,213
2024	5,240	4,760	4,232	3,411	2,335	1,727	1,609	1,599	1,563	2,002	3,372	5,511	37,361
2025	5,261	4,780	4,249	3,425	2,344	1,734	1,616	1,606	1,569	2,010	3,386	5,533	37,511
2026	5,281	4,798	4,265	3,438	2,353	1,740	1,622	1,612	1,575	2,018	3,398	5,554	37,653
2027	5,307	4,821	4,286	3,454	2,365	1,749	1,630	1,620	1,583	2,027	3,415	5,581	37,838
2028	5,331	4,843	4,306	3,470	2,375	1,757	1,637	1,627	1,590	2,037	3,430	5,606	38,009
2029	5,352	4,862	4,322	3,484	2,385	1,764	1,644	1,633	1,596	2,045	3,444	5,628	38,157
2030	5,373	4,881	4,340	3,498	2,394	1,771	1,650	1,640	1,603	2,053	3,458	5,651	38,310
2031	5,397	4,903	4,359	3,513	2,405	1,778	1,657	1,647	1,610	2,062	3,473	5,675	38,479
2032	5,419	4,923	4,377	3,527	2,415	1,786	1,664	1,654	1,616	2,070	3,487	5,699	38,637
2033	5,444	4,945	4,396	3,543	2,425	1,794	1,672	1,661	1,624	2,080	3,503	5,725	38,812
2034	5,469	4,968	4,417	3,560	2,437	1,802	1,680	1,669	1,631	2,089	3,519	5,751	38,992
2035	5,497	4,993	4,439	3,578	2,449	1,811	1,688	1,677	1,640	2,100	3,537	5,780	39,189

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Figure 4: Hot Temperature Year Demand Forecast (MDth)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	TOTAL
2015	3,474	3,174	2,937	2,477	1,926	1,580	1,539	1,534	1,492	1,748	2,456	3,618	27,954
2016	3,477	3,177	2,939	2,479	1,927	1,581	1,540	1,535	1,494	1,750	2,458	3,621	27,979
2017	3,542	3,237	2,994	2,526	1,963	1,611	1,569	1,564	1,522	1,782	2,504	3,689	28,503
2018	3,551	3,245	3,002	2,532	1,968	1,615	1,573	1,568	1,525	1,787	2,511	3,698	28,573
2019	3,564	3,257	3,013	2,542	1,976	1,621	1,579	1,574	1,531	1,794	2,520	3,712	28,683
2020	3,578	3,270	3,025	2,552	1,984	1,627	1,585	1,580	1,537	1,801	2,530	3,727	28,796
2021	3,587	3,277	3,032	2,557	1,988	1,631	1,589	1,583	1,541	1,805	2,536	3,735	28,862
2022	3,597	3,287	3,041	2,565	1,994	1,636	1,593	1,588	1,545	1,810	2,543	3,746	28,944
2023	3,610	3,299	3,052	2,575	2,001	1,642	1,599	1,594	1,551	1,817	2,553	3,760	29,054
2024	3,626	3,313	3,065	2,585	2,010	1,649	1,606	1,601	1,558	1,825	2,564	3,776	29,177
2025	3,641	3,327	3,078	2,596	2,018	1,656	1,613	1,607	1,564	1,832	2,575	3,792	29,302
2026	3,655	3,340	3,090	2,607	2,026	1,662	1,619	1,614	1,570	1,840	2,585	3,807	29,415
2027	3,674	3,357	3,106	2,620	2,036	1,671	1,628	1,622	1,578	1,849	2,598	3,826	29,564
2028	3,691	3,373	3,120	2,632	2,046	1,678	1,635	1,629	1,586	1,857	2,610	3,844	29,702
2029	3,706	3,386	3,133	2,642	2,054	1,685	1,642	1,636	1,592	1,865	2,620	3,860	29,820
2030	3,721	3,400	3,146	2,653	2,063	1,692	1,648	1,643	1,599	1,873	2,631	3,876	29,944
2031	3,738	3,415	3,160	2,665	2,072	1,700	1,656	1,650	1,606	1,881	2,643	3,893	30,078
2032	3,753	3,430	3,173	2,676	2,081	1,707	1,663	1,657	1,612	1,889	2,654	3,909	30,204
2033	3,771	3,446	3,188	2,689	2,090	1,715	1,670	1,665	1,620	1,898	2,666	3,927	30,343
2034	3,788	3,462	3,203	2,701	2,100	1,723	1,678	1,672	1,627	1,906	2,679	3,946	30,485
2035	3,808	3,479	3,219	2,715	2,111	1,731	1,687	1,681	1,636	1,916	2,692	3,966	30,641

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Figure 5: Base Temperature Year Demand Forecast (MDth)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	TOTAL
2015	1,532	1,433	1,532	1,482	1,532	1,482	1,532	1,532	1,482	1,532	1,482	1,532	18,082
2016	1,533	1,434	1,533	1,484	1,533	1,484	1,533	1,533	1,484	1,533	1,484	1,533	18,104
2017	1,562	1,461	1,562	1,512	1,562	1,512	1,562	1,562	1,512	1,562	1,512	1,562	18,444
2018	1,567	1,466	1,567	1,516	1,567	1,516	1,567	1,567	1,516	1,567	1,516	1,567	18,496
2019	1,573	1,472	1,573	1,523	1,573	1,523	1,573	1,573	1,523	1,573	1,523	1,573	18,576
2020	1,580	1,478	1,580	1,529	1,580	1,529	1,580	1,580	1,529	1,580	1,529	1,580	18,657
2021	1,585	1,482	1,585	1,534	1,585	1,534	1,585	1,585	1,534	1,585	1,534	1,585	18,709
2022	1,590	1,488	1,590	1,539	1,590	1,539	1,590	1,590	1,539	1,590	1,539	1,590	18,774
2023	1,597	1,494	1,597	1,546	1,597	1,546	1,597	1,597	1,546	1,597	1,546	1,597	18,856
2024	1,605	1,501	1,605	1,553	1,605	1,553	1,605	1,605	1,553	1,605	1,553	1,605	18,947
2025	1,613	1,509	1,613	1,561	1,613	1,561	1,613	1,613	1,561	1,613	1,561	1,613	19,040
2026	1,619	1,515	1,619	1,567	1,619	1,567	1,619	1,619	1,567	1,619	1,567	1,619	19,118
2027	1,628	1,523	1,628	1,576	1,628	1,576	1,628	1,628	1,576	1,628	1,576	1,628	19,223
2028	1,636	1,531	1,636	1,583	1,636	1,583	1,636	1,636	1,583	1,636	1,583	1,636	19,318
2029	1,643	1,537	1,643	1,590	1,643	1,590	1,643	1,643	1,590	1,643	1,590	1,643	19,400
2030	1,650	1,544	1,650	1,597	1,650	1,597	1,650	1,650	1,597	1,650	1,597	1,650	19,486
2031	1,658	1,551	1,658	1,605	1,658	1,605	1,658	1,658	1,605	1,658	1,605	1,658	19,577
2032	1,665	1,558	1,665	1,612	1,665	1,612	1,665	1,665	1,612	1,665	1,612	1,665	19,663
2033	1,673	1,565	1,673	1,619	1,673	1,619	1,673	1,673	1,619	1,673	1,619	1,673	19,756
2034	1,681	1,573	1,681	1,627	1,681	1,627	1,681	1,681	1,627	1,681	1,627	1,681	19,852
2035	1,690	1,581	1,690	1,636	1,690	1,636	1,690	1,690	1,636	1,690	1,636	1,690	19,956

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Figure 6: 2015 Historical Data

Segment	2015 Therm Sales	2015 Meter Count	2015 Meter Count: Pre-1979 Customers	2015 Meter Count: 1979-2014 Customers	2015 Meter Count: 2015 "New" Customers	Avg Annual Consumption: Pre-1979 Customers	Avg Annual Consumption: 1979-2014 Customers	Avg Annual Consumption: 2015 "New" Customers	Price Elasticity
Single Family	226,249,283	647,915	551,655	94,244	2,016	338	412	349	-0.1053
Multi-Family	50,694,552	180,093	140,071	37,342	2,680	270	334	153	-0.07145
Master Meter	32,047,202	11,513	11,118	387	7	2,718	4,641	3,484	-0.0688
Sub-Meter	10,032,471	467	466	1	0	21,490	14,313	0	-0.1053

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Figure 7: Meter Count Forecast

Year	Single Family	Multi-Family	Master Meter	Sub-Meter
2015	647,915	180,093	11,513	467
2016	653,656	181,688	11,513	467
2017	661,507	183,871	11,513	467
2018	669,876	186,197	11,513	467
2019	678,722	188,656	11,513	467
2020	687,922	191,213	11,513	467
2021	697,348	193,833	11,513	467
2022	706,880	196,482	11,513	467
2023	716,480	199,151	11,513	467
2024	726,136	201,835	11,513	467
2025	735,686	204,489	11,513	467
2026	745,543	207,229	11,513	467
2027	755,453	209,983	11,513	467
2028	765,104	212,666	11,513	467
2029	774,511	215,281	11,513	467
2030	783,913	217,894	11,513	467
2031	793,383	220,526	11,513	467
2032	802,910	223,174	11,513	467
2033	812,592	225,866	11,513	467
2034	822,499	228,619	11,513	467
2035	832,652	231,442	11,513	467

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Figure 8: Appliance Unit Energy Consumption (Gas in Therms, Electric in Kwh)

		Single Family		Multi-Family		Master Meter		Sub-Meter	
End-Use	**Vintage**	**Gas**	**Electric**	**Gas**	**Electric**	**Gas**	**Electric**	**Gas**	**Electric**
Space Heating	Stock	270	4,110	110	730	130	730	270	1,340
	Standard	250	3,730	100	670	120	670	250	1,210
	High	230	3,450	100	620	110	620	230	1,120
	Premium	210	3,170	90	570	100	570	210	1,030
Water Heating	Stock	170	2,440	100	2,440	120	2,440	170	2,010
	Standard	150	2,220	100	2,220	110	2,220	150	1,830
	High	140	2,110	100	2,110	100	2,110	140	1,740
	Premium	140	2,050	90	2,050	100	2,050	140	1,690
Cooking	Stock	28	574	26	465	26	465	28	514
	Standard	24	488	22	395	22	395	24	437
Drying	Stock	41	1,442	30	1,442	33	1,442	41	873
	Standard	39	1,370	28	1,370	31	1,370	39	830
Pool	Stock	123	3,431	-	-	-	-	-	-
Spa	Stock	100	290	-	-	-	-	-	-
Fireplace	Stock	17	0	-	-	-	-	-	-
BBQ	Stock	16	0	13	0	14	0	16	0

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Figure 9: Average and Marginal Gas Prices ($/therm)

Year	Res Price Deflator	R SF Average Price	R SF Marginal Price	R MF Average Price	R MF Marginal Price	R MM Average Price	R MM Marginal Price	R SM Average Price	R SM Marginal Price
2015	100.0	1.1320	1.1548	1.1104	1.1548	1.1123	1.1548	1.1324	1.1548
2016	101.0	1.1421	1.1635	1.1217	1.1635	1.1235	1.1635	1.1424	1.1635
2017	103.4	0.9766	0.9945	0.9597	0.9945	0.9611	0.9945	0.9769	0.9945
2018	106.1	1.0174	1.0360	0.9998	1.0360	1.0013	1.0360	1.0177	1.0360
2019	108.9	1.0512	1.0704	1.0330	1.0704	1.0346	1.0704	1.0515	1.0704
2020	111.7	1.0910	1.1108	1.0721	1.1108	1.0737	1.1108	1.0913	1.1108
2021	114.7	1.1603	1.1815	1.1401	1.1815	1.1418	1.1815	1.1606	1.1815
2022	117.7	1.2265	1.2492	1.2049	1.2492	1.2068	1.2492	1.2269	1.2492
2023	120.6	1.2834	1.3073	1.2608	1.3073	1.2627	1.3073	1.2838	1.3073
2024	123.6	1.3380	1.3629	1.3143	1.3629	1.3164	1.3629	1.3384	1.3629
2025	126.5	1.3913	1.4172	1.3666	1.4172	1.3687	1.4172	1.3917	1.4172
2026	129.4	1.4465	1.4736	1.4207	1.4736	1.4229	1.4736	1.4469	1.4736
2027	132.3	1.4918	1.5197	1.4652	1.5197	1.4675	1.5197	1.4922	1.5197
2028	135.4	1.5388	1.5675	1.5114	1.5675	1.5138	1.5675	1.5392	1.5675
2029	138.5	1.5922	1.6220	1.5639	1.6220	1.5663	1.6220	1.5927	1.6220
2030	141.6	1.6455	1.6763	1.6163	1.6763	1.6188	1.6763	1.6460	1.6763
2031	144.9	1.6961	1.7278	1.6660	1.7278	1.6686	1.7278	1.6966	1.7278
2032	148.2	1.7522	1.7849	1.7211	1.7849	1.7238	1.7849	1.7528	1.7849
2033	151.7	1.8060	1.8397	1.7740	1.8397	1.7768	1.8397	1.8066	1.8397
2034	155.2	1.8640	1.8987	1.8309	1.8987	1.8338	1.8987	1.8645	1.8987
2035	158.9	1.9200	1.9556	1.8863	1.9556	1.8892	1.9556	1.9206	1.9556

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Figure 10: Average and Marginal Electricity Prices (Cents/KWh)

Year	R SF Average Price	R SF Marginal Price	R MF Average Price	R MF Marginal Price	R MM Average Price	R MM Marginal Price	R SM Average Price	R SM Marginal Price
2015	17.66	26.73	17.32	26.22	17.35	17.94	17.67	19.88
2016	18.79	28.43	18.45	27.92	18.48	19.11	18.79	21.15
2017	18.67	28.25	18.35	27.76	18.37	19.00	18.68	21.02
2018	19.61	29.68	19.27	29.16	19.30	19.96	19.62	22.08
2019	20.72	31.36	20.36	30.81	20.39	21.09	20.73	23.33
2020	21.97	33.24	21.59	32.67	21.62	22.36	21.97	24.73
2021	22.76	34.44	22.36	33.84	22.40	23.16	22.77	25.62
2022	22.96	34.74	22.56	34.13	22.59	23.36	22.97	25.85
2023	23.73	35.91	23.31	35.28	23.35	24.14	23.74	26.71
2024	24.58	37.20	24.15	36.54	24.18	25.01	24.59	27.67
2025	25.35	38.36	24.90	37.68	24.94	25.79	25.36	28.53
2026	26.19	39.63	25.72	38.92	25.76	26.64	26.19	29.48
2027	26.99	40.85	26.51	40.12	26.56	27.46	27.00	30.39
2028	27.83	42.11	27.33	41.36	27.37	28.31	27.84	31.32
2029	28.68	43.39	28.17	42.62	28.21	29.17	28.69	32.28
2030	29.54	44.71	29.02	43.91	29.06	30.05	29.55	33.26
2031	30.46	46.09	29.92	45.27	29.96	30.98	30.47	34.29
2032	31.39	47.50	30.83	46.66	30.88	31.93	31.40	35.34
2033	32.36	48.97	31.79	48.10	31.84	32.92	32.37	36.43
2034	33.37	50.50	32.78	49.61	32.83	33.95	33.38	37.57
2035	34.41	52.07	33.81	51.16	33.86	35.01	34.42	38.74

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Figure 11: Gas Appliance Equipment Cost (Nominal $)

End-Use	Customer Class	Stock Efficiency	Standard Efficiency	High Efficiency	Premium Efficiency
Space Heating	Single Family	4,000	4,600	4,800	5,000
	Multi-Family	1,600	1,840	1,920	1,980
	Master Meter	1,000	1,150	1,200	1,250
	Sub-metered	1,600	1,840	1,920	1,980
Water Heating	Single Family	550	650	700	750
	Multi-Family	330	390	420	450
	Master Meter	330	390	420	450
	Sub-metered	330	390	420	450
Cooking	Single Family	500	1,400	-	-
	Multi-Family	250	1,400	-	-
	Master Meter	250	1,400	-	-
	Sub-metered	250	1,400	-	-
Drying	Single Family	328	482	-	-
	Multi-Family	328	482	-	-
	Master Meter	328	482	-	-
	Sub-metered	328	482	-	-
Pool	Single Family	1,200	-	-	-
Spa	Single Family	2,000	-	-	-
Fireplace	Single Family	150	-	-	-
Barbecue	Single Family	1,000	-	-	-
	Multi-Family	600	-	-	-
	Master Meter	600	-	-	-
	Sub-metered	600	-	-	-

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Figure 12: Electric Appliance Equipment Cost (Nominal $)

End-Use	Customer Class	Stock Efficiency	Standard Efficiency	High Efficiency	Premium Efficiency
Space Heating	Single Family	4,100	-	-	-
	Multi-Family	1,640	-	-	-
	Master Meter	1,025	-	-	-
	Sub-metered	1,640	-	-	-
Water Heating	Single Family	550	650	700	750
	Multi-Family	330	390	420	450
	Master Meter	330	390	420	450
	Sub-metered	330	390	420	450
Cooking	Single Family	500	1,400	-	-
	Multi-Family	250	1,400	-	-
	Master Meter	250	1,400	-	-
	Sub-metered	250	1,400	-	-
Drying	Single Family	328	482	-	-
	Multi-Family	328	482	-	-
	Master Meter	328	482	-	-
	Sub-metered	328	482	-	-
Pool	Single Family	1,200	-	-	-
Spa	Single Family	2,000	-	-	-
Fireplace	Single Family	150	-	-	-
Barbecue	Single Family	1,000	-	-	-
	Multi-Family	600	-	-	-
	Master Meter	600	-	-	-
	Sub-metered	600	-	-	-

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Figure 13: Building Lives and Decay Rate

Building Type	Building Decay Rate
Single Family	0.003
Multi-Family	0.006
Master Meter	0.008
Sub-metered	0.008

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Figure 14: Gas Appliance Age (Years)

		Single Family		Multi-Family		Master Meter		Sub-metered	
End-Use	**Vintage**	**Average**	**Max**	**Average**	**Max**	**Average**	**Max**	**Average**	**Max**
Space Heating	Pre-1979	16	16	23	23	20	20	16	16
	1979-2004	15	16	16	23	15	20	15	16
	2005-Current	5	16	4	23	4	20	5	16
Water Heating	Pre-1979	9	9	12	12	10	10	9	9
	1979-2004	9	9	10	12	10	10	9	9
	2005-Current	5	9	4	12	4	10	5	9
Cooking	Pre-1979	9	9	9	9	9	9	9	9
	1979-2004	9	9	9	9	8	9	9	9
	2005-Current	4	9	4	9	4	9	4	9
Drying	Pre-1979	7	7	6	7	7	7	7	7
	1979-2004	6	7	7	7	7	7	6	7
	2005-Current	4	7	3	7	3	7	4	7
Pool	Pre-1979	13	13	-	-	-	-	-	-
	1979-2004	9	13	-	-	-	-	-	-
	2005-Current	3	13	-	-	-	-	-	-
Spa	Pre-1979	11	11	-	-	-	-	-	-
	1979-2004	8	11	-	-	-	-	-	-
	2005-Current	3	11	-	-	-	-	-	-
Fireplace	Pre-1979	15	15	-	-	-	-	-	-
	1979-2004	15	15	-	-	-	-	-	-
	2005-Current	15	15	-	-	-	-	-	-
Barbecue	Pre-1979	7	7	5	7	5	6	7	7
	1979-2004	6	7	7	7	6	6	6	7
	2005-Current	4	7	3	7	4	6	4	7
Other	Pre-1979	15	15	15	15	15	15	15	15
	1979-2004	15	15	15	15	15	15	15	15
	2005-Current	15	15	15	15	15	15	15	15

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Figure 15: End-Use Saturations

End-Use	Vintage	Single Family	Multi-Family	Master Meter	Sub-metered
Space Heating	Pre-1979	1.00000	1.00000	1.00000	1.00000
	1979-2004	1.00000	1.00000	1.00000	1.00000
	2005-Current	1.00000	1.00000	1.00000	0.00000
Water Heating	Pre-1979	1.00000	1.00000	1.00000	1.00000
	1979-2004	1.00000	1.00000	1.00000	1.00000
	2005-Current	1.00000	1.00000	1.00000	0.00000
Cooking	Pre-1979	1.00000	0.99633	1.00000	1.00000
	1979-2004	1.00000	1.00000	1.00000	1.00000
	2005-Current	1.00000	1.00000	1.00000	0.00000
Drying	Pre-1979	0.85795	0.20040	0.47158	0.47158
	1979-2004	0.89516	0.42764	0.57182	0.57182
	2005-Current	0.92508	0.74161	0.74768	0.00000
Pool	Pre-1979	0.15644	-	-	-
	1979-2004	0.17913	-	-	-
	2005-Current	0.16916	-	-	-
Spa	Pre-1979	0.12651	-	-	-
	1979-2004	0.21695	-	-	-
	2005-Current	0.19134	-	-	-
Fireplace	Pre-1979	0.22973	-	-	-
	1979-2004	0.27252	-	-	-
	2005-Current	0.26269	-	-	-
Barbecue	Pre-1979	0.13716	0.04723	0.07424	0.07424
	1979-2004	0.25180	0.06165	0.10179	0.10179
	2005-Current	0.31442	0.07818	0.16198	0.00000
Other	Pre-1979	1.00000	1.00000	1.00000	1.00000
	1979-2004	1.00000	1.00000	1.00000	1.00000
	2005-Current	1.00000	1.00000	1.00000	N/A

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Figure 16: Gas Fuel Shares (average)

End-Use	Single Family	Multi-Family	Master Meter	Sub-metered
Space Heating	0.98200	0.91179	0.92461	0.92461
Water Heating	0.97630	0.89871	0.92997	0.92997
Cooking	0.83890	0.82622	0.81058	0.81058
Drying	0.80258	0.59654	0.70306	0.70306
Pool	0.49003	-	-	-
Spa	0.60804	-	-	-
Fireplace	0.56361	-	-	-
Barbecue	0.95008	0.85803	0.89234	0.89234
Other	1.00000	1.00000	1.00000	1.00000

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Figure 17: Gas Efficiency Shares

End-Use	Customer Class	Stock Existing	Stock New	Standard Existing	Standard New	High Existing	High New	Premium Existing	Premium New
Space Heating	Single Family	0.06	0.06	0.78	0.78	0.14	0.14	0.02	0.02
	Multi-Family	0.41	0.41	0.46	0.46	0.01	0.01	0.04	0.04
	Master Meter	0.17	0.17	0.69	0.69	0.11	0.11	0.03	0.03
	Sub-metered	0.06	0.06	0.78	0.78	0.14	0.14	0.02	0.02
Water Heating	Single Family	0.00	0.00	0.64	0.64	0.34	0.34	0.02	0.02
	Multi-Family	0.00	0.00	0.61	0.61	0.37	0.37	0.02	0.02
	Master Meter	0.00	0.00	0.59	0.59	0.39	0.39	0.02	0.02
	Sub-metered	0.00	0.00	0.64	0.64	0.34	0.34	0.02	0.02
Cooking	Single Family	0.17	0.17	0.83	0.83	-	-	-	-
	Multi-Family	0.18	0.18	0.82	0.82	-	-	-	-
	Master Meter	0.17	0.17	0.83	0.83	-	-	-	-
	Sub-metered	0.17	0.17	0.83	0.83	-	-	-	-
Drying	Single Family	0.07	0.07	0.93	0.93	-	-	-	-
	Multi-Family	0.06	0.06	0.94	0.94	-	-	-	-
	Master Meter	0.06	0.06	0.94	0.94	-	-	-	-
	Sub-metered	0.07	0.07	0.93	0.93	-	-	-	-
Pool	Single Family	1.00	1.00	-	-	-	-	-	-
Spa	Single Family	1.00	1.00	-	-	-	-	-	-
Fireplace	Single Family	1.00	1.00	-	-	-	-	-	-
Barbecue	Single Family	1.00	1.00	-	-	-	-	-	-
	Multi-Family	1.00	1.00	-	-	-	-	-	-
	Master Meter	1.00	1.00	-	-	-	-	-	-
	Sub-metered	1.00	1.00	-	-	-	-	-	-
Other	Single Family	1.00	1.00	-	-	-	-	-	-
	Multi-Family	1.00	1.00	-	-	-	-	-	-
	Master Meter	1.00	1.00	-	-	-	-	-	-
	Sub-metered	1.00	1.00	-	-	-	-	-	-

San Diego Gas & Electric
2016 California Gas Report
Figure 18: Electric Efficiency Shares

End-Use	Customer Class	Stock Existing	Stock New	Standard Existing	Standard New	High Existing	High New	Premium Existing	Premium New
Space Heating	Single Family	1.00	1.00	-	-	-	-	-	-
	Multi-Family	1.00	1.00	-	-	-	-	-	-
	Master Meter	1.00	1.00	-	-	-	-	-	-
	Sub-metered	1.00	1.00	-	-	-	-	-	-
Water Heating	Single Family	0.10	0.10	0.68	0.68	0.21	0.21	0.01	0.01
	Multi-Family	0.13	0.13	0.76	0.76	0.10	0.10	0.01	0.01
	Master Meter	0.13	0.13	0.76	0.76	0.10	0.10	0.01	0.01
	Sub-metered	0.10	0.10	0.68	0.68	0.21	0.21	0.01	0.01
Cooking	Single Family	0.90	0.90	0.10	0.10	-	-	-	-
	Multi-Family	0.95	0.95	0.05	0.05	-	-	-	-
	Master Meter	0.95	0.95	0.05	0.05	-	-	-	-
	Sub-metered	0.95	0.95	0.05	0.05	-	-	-	-
Drying	Single Family	0.75	0.75	0.25	0.25	-	-	-	-
	Multi-Family	0.75	0.75	0.25	0.25	-	-	-	-
	Master Meter	0.75	0.75	0.25	0.25	-	-	-	-
	Sub-metered	0.75	0.75	0.25	0.25	-	-	-	-
Pool	Single Family	1.00	1.00	-	-	-	-	-	-
Spa	Single Family	1.00	1.00	-	-	-	-	-	-
Fireplace	Single Family	1.00	1.00	-	-	-	-	-	-
Barbecue	Single Family	1.00	1.00	-	-	-	-	-	-
	Multi-Family	1.00	1.00	-	-	-	-	-	-
	Master Meter	1.00	1.00	-	-	-	-	-	-
	Sub-metered	1.00	1.00	-	-	-	-	-	-

2016 CALIFORNIA GAS REPORT

CORE COMMERCIAL AND INDUSTRIAL DEMAND FORECAST
JULY 2016

The level of employment in each business type is used as a measure of economic activity in the core commercial and industrial GN-3 demand forecast models. The employment data series matches the NAICS categories used to develop the historical consumption data. The employment data was compiled and totaled for the SDG&E service territory. The forecast data comes from Global Insight.

Building and Equipment Decay Rates

Building decay rates are based on the building lifetimes, where the lifetime is defined as the length of time it takes for either a demolition or a major renovation where major systems are replaced. For existing core buildings and facilities, an exponential rate of decay of 11% 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 large gas transport (noncore) customers. In both the commercial and industrial noncore models, the existing building decay rate was set to zero.

Similarly, all new construction decay rates were assumed to be zero over the forecast horizon. The 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

F. 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. The commercial models developed saturation and fuel share estimates from our others end-use models. 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 SDG&E industrial sales figures, and our estimates of electric usage by SDG&E 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. The low efficiency share in the existing equipment stock was set equal to 50%. Medium ranged from 40% to 45%, and high from 5% to10%.

EUForecaster's choice module prorates the low share proportionately to the medium, high and premium alternatives proportionate 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%.

Gas Price Data:

Average and marginal gas prices ($/therm) were calculated from forecasts of the GN-3 rate components. We used detailed consumption data on our GN-3 C&I, customers, to separate monthly consumption for customers by each respective C&I business type into the respective GN-3 consumption tiers. (The most recent 12-month calendar period, January 2015 through December 2015, was used.)

For a given business type, the average gas commodity rate for the 12-month period was calculated for each year. The average commodity rate in each forecast year was developed using the same monthly consumption pattern, but with the forecasts of rates for each GN-3 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 GN-3 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 GN-3 price of the marginal consumption tier.

Electric Price Data:

Both average prices (cents/kWh) and marginal prices (cents/kWh) were developed as electricity price inputs. Forecasts for the SDG&E commercial and industrial customer classes were developed based on the California Energy Commission's December 2015 updated forecast rates for California energy demand (forecast for the SDG&E planning area, under "Mid-Case" demand for electricity) for the SDG&E service area through our forecast time horizon.

The electricity prices for SDG&E's GN-3 commercial customers were estimated at 112% of the CEC's projected commercial electricity prices for SDG&E. The marginal prices were calculated by multiplying each year's respective average price by a ratio. This ratio, 1.000, was used and is the same as the ratio used for the SoCalGas core commercial G-10 end-use model.

The electricity prices for SDG&E's GN-3 industrial customers were estimated at 88% of the CEC's projected commercial electricity prices for SDG&E. The marginal prices were calculated by multiplying each year's respective average price by a ratio. This ratio, 0.789, was used and is the same as the ratio used for the SoCalGas core industrial G-10 end-use model.

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

G. DSM Forecast:

The end-use gas demand forecast developed with EUForecaster does not capture the effects of SDG&E's 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 SDG&E's DSM department. These savings are subtracted from the forecast generated by the core commercial and industrial forecasts generated by EUForecaster.

GN3 COMMERCIAL DATA TABLES

San Diego Gas and Electric Company
2016 California Gas Report - Commercial GN3
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	1981	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

San Diego Gas & Electric
2016 California Gas Report
Average Electric Rates (Cents/KwH)

Year	C Agriculture Average Price	C College Average Price	C Construction Average Price	C Government Average Price	C Health Average Price	C Laundry Average Price	C Lodging Average Price	C Misc Average Price	C Office Average Price	C Restaurant Average Price	C Retail Average Price	C School Average Price	C TCU Average Price	C Warehouse Average Price
2015	18.65	20.78	19.48	18.83	18.45	20.73	17.74	17.64	18.08	20.06	17.24	17.43	20.48	17.58
2016	19.64	21.55	20.40	19.77	19.47	21.55	18.79	18.70	19.10	20.96	18.35	18.55	21.38	18.65
2017	19.31	21.86	20.30	19.50	19.07	21.82	18.19	18.07	18.60	21.03	17.60	17.85	21.56	18.00
2018	19.86	22.50	20.89	20.07	19.62	22.44	18.72	18.60	19.15	21.62	18.11	18.35	22.15	18.52
2019	20.73	23.44	21.78	20.97	20.49	23.36	19.58	19.46	20.02	22.51	18.96	19.19	23.04	19.38
2020	21.85	24.68	22.94	22.11	21.59	24.57	20.66	20.53	21.12	23.69	20.01	20.24	24.22	20.45
2021	22.54	25.33	23.61	22.81	22.29	25.19	21.39	21.26	21.84	24.32	20.74	20.95	24.82	21.18
2022	22.53	25.13	23.53	22.79	22.30	24.99	21.46	21.35	21.89	24.17	20.86	21.05	24.63	21.28
2023	23.21	25.81	24.20	23.48	22.98	25.65	22.16	22.05	22.59	24.83	21.56	21.74	25.27	21.97
2024	23.98	26.59	24.97	24.26	23.74	26.42	22.93	22.81	23.36	25.59	22.32	22.49	26.03	22.74
2025	24.66	27.28	25.65	24.95	24.43	27.09	23.62	23.50	24.05	26.26	23.01	23.17	26.69	23.43
2026	25.46	28.09	26.45	25.76	25.23	27.89	24.42	24.31	24.85	27.05	23.82	23.97	27.47	24.23
2027	26.17	28.86	27.18	26.48	25.93	28.64	25.12	25.00	25.56	27.79	24.50	24.65	28.20	24.92
2028	26.90	29.65	27.94	27.23	26.66	29.42	25.83	25.71	26.29	28.54	25.20	25.34	28.95	25.64
2029	27.64	30.43	28.69	27.98	27.40	30.18	26.57	26.45	27.03	29.29	25.93	26.07	29.70	26.37
2030	28.40	31.22	29.46	28.75	28.16	30.96	27.32	27.20	27.79	30.06	26.67	26.81	30.46	27.12
2031	29.20	32.09	30.28	29.57	28.95	31.80	28.10	27.97	28.58	30.88	27.44	27.57	31.28	27.90
2032	30.01	32.94	31.10	30.39	29.75	32.64	28.90	28.77	29.39	31.71	28.23	28.35	32.10	28.70
2033	30.84	33.85	31.96	31.24	30.59	33.53	29.72	29.59	30.22	32.57	29.03	29.15	32.97	29.51
2034	31.72	34.79	32.86	32.14	31.46	34.45	30.58	30.45	31.09	33.47	29.88	29.99	33.86	30.37
2035	32.61	35.78	33.79	33.05	32.34	35.42	31.45	31.31	31.97	34.41	30.72	30.83	34.81	31.22

San Diego Gas & Electric
2016 California Gas Report
Average Electric Rates (Cents/KwH)

Year	C Agriculture Marginal Price	C College Marginal Price	C Construction Marginal Price	C Government Marginal Price	C Health Marginal Price	C Laundry Marginal Price	C Lodging Marginal Price	C Misc Marginal Price	C Office Marginal Price	C Restaurant Marginal Price	C Retail Marginal Price	C School Marginal Price	C TCU Marginal Price	C Warehouse Marginal Price
2015	18.62	20.89	19.13	18.92	18.41	20.48	18.08	17.85	18.29	19.53	17.69	17.67	19.62	17.98
2016	19.62	21.64	20.07	19.89	19.44	21.28	19.14	18.94	19.33	20.43	18.79	18.77	20.50	19.05
2017	19.27	22.03	19.88	19.63	19.02	21.53	18.61	18.34	18.87	20.37	18.13	18.11	20.48	18.49
2018	19.82	22.68	20.46	20.20	19.56	22.17	19.14	18.86	19.41	20.96	18.64	18.62	21.07	19.02
2019	20.70	23.61	21.34	21.08	20.43	23.08	20.00	19.71	20.27	21.86	19.50	19.47	21.97	19.88
2020	21.81	24.85	22.49	22.21	21.54	24.30	21.09	20.79	21.37	23.02	20.56	20.54	23.14	20.96
2021	22.50	25.48	23.16	22.90	22.23	24.94	21.79	21.50	22.07	23.69	21.28	21.25	23.81	21.66
2022	22.50	25.26	23.11	22.86	22.25	24.76	21.84	21.57	22.10	23.60	21.36	21.34	23.71	21.72
2023	23.18	25.92	23.79	23.54	22.93	25.43	22.53	22.26	22.78	24.27	22.05	22.03	24.38	22.41
2024	23.95	26.70	24.56	24.31	23.70	26.20	23.29	23.02	23.55	25.04	22.81	22.79	25.15	23.17
2025	24.63	27.38	25.24	24.99	24.38	26.88	23.98	23.70	24.23	25.72	23.50	23.47	25.83	23.86
2026	25.43	28.18	26.04	25.79	25.18	27.68	24.78	24.50	25.03	26.53	24.30	24.27	26.63	24.66
2027	26.14	28.95	26.76	26.51	25.88	28.44	25.47	25.19	25.73	27.26	24.98	24.96	27.37	25.35
2028	26.87	29.74	27.51	27.25	26.61	29.22	26.19	25.90	26.45	28.01	25.69	25.66	28.13	26.06
2029	27.61	30.51	28.26	28.00	27.35	29.99	26.93	26.64	27.19	28.77	26.42	26.40	28.88	26.80
2030	28.37	31.31	29.02	28.76	28.10	30.78	27.67	27.38	27.94	29.54	27.16	27.14	29.66	27.55
2031	29.17	32.17	29.83	29.56	28.89	31.63	28.45	28.15	28.73	30.36	27.93	27.90	30.48	28.32
2032	29.98	33.02	30.65	30.38	29.70	32.47	29.25	28.95	29.53	31.19	28.72	28.70	31.31	29.12
2033	30.81	33.93	31.50	31.22	30.53	33.37	30.08	29.76	30.36	32.05	29.53	29.51	32.18	29.94
2034	31.69	34.86	32.40	32.11	31.40	34.29	30.94	30.62	31.23	32.96	30.38	30.36	33.08	30.80
2035	32.58	35.86	33.31	33.02	32.28	35.27	31.80	31.48	32.11	33.89	31.23	31.20	34.02	31.66

San Diego Gas & Electric
2016 California Gas Report
Core Commercial Average Gas Prices ($/therm)

Year	Com Price Deflator	C Agriculture Average Price	C College Average Price	C Construction Average Price	C Government Average Price	C Health Average Price	C Laundry Average Price	C Lodging Average Price	C Misc Average Price	C Office Average Price	C Restaurant Average Price	C Retail Average Price	C School Average Price	C TCU Average Price	C Warehouse Average Price
2015	100.00	0.7090	0.7902	0.7406	0.7158	0.7016	0.7881	0.6743	0.6706	0.6874	0.7628	0.6555	0.6627	0.7788	0.6683
2016	101.05	0.7530	0.8262	0.7818	0.7579	0.7461	0.8261	0.7203	0.7170	0.7321	0.8035	0.7033	0.7110	0.8195	0.7148
2017	103.39	0.5806	0.6573	0.6106	0.5863	0.5735	0.6563	0.5470	0.5435	0.5593	0.6325	0.5292	0.5367	0.6485	0.5413
2018	106.10	0.6008	0.6808	0.6319	0.6073	0.5934	0.6790	0.5663	0.5627	0.5792	0.6541	0.5477	0.5551	0.6701	0.5604
2019	108.86	0.6335	0.7160	0.6655	0.6405	0.6259	0.7136	0.5983	0.5946	0.6117	0.6878	0.5791	0.5863	0.7038	0.5922
2020	111.74	0.6590	0.7443	0.6920	0.6667	0.6513	0.7411	0.6232	0.6193	0.6370	0.7145	0.6034	0.6104	0.7305	0.6169
2021	114.71	0.7240	0.8136	0.7585	0.7327	0.7159	0.8093	0.6870	0.6830	0.7016	0.7812	0.6662	0.6730	0.7973	0.6804
2022	117.68	0.7982	0.8904	0.8335	0.8075	0.7899	0.8855	0.7605	0.7564	0.7755	0.8564	0.7392	0.7458	0.8725	0.7538
2023	120.60	0.8498	0.9447	0.8860	0.8597	0.8413	0.9390	0.8113	0.8071	0.8268	0.9091	0.7894	0.7958	0.9252	0.8044
2024	123.57	0.8959	0.9936	0.9331	0.9064	0.8872	0.9872	0.8567	0.8524	0.8727	0.9564	0.8342	0.8405	0.9725	0.8497
2025	126.47	0.9449	1.0452	0.9830	0.9561	0.9360	1.0382	0.9050	0.9006	0.9215	1.0064	0.8819	0.8881	1.0226	0.8978
2026	129.36	0.9975	1.1004	1.0365	1.0092	0.9884	1.0927	0.9569	0.9523	0.9738	1.0601	0.9331	0.9392	1.0762	0.9495
2027	132.35	1.0286	1.1343	1.0686	1.0410	1.0193	1.1258	0.9872	0.9826	1.0046	1.0923	0.9629	0.9688	1.1085	0.9797
2028	135.41	1.0615	1.1700	1.1025	1.0746	1.0521	1.1609	1.0194	1.0147	1.0373	1.1264	0.9945	1.0002	1.1426	1.0117
2029	138.50	1.1060	1.2174	1.1479	1.1197	1.0963	1.2074	1.0632	1.0583	1.0815	1.1720	1.0376	1.0431	1.1882	1.0553
2030	141.62	1.1494	1.2636	1.1923	1.1637	1.1395	1.2530	1.1058	1.1008	1.1247	1.2166	1.0796	1.0849	1.2328	1.0977
2031	144.91	1.1843	1.3015	1.2282	1.1993	1.1741	1.2900	1.1398	1.1347	1.1592	1.2526	1.1129	1.1181	1.2689	1.1316
2032	148.23	1.2292	1.3494	1.2741	1.2449	1.2188	1.3372	1.1839	1.1787	1.2039	1.2988	1.1564	1.1614	1.3151	1.1755
2033	151.65	1.2675	1.3909	1.3135	1.2839	1.2569	1.3778	1.2214	1.2160	1.2419	1.3383	1.1931	1.1979	1.3547	1.2127
2034	155.23	1.3109	1.4376	1.3580	1.3280	1.3000	1.4237	1.2639	1.2584	1.2849	1.3831	1.2349	1.2395	1.3994	1.2550
2035	158.87	1.3375	1.4675	1.3858	1.3554	1.3264	1.4528	1.2896	1.2840	1.3112	1.4110	1.2599	1.2643	1.4274	1.2805

San Diego Gas & Electric
2016 California Gas Report
Core Commercial Marginal Gas Prices ($/therm)

Year	Com Price Deflator	C Agriculture Marginal Price	C College Marginal Price	C Construction Marginal Price	C Government Marginal Price	C Health Marginal Price	C Laundry Marginal Price	C Lodging Marginal Price	C Misc Marginal Price	C Office Marginal Price	C Restaurant Marginal Price	C Retail Marginal Price	C School Marginal Price	C TCU Marginal Price	C Warehouse Marginal Price
2015	100.00	0.6537	0.7334	0.6714	0.6642	0.6464	0.7191	0.6347	0.6267	0.6420	0.6855	0.6208	0.6201	0.6886	0.6312
2016	101.05	0.7010	0.7732	0.7170	0.7105	0.6944	0.7602	0.6839	0.6766	0.6905	0.7298	0.6713	0.6706	0.7326	0.6807
2017	103.39	0.5271	0.6026	0.5439	0.5371	0.5202	0.5890	0.5092	0.5016	0.5161	0.5572	0.4960	0.4953	0.5602	0.5059
2018	106.10	0.5459	0.6246	0.5633	0.5562	0.5387	0.6104	0.5271	0.5193	0.5344	0.5772	0.5134	0.5127	0.5803	0.5237
2019	108.86	0.5774	0.6586	0.5954	0.5881	0.5700	0.6440	0.5581	0.5500	0.5656	0.6098	0.5440	0.5433	0.6130	0.5546
2020	111.74	0.6019	0.6856	0.6204	0.6129	0.5942	0.6705	0.5819	0.5736	0.5897	0.6353	0.5673	0.5666	0.6386	0.5783
2021	114.71	0.6649	0.7529	0.6845	0.6765	0.6569	0.7371	0.6440	0.6352	0.6521	0.7000	0.6287	0.6279	0.7035	0.6402
2022	117.68	0.7380	0.8285	0.7581	0.7500	0.7298	0.8122	0.7165	0.7075	0.7249	0.7741	0.7008	0.7000	0.7777	0.7126
2023	120.60	0.7884	0.8815	0.8090	0.8007	0.7799	0.8647	0.7663	0.7569	0.7748	0.8255	0.7500	0.7492	0.8292	0.7622
2024	123.57	0.8334	0.9291	0.8546	0.8460	0.8246	0.9118	0.8106	0.8010	0.8194	0.8715	0.7939	0.7931	0.8753	0.8064
2025	126.47	0.8812	0.9795	0.9030	0.8942	0.8723	0.9618	0.8579	0.8480	0.8669	0.9204	0.8407	0.8399	0.9243	0.8536
2026	129.36	0.9326	1.0335	0.9550	0.9459	0.9234	1.0153	0.9087	0.8986	0.9180	0.9728	0.8911	0.8902	0.9768	0.9043
2027	132.35	0.9626	1.0660	0.9855	0.9762	0.9531	1.0474	0.9380	0.9276	0.9475	1.0038	0.9200	0.9191	1.0079	0.9335
2028	135.41	0.9943	1.1005	1.0179	1.0083	0.9846	1.0813	0.9691	0.9584	0.9789	1.0366	0.9506	0.9496	1.0408	0.9644
2029	138.50	1.0376	1.1465	1.0617	1.0519	1.0276	1.1268	1.0117	1.0008	1.0217	1.0810	0.9927	0.9918	1.0853	1.0069
2030	141.62	1.0797	1.1914	1.1045	1.0944	1.0695	1.1713	1.0532	1.0420	1.0635	1.1242	1.0337	1.0328	1.1286	1.0483
2031	144.91	1.1133	1.2278	1.1387	1.1284	1.1028	1.2072	1.0860	1.0746	1.0966	1.1589	1.0661	1.0651	1.1635	1.0810
2032	148.23	1.1569	1.2743	1.1829	1.1724	1.1461	1.2532	1.1289	1.1172	1.1398	1.2037	1.1085	1.1074	1.2083	1.1238
2033	151.65	1.1938	1.3143	1.2205	1.2097	1.1828	1.2926	1.1652	1.1531	1.1763	1.2419	1.1442	1.1431	1.2466	1.1599
2034	155.23	1.2358	1.3595	1.2632	1.2521	1.2245	1.3372	1.2064	1.1940	1.2178	1.2851	1.1848	1.1837	1.2900	1.2010
2035	158.87	1.2609	1.3878	1.2891	1.2777	1.2494	1.3650	1.2308	1.2181	1.2425	1.3115	1.2087	1.2075	1.3165	1.2252

San Diego Gas & Electric
2016 California Gas Report
Historical Data

Segment	2015 Therm Sales	2015 Meter Count	2015 Meter Count, Existing/Old customers	2015 Meter Count New Customers	Avg Use Per Meter Existing Customers	Avg Use Per Meter New Customers	Price Elasticity
Office	32,759,847	6,419	6,333	86	**5,090**	6,094	-0.135376
Restaurant	39,694,426	5,502	5,435	67	**7,227**	6,222	-0.091877
Retail	12,766,713	2,915	2,892	23	**4,376**	4,831	-0.265060
Laundry	7,746,789	443	440	3	**17,183**	62,048	-0.122795
Warehouse	3,051,118	568	567	1	**5,362**	10,758	-0.043035
School	2,650,287	812	807	5	**3,262**	3,585	-0.000001
College	5,668,270	360	356	4	**15,833**	7,911	-0.037179
Health	13,416,567	706	704	2	**18,593**	163,701	-0.096826
Lodging	18,490,342	808	800	8	**23,019**	9,438	-0.105697
Misc	14,328,927	5,013	4,915	98	**2,867**	2,404	-0.000001
Government	12,999,387	703	697	6	**18,249**	46,589	-0.095709
TCU	6,241,890	1,439	1,437	2	**4,290**	38,471	-0.129301
Construction	954,305	658	611	47	**1,539**	298	-0.161076
Agriculture	1,977,977	104	103	1	**19,204**	2	-0.315282

San Diego Gas and Electric Company
2016 California Gas Report Commercial GN3
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
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

Business Types	End Use	Fuel	Efficiency	uec (therm/SqFt)	Equipment Cost	efficiency shares
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
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

Business Types	End Use	Fuel	Efficiency	uec (therm/SqFt)	Equipment Cost	efficiency shares
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
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

Business Types	End Use	Fuel	Efficiency	uec (therm/SqFt)	Equipment Cost	efficiency shares
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
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

Business Types	End Use	Fuel	Efficiency	uec (therm/SqFt)	Equipment Cost	efficiency shares
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
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

Business Types	End Use	Fuel	Efficiency	uec (therm/SqFt)	Equipment Cost	efficiency shares
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
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

Business Types	End Use	Fuel	Efficiency	uec (therm/SqFt)	Equipment Cost	efficiency shares
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
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

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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
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

Business Types	End Use	Fuel	Share
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
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

Business Types	End Use	Fuel	Share
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

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Efficiency Shares

bname	nname	fname	Stock	Standard	High	Premium
Agriculture	Drying	Electric	0.65	0.35	N/A	N/A
Agriculture	Drying	Natural_Gas	0.65	0.35	N/A	N/A
Agriculture	Engine	Electric	0.65	0.35	N/A	N/A
Agriculture	Engine	Natural_Gas	0.65	0.35	N/A	N/A
Agriculture	Other	Natural_Gas	1	N/A	N/A	N/A
Agriculture	Space_Heat	Electric	1	N/A	N/A	N/A
Agriculture	Space_Heat	Natural_Gas	0.65	0.3	0.04	0.01
Agriculture	Water_Heat	Electric	0.4	0.5	0.08	0.02
Agriculture	Water_Heat	Natural_Gas	0.4	0.5	0.08	0.02
College	AC_Compressor	Electric	0.65	0.35	N/A	N/A
College	AC_Compressor	Natural_Gas	0.65	0.35	N/A	N/A
College	Cook_top	Electric	0.65	0.35	N/A	N/A
College	Cook_top	Natural_Gas	0.65	0.35	N/A	N/A
College	Fryer	Electric	0.65	0.35	N/A	N/A
College	Fryer	Natural_Gas	0.65	0.35	N/A	N/A
College	Griddle	Electric	0.65	0.35	N/A	N/A
College	Griddle	Natural_Gas	0.65	0.35	N/A	N/A
College	Other	Natural_Gas	1	N/A	N/A	N/A
College	Other_Cooking	Electric	0.65	0.35	N/A	N/A
College	Other_Cooking	Natural_Gas	0.65	0.35	N/A	N/A
College	Space_Heat	Electric	1	N/A	N/A	N/A
College	Space_Heat	Natural_Gas	0.65	0.3	0.04	0.01
College	Water_Heat	Electric	0.4	0.5	0.08	0.02
College	Water_Heat	Natural_Gas	0.4	0.5	0.08	0.02
Construction	Other	Natural_Gas	1	N/A	N/A	N/A
Construction	Space_Heat	Electric	1	N/A	N/A	N/A
Construction	Space_Heat	Natural_Gas	0.65	0.3	0.04	0.01
Construction	Water_Heat	Electric	0.4	0.5	0.08	0.02
Construction	Water_Heat	Natural_Gas	0.4	0.5	0.08	0.02
Government	AC_Compressor	Electric	0.65	0.35	N/A	N/A
Government	AC_Compressor	Natural_Gas	0.65	0.35	N/A	N/A
Government	Cook_top	Electric	0.65	0.35	N/A	N/A

bname	nname	fname	Stock	Standard	High	Premium
Government	Cook_top	Natural_Gas	0.65	0.35	N/A	N/A
Government	Fryer	Electric	0.65	0.35	N/A	N/A
Government	Fryer	Natural_Gas	0.65	0.35	N/A	N/A
Government	Griddle	Electric	0.65	0.35	N/A	N/A
Government	Griddle	Natural_Gas	0.65	0.35	N/A	N/A
Government	Other	Natural_Gas	1	N/A	N/A	N/A
Government	Other_Cooking	Electric	0.65	0.35	N/A	N/A
Government	Other_Cooking	Natural_Gas	0.65	0.35	N/A	N/A
Government	Space_Heat	Electric	1	N/A	N/A	N/A
Government	Space_Heat	Natural_Gas	0.65	0.3	0.04	0.01
Government	Water_Heat	Electric	0.4	0.5	0.08	0.02
Government	Water_Heat	Natural_Gas	0.4	0.5	0.08	0.02
Grocery	AC_Compressor	Electric	0.65	0.35	N/A	N/A
Grocery	AC_Compressor	Natural_Gas	0.65	0.35	N/A	N/A
Grocery	Cook_top	Electric	0.65	0.35	N/A	N/A
Grocery	Cook_top	Natural_Gas	0.65	0.35	N/A	N/A
Grocery	Fryer	Electric	0.65	0.35	N/A	N/A
Grocery	Fryer	Natural_Gas	0.65	0.35	N/A	N/A
Grocery	Griddle	Electric	0.65	0.35	N/A	N/A
Grocery	Griddle	Natural_Gas	0.65	0.35	N/A	N/A
Grocery	Other	Natural_Gas	1	N/A	N/A	N/A
Grocery	Other_Cooking	Electric	0.65	0.35	N/A	N/A
Grocery	Other_Cooking	Natural_Gas	0.65	0.35	N/A	N/A
Grocery	Space_Heat	Electric	1	N/A	N/A	N/A
Grocery	Space_Heat	Natural_Gas	0.65	0.3	0.04	0.01
Grocery	Water_Heat	Electric	0.4	0.5	0.08	0.02
Grocery	Water_Heat	Natural_Gas	0.4	0.5	0.08	0.02
Health	AC_Compressor	Electric	0.65	0.35	N/A	N/A
Health	AC_Compressor	Natural_Gas	0.65	0.35	N/A	N/A
Health	Cook_top	Electric	0.65	0.35	N/A	N/A
Health	Cook_top	Natural_Gas	0.65	0.35	N/A	N/A
Health	Drying	Electric	0.65	0.35	N/A	N/A
Health	Drying	Natural_Gas	0.65	0.35	N/A	N/A
Health	Fryer	Electric	0.65	0.35	N/A	N/A
Health	Fryer	Natural_Gas	0.65	0.35	N/A	N/A
Health	Griddle	Electric	0.65	0.35	N/A	N/A

bname	nname	fname	Stock	Standard	High	Premium
Health	Griddle	Natural_Gas	0.65	0.35	N/A	N/A
Health	Other	Natural_Gas	1	N/A	N/A	N/A
Health	Other_Cooking	Electric	0.65	0.35	N/A	N/A
Health	Other_Cooking	Natural_Gas	0.65	0.35	N/A	N/A
Health	Space_Heat	Electric	1	N/A	N/A	N/A
Health	Space_Heat	Natural_Gas	0.65	0.3	0.04	0.01
Health	Water_Heat	Electric	0.4	0.5	0.08	0.02
Health	Water_Heat	Natural_Gas	0.4	0.5	0.08	0.02
Laundry	Drying	Electric	0.65	0.35	N/A	N/A
Laundry	Drying	Natural_Gas	0.65	0.35	N/A	N/A
Laundry	Other	Natural_Gas	1	N/A	N/A	N/A
Laundry	Space_Heat	Electric	1	N/A	N/A	N/A
Laundry	Space_Heat	Natural_Gas	0.65	0.3	0.04	0.01
Laundry	Water_Heat	Electric	0.4	0.5	0.08	0.02
Laundry	Water_Heat	Natural_Gas	0.4	0.5	0.08	0.02
Lodging	AC_Compressor	Electric	0.65	0.35	N/A	N/A
Lodging	AC_Compressor	Natural_Gas	0.65	0.35	N/A	N/A
Lodging	Cook_top	Electric	0.65	0.35	N/A	N/A
Lodging	Cook_top	Natural_Gas	0.65	0.35	N/A	N/A
Lodging	Drying	Electric	0.65	0.35	N/A	N/A
Lodging	Drying	Natural_Gas	0.65	0.35	N/A	N/A
Lodging	Fryer	Electric	0.65	0.35	N/A	N/A
Lodging	Fryer	Natural_Gas	0.65	0.35	N/A	N/A
Lodging	Griddle	Electric	0.65	0.35	N/A	N/A
Lodging	Griddle	Natural_Gas	0.65	0.35	N/A	N/A
Lodging	Other	Natural_Gas	1	N/A	N/A	N/A
Lodging	Other_Cooking	Electric	0.65	0.35	N/A	N/A
Lodging	Other_Cooking	Natural_Gas	0.65	0.35	N/A	N/A
Lodging	Space_Heat	Electric	1	N/A	N/A	N/A
Lodging	Space_Heat	Natural_Gas	0.65	0.3	0.04	0.01
Lodging	Water_Heat	Electric	0.4	0.5	0.08	0.02
Lodging	Water_Heat	Natural_Gas	0.4	0.5	0.08	0.02
Misc	AC_Compressor	Electric	0.65	0.35	N/A	N/A
Misc	AC_Compressor	Natural_Gas	0.65	0.35	N/A	N/A
Misc	Cook_top	Electric	0.65	0.35	N/A	N/A
Misc	Cook_top	Natural_Gas	0.65	0.35	N/A	N/A

bname	nname	fname	Stock	Standard	High	Premium
Misc	Fryer	Electric	0.65	0.35	N/A	N/A
Misc	Fryer	Natural_Gas	0.65	0.35	N/A	N/A
Misc	Griddle	Electric	0.65	0.35	N/A	N/A
Misc	Griddle	Natural_Gas	0.65	0.35	N/A	N/A
Misc	Other	Natural_Gas	1	N/A	N/A	N/A
Misc	Other_Cooking	Electric	0.65	0.35	N/A	N/A
Misc	Other_Cooking	Natural_Gas	0.65	0.35	N/A	N/A
Misc	Space_Heat	Electric	1	N/A	N/A	N/A
Misc	Space_Heat	Natural_Gas	0.65	0.3	0.04	0.01
Misc	Water_Heat	Electric	0.4	0.5	0.08	0.02
Misc	Water_Heat	Natural_Gas	0.4	0.5	0.08	0.02
Office	AC_Compressor	Electric	0.65	0.35	N/A	N/A
Office	AC_Compressor	Natural_Gas	0.65	0.35	N/A	N/A
Office	Cooking	Electric	0.65	0.35	N/A	N/A
Office	Cooking	Natural_Gas	0.65	0.35	N/A	N/A
Office	Other	Natural_Gas	1	N/A	N/A	N/A
Office	Space_Heat	Electric	1	N/A	N/A	N/A
Office	Space_Heat	Natural_Gas	0.65	0.3	0.04	0.01
Office	Water_Heat	Electric	0.4	0.5	0.08	0.02
Office	Water_Heat	Natural_Gas	0.4	0.5	0.08	0.02
Restaurant	AC_Compressor	Electric	0.65	0.35	N/A	N/A
Restaurant	AC_Compressor	Natural_Gas	0.65	0.35	N/A	N/A
Restaurant	Cook_top	Electric	0.65	0.35	N/A	N/A
Restaurant	Cook_top	Natural_Gas	0.65	0.35	N/A	N/A
Restaurant	Fryer	Electric	0.65	0.35	N/A	N/A
Restaurant	Fryer	Natural_Gas	0.65	0.35	N/A	N/A
Restaurant	Griddle	Electric	0.65	0.35	N/A	N/A
Restaurant	Griddle	Natural_Gas	0.65	0.35	N/A	N/A
Restaurant	Other	Natural_Gas	1	N/A	N/A	N/A
Restaurant	Other_Cooking	Electric	0.65	0.35	N/A	N/A
Restaurant	Other_Cooking	Natural_Gas	0.65	0.35	N/A	N/A
Restaurant	Space_Heat	Electric	1	N/A	N/A	N/A
Restaurant	Space_Heat	Natural_Gas	0.65	0.3	0.04	0.01
Restaurant	Water_Heat	Electric	0.4	0.5	0.08	0.02
Restaurant	Water_Heat	Natural_Gas	0.4	0.5	0.08	0.02
Retail	Cooking	Electric	0.65	0.35	N/A	N/A

bname	nname	fname	Stock	Standard	High	Premium
Retail	Cooking	Natural_Gas	0.65	0.35	N/A	N/A
Retail	Other	Natural_Gas	1	N/A	N/A	N/A
Retail	Space_Heat	Electric	1	N/A	N/A	N/A
Retail	Space_Heat	Natural_Gas	0.65	0.3	0.04	0.01
Retail	Water_Heat	Electric	0.4	0.5	0.08	0.02
Retail	Water_Heat	Natural_Gas	0.4	0.5	0.08	0.02
School	AC_Compressor	Electric	0.65	0.35	N/A	N/A
School	AC_Compressor	Natural_Gas	0.65	0.35	N/A	N/A
School	Cook_top	Electric	0.65	0.35	N/A	N/A
School	Cook_top	Natural_Gas	0.65	0.35	N/A	N/A
School	Fryer	Electric	0.65	0.35	N/A	N/A
School	Fryer	Natural_Gas	0.65	0.35	N/A	N/A
School	Griddle	Electric	0.65	0.35	N/A	N/A
School	Griddle	Natural_Gas	0.65	0.35	N/A	N/A
School	Other	Natural_Gas	1	N/A	N/A	N/A
School	Other_Cooking	Electric	0.65	0.35	N/A	N/A
School	Other_Cooking	Natural_Gas	0.65	0.35	N/A	N/A
School	Space_Heat	Electric	1	N/A	N/A	N/A
School	Space_Heat	Natural_Gas	0.65	0.3	0.04	0.01
School	Water_Heat	Electric	0.4	0.5	0.08	0.02
School	Water_Heat	Natural_Gas	0.4	0.5	0.08	0.02
TCU	Engine	Electric	0.65	0.35	N/A	N/A
TCU	Engine	Natural_Gas	0.65	0.35	N/A	N/A
TCU	Other	Natural_Gas	1	N/A	N/A	N/A
TCU	Space_Heat	Electric	1	N/A	N/A	N/A
TCU	Space_Heat	Natural_Gas	0.65	0.3	0.04	0.01
TCU	Water_Heat	Electric	0.4	0.5	0.08	0.02
TCU	Water_Heat	Natural_Gas	0.4	0.5	0.08	0.02
Warehouse	Engine	Electric	0.65	0.35	N/A	N/A
Warehouse	Engine	Natural_Gas	0.65	0.35	N/A	N/A
Warehouse	Other	Natural_Gas	1	N/A	N/A	N/A
Warehouse	Space_Heat	Electric	1	N/A	N/A	N/A
Warehouse	Space_Heat	Natural_Gas	0.65	0.3	0.04	0.01
Warehouse	Water_Heat	Electric	0.4	0.5	0.08	0.02
Warehouse	Water_Heat	Natural_Gas	0.4	0.5	0.08	0.02

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Saturation Rate

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
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
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

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Equipment Cost Data

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
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

n	f	e	bname	nname	EQcost
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
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

b	f	e	bname	nname	EQcost
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
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
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
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
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

b	n	f	e	bname	nname	EQcost	90
	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	

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Employment

YEAR	Office	Restaurant	Retail	Laundry	Warehouse	School	College
2015	0.3109326	0.12545386	0.14682298	0.0180928	0.04679407	0.0966714	0.0452789
2016	0.3175556	0.12863792	0.14956138	0.017896	0.04735129	0.1007275	0.047177
2017	0.3261318	0.13059654	0.14971318	0.017799	0.04800154	0.1027519	0.0481249
2018	0.3325421	0.13287067	0.14877572	0.0177682	0.04866685	0.1045506	0.0489673
2019	0.3375897	0.13452708	0.14874071	0.0177662	0.04937378	0.1064602	0.0498615
2020	0.3441482	0.13581066	0.14902753	0.0177628	0.04996525	0.1080053	0.050585
2021	0.3505393	0.13697189	0.1490485	0.0177575	0.05031604	0.1093795	0.0512286
2022	0.3580723	0.13773782	0.14890602	0.0177172	0.05073704	0.1106259	0.0518123
2023	0.366654	0.13830458	0.14899023	0.0177065	0.05113343	0.1118448	0.0523831
2024	0.3741831	0.13867611	0.14930707	0.0176975	0.05158707	0.113005	0.0529264
2025	0.3811887	0.13864278	0.14968954	0.0177174	0.05199571	0.1143205	0.0535428
2026	0.3883233	0.13873866	0.15043555	0.0177798	0.0522945	0.1156704	0.0541749
2027	0.3950486	0.13922797	0.151042	0.0178642	0.05247356	0.1168645	0.0547342
2028	0.4000845	0.14001787	0.15170655	0.0179951	0.05231295	0.1181632	0.0553425
2029	0.4048163	0.14096733	0.1523708	0.0181046	0.05221363	0.1195001	0.0559686
2030	0.4103204	0.14180448	0.15274752	0.0182031	0.05199217	0.1207058	0.0565332
2031	0.416601	0.14283438	0.15336516	0.0182575	0.05184845	0.1219579	0.0571197
2032	0.4234428	0.14384987	0.15405315	0.0182987	0.05157919	0.1233067	0.0577516
2033	0.4298717	0.14494318	0.154926	0.018371	0.05136657	0.1248114	0.0584562
2034	0.4360015	0.14588051	0.15573539	0.018429	0.05104418	0.126252	0.0591309
2035	0.4425118	0.14689708	0.15660775	0.018491	0.05079297	0.127359	0.0596492

Com3Avg

San Diego Gas & Electric
2016 California Gas Report
Core Commercial Demand Forecast (Mdth)
Weather Design: Average Year

SOURCE	YEAR	MDTH1	MDTH2	MDTH3	MDTH4	MDTH5	MDTH6	MDTH7	MDTH8	MDTH9	MDTH10	MDTH11	MDTH12	TOTAL
GN3Commercia	**2015**	1797.01	1677.60	1496.58	1452.44	1443.55	1274.08	1181.11	1102.51	1094.97	1179.91	1598.74	1976.19	17274.68
GN3Commercia	2016	1749.21	1632.99	1456.77	1413.82	1405.16	1240.19	1149.70	1073.18	1065.85	1148.53	1556.22	1923.63	16815.25
GN3Commercia	2017	1779.99	1661.72	1482.41	1438.69	1429.88	1262.02	1169.93	1092.07	1084.61	1168.74	1583.60	1957.47	17111.13
GN3Commercia	2018	1757.53	1640.75	1463.70	1420.54	1411.84	1246.09	1155.16	1078.29	1070.92	1153.99	1563.62	1932.77	16895.21
GN3Commercia	2019	1729.76	1614.82	1440.57	1398.09	1389.53	1226.40	1136.91	1061.25	1053.99	1135.75	1538.91	1902.23	16628.19
GN3Commercia	2020	1704.47	1591.22	1419.51	1377.65	1369.21	1208.47	1120.29	1045.73	1038.59	1119.15	1516.41	1874.42	16385.12
GN3Commercia	2021	1666.47	1555.74	1387.86	1346.94	1338.69	1181.53	1095.31	1022.42	1015.43	1094.20	1482.61	1832.63	16019.84
GN3Commercia	2022	1627.14	1519.03	1355.11	1315.15	1307.10	1153.65	1069.46	998.29	991.47	1068.38	1447.62	1789.38	15641.78
GN3Commercia	2023	1593.62	1487.73	1327.19	1288.06	1280.17	1129.88	1047.43	977.72	971.04	1046.37	1417.80	1752.52	15319.54
GN3Commercia	2024	1561.05	1457.32	1300.07	1261.73	1254.00	1106.78	1026.02	957.74	951.20	1024.98	1388.81	1716.70	15006.40
GN3Commercia	2025	1548.88	1445.96	1289.93	1251.89	1244.23	1098.16	1018.02	950.27	943.78	1016.99	1377.99	1703.32	14889.41
GN3Commercia	2026	1542.83	1440.31	1284.89	1247.00	1239.37	1093.87	1014.04	946.56	940.09	1013.02	1372.61	1696.66	14831.25
GN3Commercia	2027	1542.78	1440.27	1284.86	1246.97	1239.33	1093.84	1014.02	946.53	940.07	1012.99	1372.57	1696.61	14830.83
GN3Commercia	2028	1543.00	1440.47	1285.03	1247.14	1239.50	1093.99	1014.16	946.67	940.20	1013.13	1372.76	1696.85	14832.88
GN3Commercia	2029	1541.41	1438.99	1283.71	1245.85	1238.22	1092.86	1013.11	945.69	939.23	1012.09	1371.34	1695.10	14817.60
GN3Commercia	2030	1541.26	1438.85	1283.58	1245.73	1238.10	1092.75	1013.01	945.60	939.14	1011.99	1371.21	1694.93	14816.15
GN3Commercia	2031	1541.26	1438.85	1283.59	1245.74	1238.11	1092.76	1013.01	945.60	939.14	1011.99	1371.21	1694.94	14816.19
GN3Commercia	2032	1540.89	1438.51	1283.28	1245.44	1237.81	1092.49	1012.77	945.37	938.91	1011.75	1370.88	1694.53	14812.65
GN3Commercia	2033	1542.30	1439.82	1284.46	1246.58	1238.94	1093.49	1013.70	946.24	939.77	1012.67	1372.14	1696.09	14826.21
GN3Commercia	2034	1542.61	1440.11	1284.71	1246.82	1239.19	1093.71	1013.90	946.42	939.96	1012.87	1372.41	1696.42	14829.11
GN3Commercia	2035	1546.35	1443.60	1287.82	1249.85	1242.19	1096.36	1016.36	948.72	942.24	1015.33	1375.74	1700.53	14865.08

Com3Col

San Diego Gas & Electric
2016 California Gas Report
Core Commercial Demand Forecast (Mdth)
Weather Design: Cold Year

SOURCE	YEAR	MDTH1	MDTH2	MDTH3	MDTH4	MDTH5	MDTH6	MDTH7	MDTH8	MDTH9	MDTH10	MDTH11	MDTH12	TOTAL
GN3Commercia	**2015**	1997.35	1844.14	1611.26	1554.62	1543.43	1325.66	1202.64	1102.51	1094.97	1204.09	1743.01	2228.10	18451.79
GN3Commercia	2016	1944.23	1795.10	1568.41	1513.27	1502.39	1290.41	1170.66	1073.18	1065.85	1172.07	1696.66	2168.84	17961.06
GN3Commercia	2017	1978.44	1826.68	1596.00	1539.90	1528.82	1313.11	1191.25	1092.07	1084.61	1192.69	1726.51	2207.00	18277.09
GN3Commercia	2018	1953.48	1803.63	1575.86	1520.47	1509.53	1296.54	1176.22	1078.29	1070.92	1177.64	1704.72	2179.15	18046.46
GN3Commercia	2019	1922.60	1775.13	1550.96	1496.44	1485.67	1276.05	1157.63	1061.25	1053.99	1159.03	1677.78	2144.71	17761.25
GN3Commercia	2020	1894.50	1749.18	1528.29	1474.56	1463.95	1257.40	1140.71	1045.73	1038.59	1142.09	1653.26	2113.36	17501.62
GN3Commercia	2021	1852.26	1710.18	1494.22	1441.69	1431.32	1229.37	1115.28	1022.42	1015.43	1116.63	1616.40	2066.25	17111.45
GN3Commercia	2022	1808.55	1669.82	1458.95	1407.67	1397.54	1200.35	1088.96	998.29	991.47	1090.28	1578.25	2017.49	16707.62
GN3Commercia	2023	1771.29	1635.42	1428.90	1378.67	1368.75	1175.62	1066.53	977.72	971.04	1067.81	1545.74	1975.92	16363.43
GN3Commercia	2024	1735.09	1601.99	1399.69	1350.49	1340.77	1151.59	1044.73	957.74	951.20	1045.99	1514.14	1935.53	16028.94
GN3Commercia	2025	1721.56	1589.51	1388.78	1339.96	1330.32	1142.62	1036.58	950.27	943.78	1037.83	1502.34	1920.44	15903.98
GN3Commercia	2026	1714.83	1583.30	1383.35	1334.72	1325.12	1138.15	1032.53	946.56	940.09	1033.78	1496.47	1912.94	15841.87
GN3Commercia	2027	1714.79	1583.25	1383.31	1334.69	1325.08	1138.12	1032.50	946.53	940.07	1033.75	1496.43	1912.89	15841.42
GN3Commercia	2028	1715.02	1583.47	1383.50	1334.87	1325.27	1138.28	1032.65	946.67	940.20	1033.89	1496.64	1913.15	15843.61
GN3Commercia	2029	1713.26	1581.84	1382.08	1333.50	1323.90	1137.11	1031.58	945.69	939.23	1032.83	1495.09	1911.18	15827.28
GN3Commercia	2030	1713.09	1581.68	1381.94	1333.36	1323.77	1136.99	1031.48	945.60	939.14	1032.73	1494.95	1911.00	15825.73
GN3Commercia	2031	1713.09	1581.69	1381.95	1333.37	1323.78	1137.00	1031.48	945.60	939.14	1032.73	1494.95	1911.00	15825.77
GN3Commercia	2032	1712.68	1581.31	1381.62	1333.05	1323.46	1136.73	1031.24	945.37	938.91	1032.48	1494.60	1910.54	15822.00
GN3Commercia	2033	1714.25	1582.76	1382.88	1334.27	1324.67	1137.77	1032.18	946.24	939.77	1033.43	1495.96	1912.29	15836.48
GN3Commercia	2034	1714.59	1583.07	1383.15	1334.53	1324.93	1137.99	1032.38	946.42	939.96	1033.63	1496.26	1912.67	15839.58
GN3Commercia	2035	1718.75	1586.91	1386.51	1337.77	1328.14	1140.75	1034.89	948.72	942.24	1036.14	1499.89	1917.31	15878.00

Com3Hot

San Diego Gas & Electric
2016 California Gas Report
Core Commercial Demand Forecast (Mdth)
Weather Design: Hot Year

SOURCE	YEAR	MDTH1	MDTH2	MDTH3	MDTH4	MDTH5	MDTH6	MDTH7	MDTH8	MDTH9	MDTH10	MDTH11	MDTH12	TOTAL
GN3Commercia	**2015**	1596.39	1511.32	1381.68	1350.27	1343.66	1223.93	1159.57	1094.97	1094.97	1155.73	1454.86	1724.27	16091.63
GN3Commercia	2016	1553.93	1471.13	1344.93	1314.36	1307.93	1191.38	1128.73	1065.85	1065.85	1124.99	1416.17	1678.41	15663.67
GN3Commercia	2017	1581.27	1497.01	1368.59	1337.49	1330.94	1212.34	1148.60	1084.61	1084.61	1144.79	1441.09	1707.95	15939.28
GN3Commercia	2018	1561.32	1478.12	1351.32	1320.61	1314.15	1197.04	1134.10	1070.92	1070.92	1130.34	1422.90	1686.39	15738.15
GN3Commercia	2019	1536.64	1454.76	1329.97	1299.74	1293.38	1178.12	1116.18	1053.99	1053.99	1112.48	1400.42	1659.74	15489.42
GN3Commercia	2020	1514.18	1433.50	1310.53	1280.74	1274.47	1160.90	1099.86	1038.59	1038.59	1096.22	1379.95	1635.48	15262.99
GN3Commercia	2021	1480.42	1401.54	1281.31	1252.19	1246.06	1135.02	1075.34	1015.43	1015.43	1071.78	1349.18	1599.02	14922.73
GN3Commercia	2022	1445.49	1368.46	1251.07	1222.63	1216.65	1108.24	1049.96	991.47	991.47	1046.48	1317.34	1561.28	14570.56
GN3Commercia	2023	1415.71	1340.27	1225.30	1197.45	1191.59	1085.41	1028.33	971.04	971.04	1024.92	1290.20	1529.12	14270.39
GN3Commercia	2024	1386.77	1312.87	1200.25	1172.97	1167.23	1063.22	1007.31	951.20	951.20	1003.97	1263.83	1497.86	13978.69
GN3Commercia	2025	1375.96	1302.64	1190.90	1163.83	1158.13	1054.93	999.46	943.78	943.78	996.15	1253.98	1486.19	13869.71
GN3Commercia	2026	1370.58	1297.55	1186.24	1159.28	1153.61	1050.81	995.56	940.09	940.09	992.26	1249.08	1480.38	13815.54
GN3Commercia	2027	1370.55	1297.51	1186.21	1159.25	1153.58	1050.78	995.53	940.07	940.07	992.23	1249.04	1480.34	13815.15
GN3Commercia	2028	1370.73	1297.69	1186.37	1159.41	1153.74	1050.93	995.67	940.20	940.20	992.37	1249.22	1480.54	13817.06
GN3Commercia	2029	1369.32	1296.36	1185.15	1158.21	1152.55	1049.84	994.64	939.23	939.23	991.34	1247.93	1479.02	13802.82
GN3Commercia	2030	1369.19	1296.23	1185.04	1158.10	1152.43	1049.74	994.54	939.14	939.14	991.25	1247.81	1478.87	13801.47
GN3Commercia	2031	1369.19	1296.23	1185.04	1158.10	1152.44	1049.74	994.55	939.14	939.14	991.25	1247.81	1478.88	13801.51
GN3Commercia	2032	1368.87	1295.92	1184.76	1157.83	1152.16	1049.49	994.31	938.91	938.91	991.01	1247.51	1478.52	13798.21
GN3Commercia	2033	1370.12	1297.11	1185.84	1158.89	1153.22	1050.45	995.22	939.77	939.77	991.92	1248.65	1479.88	13810.84
GN3Commercia	2034	1370.39	1297.36	1186.07	1159.11	1153.44	1050.66	995.41	939.96	939.96	992.11	1248.90	1480.17	13813.55
GN3Commercia	2035	1373.71	1300.51	1188.95	1161.92	1156.24	1053.21	997.83	942.24	942.24	994.52	1251.93	1483.76	13847.05

Com3Bas

San Diego Gas & Electric
2016 California Gas Report
Core Commercial Demand Forecast (Mdth)
Weather Design: Base Year

SOURCE	YEAR	MDTH1	MDTH2	MDTH3	MDTH4	MDTH5	MDTH6	MDTH7	MDTH8	MDTH9	MDTH10	MDTH11	MDTH12	TOTAL
GN3Commercia	**2015**	1094.97	1094.97	1094.97	1094.97	1094.97	1094.97	1094.97	1094.97	1094.97	1094.97	1094.97	1094.97	13139.67
GN3Commercia	2016	1065.85	1065.85	1065.85	1065.85	1065.85	1065.85	1065.85	1065.85	1065.85	1065.85	1065.85	1065.85	12790.22
GN3Commercia	2017	1084.61	1084.61	1084.61	1084.61	1084.61	1084.61	1084.61	1084.61	1084.61	1084.61	1084.61	1084.61	13015.27
GN3Commercia	2018	1070.92	1070.92	1070.92	1070.92	1070.92	1070.92	1070.92	1070.92	1070.92	1070.92	1070.92	1070.92	12851.03
GN3Commercia	2019	1053.99	1053.99	1053.99	1053.99	1053.99	1053.99	1053.99	1053.99	1053.99	1053.99	1053.99	1053.99	12647.93
GN3Commercia	2020	1038.59	1038.59	1038.59	1038.59	1038.59	1038.59	1038.59	1038.59	1038.59	1038.59	1038.59	1038.59	12463.04
GN3Commercia	2021	1015.43	1015.43	1015.43	1015.43	1015.43	1015.43	1015.43	1015.43	1015.43	1015.43	1015.43	1015.43	12185.20
GN3Commercia	2022	991.47	991.47	991.47	991.47	991.47	991.47	991.47	991.47	991.47	991.47	991.47	991.47	11897.63
GN3Commercia	2023	971.04	971.04	971.04	971.04	971.04	971.04	971.04	971.04	971.04	971.04	971.04	971.04	11652.53
GN3Commercia	2024	951.20	951.20	951.20	951.20	951.20	951.20	951.20	951.20	951.20	951.20	951.20	951.20	11414.34
GN3Commercia	2025	943.78	943.78	943.78	943.78	943.78	943.78	943.78	943.78	943.78	943.78	943.78	943.78	11325.36
GN3Commercia	2026	940.09	940.09	940.09	940.09	940.09	940.09	940.09	940.09	940.09	940.09	940.09	940.09	11281.12
GN3Commercia	2027	940.07	940.07	940.07	940.07	940.07	940.07	940.07	940.07	940.07	940.07	940.07	940.07	11280.80
GN3Commercia	2028	940.20	940.20	940.20	940.20	940.20	940.20	940.20	940.20	940.20	940.20	940.20	940.20	11282.36
GN3Commercia	2029	939.23	939.23	939.23	939.23	939.23	939.23	939.23	939.23	939.23	939.23	939.23	939.23	11270.74
GN3Commercia	2030	939.14	939.14	939.14	939.14	939.14	939.14	939.14	939.14	939.14	939.14	939.14	939.14	11269.63
GN3Commercia	2031	939.14	939.14	939.14	939.14	939.14	939.14	939.14	939.14	939.14	939.14	939.14	939.14	11269.66
GN3Commercia	2032	938.91	938.91	938.91	938.91	938.91	938.91	938.91	938.91	938.91	938.91	938.91	938.91	11266.97
GN3Commercia	2033	939.77	939.77	939.77	939.77	939.77	939.77	939.77	939.77	939.77	939.77	939.77	939.77	11277.29
GN3Commercia	2034	939.96	939.96	939.96	939.96	939.96	939.96	939.96	939.96	939.96	939.96	939.96	939.96	11279.49
GN3Commercia	2035	942.24	942.24	942.24	942.24	942.24	942.24	942.24	942.24	942.24	942.24	942.24	942.24	11306.85

GN3 Industrial DATA TABLES

San Diego Gas and Electric Company

2016 CGR - Industrial GN3

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	2002	1980	1979	1980	1968	1978	.	1970	1976
Food	2004	1999	2002	1992	1992	2002	1965	1994	1983
Textile	1999	1998	1994	1982	1992	1982	.	.	1980
Wood_Paper	1997	1994	1995	1981	1981	2006	.	.	1975
Chemical	2005	1995	2002	1986	1985	1981	.	1999	1976
Petroleum	2006	1990	2002	1975	1981	1971	.	.	1977
Stone	2007	1983	1996	1982	1982	1982	1985	2014	1975
Prim_Metal	1993	1991	1987	1982	1978	1982	.	1996	1976
Fab_Metal	2002	1989	1986	1980	1984	1980	.	1984	1975
Transport	1993	1994	1996	1981	1987	1983	1973	2003	1976
Misc	1996	1995	1994	1981	1987	1978	1984	1999	1978

San Diego Gas and Electric Company
2016 CGR - Industrial GN3
Electric Price Forecasat (Cent/KWH)

(a) Average Price Forecast

Year	Chemical	Fab_Metal	Food	Mining	Petroleum	Prim_Metal	Stone	Textile	Transport	Wood_Paper	Misc
2015	14.10	13.94	17.46	17.01	13.61	16.60	13.73	13.70	14.52	13.03	13.62
2016	14.90	14.76	18.02	17.61	14.46	17.17	14.57	14.54	15.29	13.93	14.47
2017	14.51	14.32	18.60	18.06	13.92	17.51	14.07	14.03	15.02	13.22	13.94
2018	14.94	14.74	19.12	18.55	14.33	18.03	14.47	14.44	15.46	13.61	14.34
2019	15.61	15.41	19.84	19.27	15.00	18.76	15.14	15.11	16.14	14.26	15.00
2020	16.47	16.26	20.85	20.25	15.83	19.75	15.98	15.95	17.02	15.06	15.83
2021	17.03	16.82	21.28	20.69	16.40	20.24	16.54	16.51	17.56	15.64	16.40
2022	17.06	16.87	21.00	20.45	16.48	20.06	16.61	16.59	17.56	15.78	16.48
2023	17.60	17.41	21.49	20.95	17.02	20.58	17.15	17.13	18.09	16.32	17.02
2024	18.20	18.01	22.09	21.54	17.62	21.19	17.75	17.73	18.69	16.92	17.61
2025	18.74	18.55	22.60	22.06	18.16	21.72	18.28	18.27	19.23	17.45	18.15
2026	19.37	19.17	23.22	22.67	18.78	22.35	18.91	18.90	19.85	18.08	18.77
2027	19.92	19.72	23.83	23.27	19.32	22.96	19.44	19.44	20.41	18.60	19.31
2028	20.48	20.28	24.45	23.88	19.87	23.59	20.00	19.99	20.98	19.14	19.86
2029	21.06	20.86	25.05	24.47	20.45	24.20	20.57	20.57	21.56	19.71	20.43
2030	21.65	21.44	25.67	25.08	21.03	24.82	21.15	21.15	22.16	20.28	21.01
2031	22.26	22.05	26.35	25.75	21.63	25.50	21.76	21.76	22.78	20.86	21.61
2032	22.89	22.68	27.02	26.41	22.25	26.17	22.38	22.38	23.42	21.47	22.23
2033	23.54	23.32	27.74	27.11	22.88	26.89	23.01	23.02	24.07	22.09	22.86
2034	24.22	23.99	28.47	27.84	23.55	27.63	23.68	23.69	24.76	22.74	23.53
2035	24.90	24.67	29.28	28.62	24.21	28.42	24.34	24.35	25.46	23.38	24.19

(b) Marginal Price Forecast

Year	Chemical	Fab_Metal	Food	Mining	Petroleum	Prim_Metal	Stone	Textile	Transport	Wood_Paper	Misc
2015	11.17	11.15	13.29	11.96	10.98	13.28	11.16	11.25	11.46	10.62	10.92
2016	11.81	11.80	13.70	12.52	11.65	13.69	11.81	11.88	12.08	11.33	11.60
2017	11.50	11.48	14.07	12.47	11.28	14.06	11.49	11.60	11.86	10.84	11.21
2018	11.83	11.81	14.49	12.83	11.60	14.48	11.82	11.93	12.20	11.14	11.52
2019	12.36	12.34	15.07	13.38	12.12	15.06	12.35	12.46	12.74	11.66	12.05
2020	13.03	13.01	15.86	14.10	12.78	15.85	13.02	13.14	13.43	12.30	12.71
2021	13.46	13.45	16.24	14.51	13.22	16.23	13.45	13.57	13.85	12.75	13.15
2022	13.49	13.47	16.06	14.46	13.26	16.05	13.48	13.59	13.85	12.83	13.19
2023	13.91	13.90	16.47	14.87	13.69	16.46	13.90	14.01	14.27	13.26	13.62
2024	14.38	14.36	16.95	15.35	14.16	16.94	14.37	14.48	14.74	13.72	14.09
2025	14.80	14.78	17.37	15.77	14.58	17.35	14.79	14.90	15.16	14.14	14.51
2026	15.29	15.28	17.86	16.26	15.07	17.85	15.28	15.39	15.65	14.63	15.00
2027	15.72	15.71	18.35	16.71	15.49	18.33	15.71	15.82	16.09	15.05	15.42
2028	16.16	16.15	18.84	17.17	15.93	18.83	16.16	16.27	16.54	15.48	15.86
2029	16.62	16.60	19.33	17.64	16.38	19.31	16.61	16.72	17.00	15.92	16.31
2030	17.08	17.06	19.82	18.11	16.84	19.81	17.07	17.18	17.46	16.38	16.77
2031	17.56	17.54	20.36	18.61	17.32	20.35	17.55	17.67	17.95	16.84	17.24
2032	18.05	18.04	20.90	19.12	17.81	20.88	18.04	18.16	18.45	17.32	17.73
2033	18.56	18.54	21.47	19.65	18.31	21.45	18.55	18.67	18.97	17.81	18.23
2034	19.09	19.07	22.05	20.21	18.83	22.04	19.08	19.20	19.51	18.33	18.75
2035	19.63	19.61	22.69	20.78	19.36	22.68	19.62	19.74	20.06	18.84	19.28

San Diego Gas and Electric Company
2016 CGR - Industrial GN3
Gas Price Forecasat ($/Therm)

(a) Average Price Forecast

Year	Price Deflator	Chemical	Fabricated Metal	Food	Mining	Petroleum	Primary Metal	Stone	Textile	Transport	Wood Paper	Misc
2015	100.00	0.6919	0.6841	0.8568	0.8346	0.6679	0.8144	0.6737	0.6724	0.7124	0.6394	0.6683
2016	101.05	0.7364	0.7293	0.8905	0.8702	0.7143	0.8485	0.7199	0.7183	0.7554	0.6884	0.7150
2017	**103.39**	0.5638	0.5564	0.7226	0.7014	0.5408	0.6804	0.5465	0.5450	0.5834	0.5138	0.5414
2018	106.10	0.5837	0.5760	0.7471	0.7251	0.5600	0.7047	0.5657	0.5644	0.6040	0.5318	0.5604
2019	108.86	0.6163	0.6083	0.7831	0.7605	0.5918	0.7406	0.5976	0.5964	0.6370	0.5629	0.5922
2020	111.74	0.6417	0.6335	0.8122	0.7889	0.6166	0.7695	0.6224	0.6213	0.6629	0.5867	0.6168
2021	114.71	0.7064	0.6978	0.8828	0.8584	0.6802	0.8399	0.6861	0.6852	0.7284	0.6489	0.6803
2022	117.68	0.7804	0.7716	0.9604	0.9353	0.7536	0.9173	0.7596	0.7587	0.8029	0.7215	0.7535
2023	120.60	0.8318	0.8227	1.0155	0.9897	0.8042	0.9722	0.8103	0.8095	0.8548	0.7713	0.8041
2024	123.57	0.8777	0.8685	1.0651	1.0387	0.8495	1.0217	0.8557	0.8550	0.9012	0.8157	0.8493
2025	126.47	0.9266	0.9171	1.1176	1.0905	0.8977	1.0740	0.9039	0.9033	0.9506	0.8630	0.8974
2026	129.36	0.9789	0.9692	1.1736	1.1458	0.9494	1.1298	0.9557	0.9552	1.0034	0.9139	0.9490
2027	132.35	1.0099	0.9999	1.2082	1.1798	0.9797	1.1644	0.9860	0.9856	1.0349	0.9433	0.9792
2028	135.41	1.0426	1.0324	1.2448	1.2157	1.0117	1.2008	1.0181	1.0178	1.0682	0.9744	1.0111
2029	138.50	1.0869	1.0765	1.2930	1.2631	1.0553	1.2488	1.0618	1.0616	1.1130	1.0171	1.0546
2030	141.62	1.1302	1.1194	1.3401	1.3095	1.0978	1.2957	1.1043	1.1042	1.1567	1.0587	1.0970
2031	144.91	1.1648	1.1538	1.3788	1.3475	1.1317	1.3343	1.1383	1.1383	1.1919	1.0916	1.1308
2032	148.23	1.2095	1.1982	1.4277	1.3956	1.1757	1.3830	1.1823	1.1824	1.2372	1.1345	1.1746
2033	151.65	1.2476	1.2361	1.4701	1.4372	1.2130	1.4252	1.2197	1.2199	1.2758	1.1708	1.2118
2034	155.23	1.2908	1.2790	1.5177	1.4840	1.2553	1.4727	1.2621	1.2624	1.3196	1.2121	1.2540
2035	158.87	1.3172	1.3050	1.5487	1.5141	1.2809	1.5034	1.2877	1.2882	1.3466	1.2366	1.2794

(b) Marginal Price Forecasat

Year	Price Deflator	Chemical	Fabricated Metal	Food	Mining	Petroleum	Primary Metal	Stone	Textile	Transport	Wood Paper	Misc
2015	100.00	0.6400	0.6392	0.7616	0.6857	0.6294	0.7610	0.6396	0.6447	0.6571	0.6088	0.6261
2016	101.05	0.6887	0.6880	0.7986	0.7300	0.6791	0.7981	0.6883	0.6929	0.7041	0.6604	0.6761
2017	103.39	0.5142	0.5134	0.6292	0.5575	0.5041	0.6287	0.5138	0.5186	0.5303	0.4846	0.5010
2018	106.10	0.5324	0.5316	0.6523	0.5775	0.5219	0.6518	0.5320	0.5370	0.5492	0.5016	0.5187
2019	108.86	0.5635	0.5627	0.6873	0.6101	0.5527	0.6867	0.5631	0.5683	0.5809	0.5318	0.5494
2020	111.74	0.5875	0.5867	0.7152	0.6355	0.5764	0.7146	0.5871	0.5924	0.6054	0.5547	0.5729
2021	114.71	0.6499	0.6490	0.7840	0.7003	0.6382	0.7833	0.6494	0.6550	0.6687	0.6155	0.6346
2022	117.68	0.7226	0.7217	0.8604	0.7744	0.7105	0.8598	0.7221	0.7278	0.7419	0.6872	0.7068
2023	120.60	0.7725	0.7716	0.9143	0.8258	0.7601	0.9137	0.7720	0.7779	0.7924	0.7360	0.7563
2024	123.57	0.8170	0.8161	0.9629	0.8719	0.8043	0.9622	0.8165	0.8225	0.8374	0.7795	0.8003
2025	126.47	0.8644	0.8635	1.0142	0.9207	0.8513	1.0135	0.8639	0.8701	0.8854	0.8259	0.8473
2026	129.36	0.9154	0.9144	1.0690	0.9732	0.9020	1.0683	0.9149	0.9212	0.9369	0.8759	0.8979
2027	132.35	0.9449	0.9439	1.1025	1.0042	0.9311	1.1018	0.9443	0.9509	0.9670	0.9044	0.9269
2028	135.41	0.9762	0.9751	1.1379	1.0370	0.9620	1.1372	0.9756	0.9823	0.9988	0.9346	0.9577
2029	138.50	1.0190	1.0179	1.1849	1.0814	1.0045	1.1841	1.0184	1.0253	1.0422	0.9763	1.0000
2030	141.62	1.0606	1.0595	1.2308	1.1246	1.0458	1.2300	1.0600	1.0671	1.0845	1.0169	1.0412
2031	144.91	1.0937	1.0926	1.2682	1.1593	1.0784	1.2674	1.0931	1.1003	1.1182	1.0488	1.0737
2032	148.23	1.1368	1.1356	1.3158	1.2041	1.1211	1.3150	1.1362	1.1436	1.1619	1.0908	1.1163
2033	151.65	1.1732	1.1720	1.3568	1.2423	1.1572	1.3560	1.1726	1.1802	1.1989	1.1260	1.1522
2034	155.23	1.2146	1.2134	1.4031	1.2855	1.1982	1.4022	1.2140	1.2218	1.2410	1.1662	1.1931
2035	158.87	1.2392	1.2380	1.4326	1.3120	1.2224	1.4317	1.2386	1.2466	1.2663	1.1896	1.2171

San Diego Gas and Electric Company
2016 CGR - Industrial GN3
Historical Throughput and Customer Counts

Business Type	therms_ 2015 Temp. Adj.	meters_ 2015	meters_ 2015 ExCust	meters_ 2015 NewCust	avgUse_ 2015 ExCust	avgUse_ 2015 NewCust	Price Elasticity	Employment Elasticity
Mining	97280	6	6	0	16213	0	0.00000	0.32145
Food	2880138	191	187	4	15280	5715	-0.19080	1.24251
Textile	41100	27	26	1	1557	614	0.00000	0.03333
Wood_Paper	25703	17	17	0	1512	0	0.00000	0.50827
Chemical	1956963	77	76	1	24946	61096	-0.08052	0.65007
Petroleum	11493	2	2	0	5747	0	-0.18056	0.08454
Stone	327484	27	27	0	12129	0	0.00000	0.41691
Prim_Metal	349918	14	14	0	24994	0	0.00000	0.95669
Fab_Metal	1200001	154	153	1	7838	841	-0.13744	1.02388
Transport	1971230	53	53	0	37193	0	0.00000	0.40251
Misc	6560891	529	526	3	12389	14741	-0.10831	0.87931
Total	15,422,202	1,097	1,087					

San Diego Gas and Electric Company
2016 CGR - Industrial GN3
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	0.00	6225.80	43.44	1922.69	76.05	0.56	0.00	2.75	4786.37	13057.66
Food	3180.78	10141.03	82.75	2847.86	5310.90	7.92	71.91	83.96	2503.74	24230.85
Textile	5027.39	6783.50	56.56	1340.65	7765.90	71.23	0.00	0.00	1098.82	22144.05
Wood_Paper	4463.96	11983.97	458.96	1285.89	1606.17	119.80	0.00	3.78	2324.39	22246.91
Chemical	1972.76	7552.98	2767.33	1673.42	2070.49	665.27	2.19	85.13	4219.74	21009.32
Petroleum	2197.09	20863.92	133.26	129.32	41681.87	8.61	0.00	9165.75	15693.36	89873.19
Stone	428.23	1589.00	45.91	474.03	3876.33	3293.73	0.59	0.02	1787.29	11495.13
Prim_Metal	1513.70	2386.00	313.35	1878.50	6092.33	16202.71	10.64	0.00	3538.66	31935.90
Fab_Metal	336.91	656.28	208.11	1452.36	3112.68	2689.72	0.05	7.80	2730.58	11194.48
Transport	488.08	1995.77	1128.58	1115.44	1053.17	659.96	0.00	196.93	1456.32	8094.24
Misc	230.00	1031.13	332.14	501.28	1535.53	375.48	0.01	17.60	1179.66	5202.83

San Diego Gas and Electric Company
2016 CGR - Industrial GN3
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	0.00	2.24	0.23	23947.31	0.00	0.00	0.00	0.00	9314.20	33263.98
Food	3155.88	12674.65	38.57	1919.40	1967.47	0.00	0.00	0.00	1249.16	21005.14
Textile	1329.08	131.16	1.11	7181.12	1647.02	0.00	0.00	0.00	17.62	10307.11
Wood_Paper	0.00	30721.53	214.64	20.21	9238.90	0.00	0.00	0.00	0.00	40195.28
Chemical	5624.56	11816.67	3290.36	2592.56	3709.92	0.00	0.00	35.54	587.66	27657.26
Petroleum	3649.78	91492.09	145.82	0.00	26440.15	0.00	0.00	0.00	868.47	122596.30
Stone	0.00	0.00	198.09	0.00	1636.20	0.00	0.00	0.00	0.00	1834.29
Prim_Metal	0.00	18017.06	0.00	0.00	1290.93	39287.08	0.00	0.00	0.00	58595.07
Fab_Metal	0.00	317.56	14.86	42.94	6237.87	33.44	0.00	0.00	2118.72	8765.39
Transport	0.00	3204.72	1876.33	589.64	2009.99	3173.04	0.00	5922.60	0.00	16776.31
Misc	1325.47	1281.96	223.24	588.39	2609.70	138.67	0.00	10.79	2858.83	9037.05

San Diego Gas and Electric Company
2016 CGR - Industrial GN3
Electric UEC (Kwh/SqFt)

Business Type	Fire_ Tube_ Boiler	Water_ Tube_ Boiler	Space_ Heat	Water_ Heat	Dryer	Furnace_ Oven_ Kiln	AC	Engine	Other
Mining	0.00	153.78	1.07	47.49	1.88	0.01	0.00	0.07	118.22
Food	894.74	2834.31	23.37	805.10	1507.57	2.24	20.33	23.73	719.30
Textile	255.39	344.60	2.87	68.10	394.52	3.62	0.00	0.00	55.82
Wood_Paper	205.34	551.26	21.11	59.15	73.88	5.51	0.00	0.17	106.92
Chemical	195.90	750.01	274.80	166.17	205.60	66.06	0.22	8.45	419.02
Petroleum	29.22	277.49	1.77	1.72	554.37	0.12	0.00	121.90	208.72
Stone	18.50	68.64	1.98	20.48	167.46	142.29	0.03	0.00	77.21
Primary_Metal	51.77	81.60	10.23	64.25	208.37	554.59	0.36	0.00	121.04
Fabricated_Metal	72.67	141.61	44.89	313.22	671.40	580.17	0.01	1.68	588.99
Transportation	83.56	341.15	193.01	191.35	180.35	112.99	0.00	33.71	249.62
Miscellaneous	160.38	722.32	227.50	349.39	1066.90	261.82	0.00	12.28	825.79

San Diego Gas and Electric Company
2016 CGR - Industrial GN3
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	952

San Diego Gas and Electric Company
2016 CGR - Industrial GN3
Gas Market Shares

Business Type	Fire_ Tube_ Boiler	Water_ Tube_ Boiler	Space_ Heat	Water_ Heat	Dryer	Furnace_ Oven_ Kiln	AC	Engine	Other
Chemical	0.00	0.28	0.24	0.50	0.03	0.01	0.00	0.03	1
Fabricated_Metal	0.06	0.21	0.14	0.77	0.24	0.01	0.00	0.01	1
Food	0.20	0.31	0.16	0.43	0.57	0.03	0.00	0.00	0
Mining	0.05	0.21	0.20	0.53	0.23	0.05	0.00	0.01	1
Miscllaneous	0.07	0.32	0.27	0.58	0.21	0.03	0.00	0.03	1
Petroleum	0.07	0.24	0.17	0.22	0.26	0.04	0.00	0.06	1
Primary_Metal	0.03	0.11	0.22	0.47	0.26	0.32	0.02	0.01	1
Stone	0.03	0.09	0.21	0.55	0.33	0.49	0.01	0.01	1
Textile	0.01	0.08	0.17	0.57	0.32	0.12	0.00	0.01	1
Transportation	0.02	0.07	0.20	0.50	0.20	0.08	0.00	0.01	1
Wood_Paper	0.02	0.12	0.21	0.53	0.24	0.07	0.00	0.01	1

San Diego Gas and Electric Company
2016 CGR - Industrial GN3
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

San Diego Gas and Electric Company
2016 CGR - Industrial GN3
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	-
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	-
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	-
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	-
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	-
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	-
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	-
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	-
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	-
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	-
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	-

San Diego Gas and Electric Company
2016 CGR - Industrial GN3
Employment Forecast (in thousands)

YEAR	Mining	Food	Textile	Wood_Paper	Chemical	Petroleum	Stone	Primary_Metal	Fabricated_Metal	Transportation	Miscellaneous	Total
2015	2687	15753	1440	3875	6266	1096	2472	1583	11893	9993	41559	98617
2016	2459	16129	1429	3919	6338	1086	2519	1575	11909	9969	42017	99347
2017	2468	16415	1396	4045	6432	1088	2548	1538	12109	9873	42726	100637
2018	2574	16653	1359	4203	6513	1078	2624	1541	12283	9781	43348	101956
2019	2668	16855	1332	4306	6550	1076	2680	1566	12588	9636	43741	102999
2020	2730	17068	1299	4428	6539	1070	2719	1578	12912	9501	44046	103890
2021	2789	17267	1259	4555	6497	1057	2764	1589	13262	9424	44364	104825
2022	2863	17404	1215	4639	6424	1037	2799	1591	13550	9286	44548	105357
2023	2895	17543	1171	4735	6345	1017	2828	1585	13793	9054	44702	105667
2024	2913	17693	1130	4826	6264	998	2854	1575	13998	8856	44865	105972
2025	2919	17814	1112	4880	6214	983	2861	1562	14109	8779	44903	106135
2026	2899	17950	1113	4921	6205	969	2860	1550	14195	8817	44855	106333
2027	2873	18071	1114	4954	6191	953	2869	1532	14233	8836	44769	106396
2028	2862	18150	1111	4972	6159	934	2878	1502	14171	8797	44538	106073
2029	2853	18211	1107	5006	6115	915	2887	1472	14102	8734	44324	105728
2030	2828	18249	1100	5073	6064	897	2898	1443	14045	8655	44108	105361
2031	2811	18294	1086	5134	6009	879	2907	1409	14014	8575	43945	105063
2032	2795	18323	1072	5149	5948	862	2909	1374	13995	8516	43806	104749
2033	2768	18343	1060	5152	5888	847	2917	1340	13968	8510	43665	104458
2034	2748	18328	1046	5187	5827	831	2929	1303	13917	8519	43512	104147
2035	2733	18305	1033	5214	5770	815	2934	1267	13868	8530	43368	103836

San Diego Gas and Electric Company
2016 CGR - Industrial GN3
Core Industrial Demand Forecast (Mdth)
Average Temperature

YEAR	Model Output GN-3 - Ind	IndGN3 EE/DSM	Core Ind Final
2015	1542.2	0.0	1542.2
2016	1535.7	8.9	1526.8
2017	1588.2	13.9	1574.3
2018	1594.3	21.0	1573.3
2019	1594.7	29.1	1565.5
2020	1594.9	36.4	1558.5
2021	1585.3	44.7	1540.5
2022	1568.8	54.0	1514.7
2023	1555.3	63.5	1491.9
2024	1542.8	73.3	1469.5
2025	1527.8	83.1	1444.7
2026	1512.3	84.1	1428.2
2027	1499.9	88.9	1411.0
2028	1484.0	91.6	1392.4
2029	1465.6	93.3	1372.3
2030	1447.2	95.9	1351.3
2031	1430.9	97.3	1333.5
2032	1412.9	97.9	1315.0
2033	1396.2	98.3	1297.9
2034	1378.2	98.3	1279.9
2035	1362.8	98.3	1264.6

San Diego Gas and Electric Company
2016 CGR - Industrial GN3
Core Industrial Demand Forecast (Mdth)
Cold Temperature

YEAR	Model Output GN-3 - Ind	IndGN3 EE/DSM	Core Ind Final
2015	1633.5	0.0	1633.5
2016	1626.6	9.4	1617.2
2017	1682.2	14.7	1667.5
2018	1688.6	22.2	1666.4
2019	1689.1	30.9	1658.2
2020	1689.3	38.5	1650.7
2021	1679.1	47.4	1631.7
2022	1661.6	57.2	1604.4
2023	1647.4	67.2	1580.2
2024	1634.1	77.6	1556.5
2025	1618.2	88.0	1530.2
2026	1601.8	89.1	1512.7
2027	1588.6	94.1	1494.5
2028	1571.8	97.0	1474.8
2029	1552.4	98.8	1453.6
2030	1532.8	101.6	1431.3
2031	1515.5	103.1	1412.4
2032	1496.5	103.7	1392.8
2033	1478.8	104.1	1374.7
2034	1459.8	104.1	1355.7
2035	1443.5	104.1	1339.4

San Diego Gas and Electric Company
2016 CGR - Industrial GN3
Core Industrial Demand Forecast (Mdth)
Hot Temperature

YEAR	Model Output GN-3 - Ind	IndGN3 EE/DSM	Core Ind Final
2015	1450.9	0.0	1450.9
2016	1444.8	8.3	1436.5
2017	1494.2	13.1	1481.1
2018	1499.9	19.8	1480.2
2019	1500.3	27.4	1472.9
2020	1500.5	34.2	1466.2
2021	1491.4	42.1	1449.3
2022	1475.9	50.8	1425.1
2023	1463.3	59.7	1403.6
2024	1451.5	69.0	1382.6
2025	1437.4	78.2	1359.2
2026	1422.8	79.1	1343.7
2027	1411.1	83.6	1327.5
2028	1396.1	86.2	1309.9
2029	1378.9	87.8	1291.1
2030	1361.5	90.2	1271.3
2031	1346.2	91.6	1254.6
2032	1329.3	92.1	1237.2
2033	1313.5	92.5	1221.1
2034	1296.6	92.5	1204.2
2035	1282.2	92.5	1189.7

San Diego Gas and Electric Company
2016 CGR - Industrial GN3
Core Industrial Demand Forecast (Mdth)
Base Temperature

YEAR	Model Output GN-3 - Ind	IndGN3 EE/DSM	Core Ind Final
2015	1222.7	0.0	1222.7
2016	1217.6	7.1	1210.5
2017	1259.2	10.7	1248.5
2018	1264.0	16.6	1247.4
2019	1264.3	23.1	1241.2
2020	1264.5	28.8	1235.6
2021	1256.9	35.7	1221.2
2022	1243.8	43.3	1200.5
2023	1233.1	50.8	1182.4
2024	1223.2	58.6	1164.6
2025	1211.3	66.5	1144.8
2026	1199.0	67.4	1131.7
2027	1189.1	71.0	1118.1
2028	1176.5	73.4	1103.1
2029	1162.0	74.9	1087.1
2030	1147.4	77.0	1070.4
2031	1134.4	78.1	1056.4
2032	1120.2	78.6	1041.6
2033	1106.9	78.8	1028.1
2034	1092.7	78.9	1013.8
2035	1080.5	78.8	1001.7

2016 CALIFORNIA GAS REPORT

NONCORE COMMERCIAL, INDUSTRIAL AND COGEN DEMAND FORECAST
JULY 2016

SDG&E Non-Core Demand Equations,

before energy efficiency and carbon-fee adjustments (MDth)

Cogeneration (MDTH_CGNNC_SD)

```
Cochrane-Orcutt
MONTHLY data for 119 periods from FEB 2006 to DEC 2015

mdth_cgnnc_sd = 1636.82 * dum2009novdec + 15.5647 * eisd/1000
                (12.2717)                 (60.1603)

- 665.020 * dum2006janmay
 (4.96682)

Sum Sq 2590581   Std Err 150.089   LHS Mean 1530.17
R Sq 0.7785      R Bar Sq 0.7728   F 4,115 101.074
D.W.( 1) 2.1451  D.W.(12) 1.3877

AR_0 = + 0.44981 * AR_1
        (4.76806)
```

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Commercial (MDTH_COMNC_SD)

```
MDTH_COMNC_SD
Cochrane-Orcutt
MONTHLY data for 119 periods from FEB 2006 to DEC 2015

mdth_comnc_sd = 0.16395 * ecsd/1000 + 106.318 * dum2006janmay
                (19.0449)             (3.47560)

Sum Sq 83253.2   Std Err 26.7891   LHS Mean 206.637   Res Mean 0.2105
R Sq 0.7532      R Bar Sq 0.7490   F 3,116 118.023    %RMSE 12.8709
D.W.( 1) 2.3626  D.W.(12) 1.2793

AR_0 = + 0.76492 * AR_1
        (13.9607)
```

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Industrial (MDTH_INDNC_SD)

```
MDTH_INDNC_SD
Cochrane-Orcutt
MONTHLY data for 118 periods from MAR 2006 to DEC 2015

mdth_indnc_sd = 1.67401 * eisd/1000 - 40.6372 * dum2013sepoct
                (12.3166)             (3.64077)

Sum Sq 46996.4   Std Err 20.3027   LHS Mean 160.142   Res Mean 0.2178
R Sq 0.5898      R Bar Sq 0.5790   F 4,114 40.9829    %RMSE 12.8724
D.W.( 1) 2.0445  D.W.(12) 1.4328

AR_0 = + 0.49155 * AR_1 + 0.36599 * AR_2
        (5.58209)         (4.18579)
```

SDG&E Noncore Commercial & Industrial Demand (MDth)							San Diego County Employment		Cumulative	Cumulative	Carbon Fee Impact	
	Adjusted with DSM and Carbon-Fee Impacts			Unadjusted (from regression equations)			Commercial	Industrial	DSM Cmcl	DSM Indl.	Cogen	Industrial
	Cogeneration	Commercial	Industrial	Cogeneration	Commercial	Industrial	ECSD	EISD	(MDth)	(MDth)	(MDth)	(MDth)
2006	16,300	3,757	1,374	16,300	3,757	1,374	1,218,475	104,517	0	0	0	0
2007	19,920	2,560	1,483	19,920	2,560	1,483	1,228,058	102,950	0	0	0	0
2008	18,929	2,546	1,886	18,929	2,546	1,886	1,219,433	103,283	0	0	0	0
2009	23,606	2,536	1,670	23,606	2,536	1,670	1,160,408	95,800	0	0	0	0
2010	17,480	2,559	1,912	17,480	2,559	1,912	1,154,108	93,475	0	0	0	0
2011	17,046	2,525	2,019	17,046	2,525	2,019	1,163,000	93,783	0	0	0	0
2012	17,541	2,390	2,262	17,541	2,390	2,262	1,195,367	94,917	0	0	0	0
2013	17,976	2,193	2,162	17,976	2,193	2,162	1,231,958	95,608	0	0	0	0
2014	17,452	1,912	2,088	17,452	1,912	2,088	1,261,225	96,808	0	0	0	0
2015	16,565	2,066	2,289	16,565	2,066	2,289	1,300,947	98,617	0	0	0	0
2016	18,202	2,694	2,088	18,377	2,729	2,141	1,333,332	99,347	-35	-40	-175	-12
2017	18,646	2,617	1,989	18,797	2,672	2,062	1,356,099	100,638	-55	-63	-151	-10
2018	18,888	2,625	1,954	19,043	2,708	2,059	1,376,291	101,956	-83	-96	-155	-10
2019	19,084	2,630	1,929	19,238	2,745	2,072	1,395,251	102,999	-115	-133	-154	-10
2020	19,238	2,641	1,911	19,404	2,784	2,088	1,414,974	103,890	-143	-166	-166	-11
2021	19,404	2,638	1,891	19,579	2,815	2,106	1,430,658	104,825	-176	-204	-175	-11
2022	19,487	2,635	1,858	19,678	2,848	2,116	1,447,403	105,357	-213	-246	-191	-12
2023	19,520	2,632	1,820	19,736	2,882	2,123	1,464,890	105,668	-250	-289	-216	-14
2024	19,548	2,625	1,779	19,793	2,914	2,129	1,481,102	105,972	-289	-334	-245	-16
2025	19,565	2,617	1,737	19,824	2,944	2,132	1,496,584	106,135	-327	-379	-259	-17
2026	19,590	2,644	1,736	19,860	2,976	2,136	1,512,410	106,332	-331	-383	-270	-17
2027	19,580	2,656	1,714	19,872	3,006	2,137	1,527,707	106,396	-350	-405	-292	-19
2028	19,500	2,672	1,694	19,812	3,033	2,131	1,541,713	106,073	-361	-417	-312	-20
2029	19,421	2,694	1,678	19,748	3,061	2,124	1,555,820	105,728	-367	-425	-326	-21
2030	19,338	2,714	1,658	19,679	3,092	2,116	1,571,352	105,360	-378	-437	-341	-21
2031	19,263	2,736	1,645	19,623	3,119	2,111	1,585,311	105,063	-383	-443	-361	-22
2032	19,190	2,763	1,635	19,565	3,149	2,104	1,600,465	104,749	-386	-446	-375	-23
2033	19,116	2,793	1,627	19,510	3,180	2,098	1,616,117	104,458	-387	-448	-394	-24
2034	19,042	2,823	1,619	19,452	3,210	2,092	1,631,493	104,146	-387	-448	-410	-25
2035	18,958	2,853	1,612	19,394	3,240	2,086	1,646,801	103,836	-387	-448	-437	-26
	0.68%	1.63%	-1.74%	<==Average annual growth, 2015 - 2035.								

MONTHLY

SDG&E Noncore Commercial & Industrial Demand (MDth)							San Diego County Employment		Cumulative	Cumulative	Carbon Fee Impact	
	Adjusted with DSM and Carbon-Fee Impacts			Unadjusted (from regression equations)			Commercial	Industrial	DSM Cmcl	DSM Indl.	Cogen	Industrial
Month	Cogeneration	Commercial	Industrial	Cogeneration	Commercial	Industrial	ECSD	EISD	(MDth)	(MDth)	(MDth)	(MDth)
Jan-06	726.9	453.7	119.7	726.9	453.7	119.7	1,194,000	103,800	0.0	0.0	0.0	0.0
Feb-06	773.8	449.3	128.8	773.8	449.3	128.8	1,203,500	104,400	0.0	0.0	0.0	0.0
Mar-06	693.2	409.3	108.2	693.2	409.3	108.2	1,210,100	105,000	0.0	0.0	0.0	0.0
Apr-06	750.4	474.6	130.8	750.4	474.6	130.8	1,212,100	104,600	0.0	0.0	0.0	0.0
May-06	1,210.4	351.8	134.1	1,210.4	351.8	134.1	1,220,600	104,800	0.0	0.0	0.0	0.0
Jun-06	1,716.4	244.8	126.5	1,716.4	244.8	126.5	1,228,700	105,300	0.0	0.0	0.0	0.0
Jul-06	1,695.0	231.9	133.6	1,695.0	231.9	133.6	1,214,300	105,100	0.0	0.0	0.0	0.0
Aug-06	1,788.4	206.3	98.9	1,788.4	206.3	98.9	1,218,800	104,700	0.0	0.0	0.0	0.0
Sep-06	1,778.3	222.2	117.8	1,778.3	222.2	117.8	1,223,900	104,500	0.0	0.0	0.0	0.0
Oct-06	1,803.7	214.9	97.9	1,803.7	214.9	97.9	1,224,800	103,900	0.0	0.0	0.0	0.0
Nov-06	1,733.6	257.5	96.4	1,733.6	257.5	96.4	1,234,500	104,100	0.0	0.0	0.0	0.0
Dec-06	1,630.1	240.2	80.9	1,630.1	240.2	80.9	1,236,400	104,000	0.0	0.0	0.0	0.0
Jan-07	1,806.8	235.9	100.4	1,806.8	235.9	100.4	1,206,300	103,100	0.0	0.0	0.0	0.0
Feb-07	1,746.5	274.8	127.9	1,746.5	274.8	127.9	1,215,600	102,900	0.0	0.0	0.0	0.0
Mar-07	1,542.7	236.5	97.4	1,542.7	236.5	97.4	1,223,600	103,200	0.0	0.0	0.0	0.0
Apr-07	1,523.2	263.3	123.3	1,523.2	263.3	123.3	1,223,100	102,100	0.0	0.0	0.0	0.0
May-07	1,640.0	228.3	122.3	1,640.0	228.3	122.3	1,231,900	102,200	0.0	0.0	0.0	0.0
Jun-07	1,757.6	207.0	123.9	1,757.6	207.0	123.9	1,240,100	102,300	0.0	0.0	0.0	0.0
Jul-07	1,634.3	169.5	118.6	1,634.3	169.5	118.6	1,229,700	103,200	0.0	0.0	0.0	0.0
Aug-07	1,739.6	167.8	127.4	1,739.6	167.8	127.4	1,230,900	102,900	0.0	0.0	0.0	0.0
Sep-07	1,768.7	172.0	141.3	1,768.7	172.0	141.3	1,230,900	102,600	0.0	0.0	0.0	0.0
Oct-07	1,739.9	162.9	118.7	1,739.9	162.9	118.7	1,229,200	103,200	0.0	0.0	0.0	0.0
Nov-07	1,599.3	201.1	140.0	1,599.3	201.1	140.0	1,235,500	103,600	0.0	0.0	0.0	0.0
Dec-07	1,421.7	240.6	142.0	1,421.7	240.6	142.0	1,239,900	104,100	0.0	0.0	0.0	0.0
Jan-08	1,726.7	244.4	138.1	1,726.7	244.4	138.1	1,209,600	103,100	0.0	0.0	0.0	0.0
Feb-08	1,629.8	263.2	147.7	1,629.8	263.2	147.7	1,218,800	103,100	0.0	0.0	0.0	0.0
Mar-08	1,576.5	233.0	165.5	1,576.5	233.0	165.5	1,224,100	103,500	0.0	0.0	0.0	0.0
Apr-08	1,578.0	234.3	164.5	1,578.0	234.3	164.5	1,224,300	103,400	0.0	0.0	0.0	0.0
May-08	1,530.6	192.1	166.6	1,530.6	192.1	166.6	1,228,300	103,500	0.0	0.0	0.0	0.0
Jun-08	1,443.4	208.4	171.5	1,443.4	208.4	171.5	1,232,000	103,800	0.0	0.0	0.0	0.0
Jul-08	1,552.3	171.2	169.1	1,552.3	171.2	169.1	1,220,100	103,600	0.0	0.0	0.0	0.0
Aug-08	1,611.5	182.4	172.7	1,611.5	182.4	172.7	1,219,600	103,800	0.0	0.0	0.0	0.0
Sep-08	1,551.3	196.6	170.8	1,551.3	196.6	170.8	1,216,300	103,400	0.0	0.0	0.0	0.0
Oct-08	1,453.5	209.0	150.2	1,453.5	209.0	150.2	1,215,000	103,400	0.0	0.0	0.0	0.0
Nov-08	1,553.0	238.4	145.6	1,553.0	238.4	145.6	1,214,600	102,700	0.0	0.0	0.0	0.0
Dec-08	1,722.6	172.6	124.2	1,722.6	172.6	124.2	1,210,500	102,100	0.0	0.0	0.0	0.0
Jan-09	1,753.0	216.3	117.6	1,753.0	216.3	117.6	1,174,000	101,500	0.0	0.0	0.0	0.0
Feb-09	1,717.4	224.2	123.4	1,717.4	224.2	123.4	1,171,100	100,500	0.0	0.0	0.0	0.0
Mar-09	1,287.6	232.7	149.7	1,287.6	232.7	149.7	1,170,400	99,400	0.0	0.0	0.0	0.0
Apr-09	1,617.9	235.2	143.8	1,617.9	235.2	143.8	1,165,800	97,400	0.0	0.0	0.0	0.0
May-09	1,284.3	274.0	118.7	1,284.3	274.0	118.7	1,168,800	96,300	0.0	0.0	0.0	0.0
Jun-09	1,822.4	181.9	110.2	1,822.4	181.9	110.2	1,168,300	95,700	0.0	0.0	0.0	0.0
Jul-09	1,728.2	176.4	147.9	1,728.2	176.4	147.9	1,145,300	94,300	0.0	0.0	0.0	0.0
Aug-09	1,923.2	174.7	146.0	1,923.2	174.7	146.0	1,146,300	93,800	0.0	0.0	0.0	0.0
Sep-09	1,694.0	204.6	159.0	1,694.0	204.6	159.0	1,142,100	93,300	0.0	0.0	0.0	0.0
Oct-09	2,133.5	204.3	146.9	2,133.5	204.3	146.9	1,153,400	92,600	0.0	0.0	0.0	0.0
Nov-09	3,441.1	198.1	171.5	3,441.1	198.1	171.5	1,159,200	92,400	0.0	0.0	0.0	0.0
Dec-09	3,203.8	214.1	135.5	3,203.8	214.1	135.5	1,160,200	92,400	0.0	0.0	0.0	0.0
Jan-10	1,578.7	223.0	144.0	1,578.7	223.0	144.0	1,131,000	92,700	0.0	0.0	0.0	0.0

Feb-10	1,580.9	220.6	138.3	1,580.9	220.6	138.3	1,135,400	92,600	0.0	0.0	0.0	0.0
Mar-10	1,457.6	206.2	128.2	1,457.6	206.2	128.2	1,140,000	93,100	0.0	0.0	0.0	0.0
Apr-10	1,700.8	207.0	157.0	1,700.8	207.0	157.0	1,152,700	94,000	0.0	0.0	0.0	0.0
May-10	1,462.0	202.3	142.8	1,462.0	202.3	142.8	1,163,900	93,900	0.0	0.0	0.0	0.0
Jun-10	1,325.2	221.2	169.0	1,325.2	221.2	169.0	1,165,700	93,800	0.0	0.0	0.0	0.0
Jul-10	1,350.5	204.3	178.4	1,350.5	204.3	178.4	1,153,700	93,500	0.0	0.0	0.0	0.0
Aug-10	1,424.6	216.1	169.4	1,424.6	216.1	169.4	1,156,700	93,800	0.0	0.0	0.0	0.0
Sep-10	1,497.0	207.9	177.2	1,497.0	207.9	177.2	1,155,300	93,400	0.0	0.0	0.0	0.0
Oct-10	1,345.8	199.5	176.3	1,345.8	199.5	176.3	1,161,300	93,400	0.0	0.0	0.0	0.0
Nov-10	1,392.5	228.3	176.5	1,392.5	228.3	176.5	1,165,600	93,500	0.0	0.0	0.0	0.0
Dec-10	1,364.1	223.0	155.0	1,364.1	223.0	155.0	1,168,000	94,000	0.0	0.0	0.0	0.0
Jan-11	1,514.2	246.1	144.0	1,514.2	246.1	144.0	1,146,600	93,500	0.0	0.0	0.0	0.0
Feb-11	1,518.4	229.5	168.8	1,518.4	229.5	168.8	1,154,800	93,300	0.0	0.0	0.0	0.0
Mar-11	1,340.9	226.4	167.9	1,340.9	226.4	167.9	1,158,800	93,500	0.0	0.0	0.0	0.0
Apr-11	1,559.1	223.0	165.2	1,559.1	223.0	165.2	1,161,300	93,400	0.0	0.0	0.0	0.0
May-11	1,389.4	196.6	152.3	1,389.4	196.6	152.3	1,164,300	93,700	0.0	0.0	0.0	0.0
Jun-11	1,430.9	197.8	175.0	1,430.9	197.8	175.0	1,167,300	94,100	0.0	0.0	0.0	0.0
Jul-11	1,403.5	189.0	179.9	1,403.5	189.0	179.9	1,156,100	93,900	0.0	0.0	0.0	0.0
Aug-11	1,382.0	203.0	186.5	1,382.0	203.0	186.5	1,158,700	94,000	0.0	0.0	0.0	0.0
Sep-11	1,532.9	186.9	190.3	1,532.9	186.9	190.3	1,162,500	94,000	0.0	0.0	0.0	0.0
Oct-11	1,356.7	186.4	169.1	1,356.7	186.4	169.1	1,168,600	93,800	0.0	0.0	0.0	0.0
Nov-11	1,181.2	235.3	176.8	1,181.2	235.3	176.8	1,177,400	93,900	0.0	0.0	0.0	0.0
Dec-11	1,437.1	205.2	143.1	1,437.1	205.2	143.1	1,179,600	94,300	0.0	0.0	0.0	0.0
Jan-12	1,653.7	211.5	178.1	1,653.7	211.5	178.1	1,157,700	93,100	0.0	0.0	0.0	0.0
Feb-12	1,465.8	199.7	191.4	1,465.8	199.7	191.4	1,167,100	93,400	0.0	0.0	0.0	0.0
Mar-12	1,563.5	216.2	193.5	1,563.5	216.2	193.5	1,173,700	93,400	0.0	0.0	0.0	0.0
Apr-12	1,406.6	194.9	192.6	1,406.6	194.9	192.6	1,191,200	94,200	0.0	0.0	0.0	0.0
May-12	1,450.1	193.8	204.5	1,450.1	193.8	204.5	1,200,500	94,700	0.0	0.0	0.0	0.0
Jun-12	1,424.4	181.4	184.8	1,424.4	181.4	184.8	1,207,700	94,900	0.0	0.0	0.0	0.0
Jul-12	1,444.8	183.3	201.1	1,444.8	183.3	201.1	1,191,600	95,900	0.0	0.0	0.0	0.0
Aug-12	1,544.6	170.2	213.0	1,544.6	170.2	213.0	1,197,300	96,100	0.0	0.0	0.0	0.0
Sep-12	1,606.9	153.4	187.7	1,606.9	153.4	187.7	1,197,200	95,900	0.0	0.0	0.0	0.0
Oct-12	1,397.9	207.1	195.8	1,397.9	207.1	195.8	1,212,300	95,500	0.0	0.0	0.0	0.0
Nov-12	1,100.8	246.2	175.4	1,100.8	246.2	175.4	1,222,800	95,800	0.0	0.0	0.0	0.0
Dec-12	1,482.3	231.9	144.1	1,482.3	231.9	144.1	1,225,300	96,100	0.0	0.0	0.0	0.0
Jan-13	1,479.4	261.6	180.2	1,479.4	261.6	180.2	1,202,800	95,100	0.0	0.0	0.0	0.0
Feb-13	1,365.1	222.7	174.0	1,365.1	222.7	174.0	1,211,300	95,300	0.0	0.0	0.0	0.0
Mar-13	1,544.7	205.1	189.7	1,544.7	205.1	189.7	1,219,300	95,500	0.0	0.0	0.0	0.0
Apr-13	1,306.5	210.2	199.8	1,306.5	210.2	199.8	1,225,200	95,400	0.0	0.0	0.0	0.0
May-13	1,592.2	165.6	181.8	1,592.2	165.6	181.8	1,230,800	95,200	0.0	0.0	0.0	0.0
Jun-13	1,553.4	144.9	195.6	1,553.4	144.9	195.6	1,237,700	95,000	0.0	0.0	0.0	0.0
Jul-13	1,610.0	138.9	182.3	1,610.0	138.9	182.3	1,226,800	95,500	0.0	0.0	0.0	0.0
Aug-13	1,608.5	140.7	195.8	1,608.5	140.7	195.8	1,231,800	95,400	0.0	0.0	0.0	0.0
Sep-13	1,583.8	149.1	126.8	1,583.8	149.1	126.8	1,233,000	95,500	0.0	0.0	0.0	0.0
Oct-13	1,402.5	158.8	202.2	1,402.5	158.8	202.2	1,247,100	96,100	0.0	0.0	0.0	0.0
Nov-13	1,392.2	198.8	183.2	1,392.2	198.8	183.2	1,258,200	96,500	0.0	0.0	0.0	0.0
Dec-13	1,537.6	196.8	150.5	1,537.6	196.8	150.5	1,259,500	96,800	0.0	0.0	0.0	0.0
Jan-14	1,564.7	176.7	203.1	1,564.7	176.7	203.1	1,230,700	96,000	0.0	0.0	0.0	0.0
Feb-14	1,324.0	171.6	164.5	1,324.0	171.6	164.5	1,240,100	96,200	0.0	0.0	0.0	0.0
Mar-14	1,283.4	215.1	143.6	1,283.4	215.1	143.6	1,247,800	96,300	0.0	0.0	0.0	0.0
Apr-14	1,333.8	171.6	189.7	1,333.8	171.6	189.7	1,253,700	96,300	0.0	0.0	0.0	0.0
May-14	1,567.9	142.8	187.1	1,567.9	142.8	187.1	1,260,000	96,400	0.0	0.0	0.0	0.0
Jun-14	1,551.5	131.4	178.0	1,551.5	131.4	178.0	1,265,200	96,700	0.0	0.0	0.0	0.0
Jul-14	1,627.8	132.8	198.2	1,627.8	132.8	198.2	1,255,400	97,000	0.0	0.0	0.0	0.0
Aug-14	1,566.3	131.7	165.5	1,566.3	131.7	165.5	1,262,600	97,200	0.0	0.0	0.0	0.0
Sep-14	1,535.0	122.9	175.8	1,535.0	122.9	175.8	1,260,600	97,100	0.0	0.0	0.0	0.0
Oct-14	1,235.4	189.5	191.0	1,235.4	189.5	191.0	1,277,500	97,500	0.0	0.0	0.0	0.0
Nov-14	1,297.1	152.7	164.3	1,297.1	152.7	164.3	1,290,900	97,200	0.0	0.0	0.0	0.0
Dec-14	1,565.4	173.1	127.6	1,565.4	173.1	127.6	1,290,200	97,800	0.0	0.0	0.0	0.0
Jan-15	1,526.1	175.6	175.7	1,526.1	175.6	175.7	1,273,365	96,742	0.0	0.0	0.0	0.0
Feb-15	1,326.3	143.8	167.7	1,326.3	143.8	167.7	1,282,151	97,276	0.0	0.0	0.0	0.0
Mar-15	1,413.1	149.7	273.4	1,413.1	149.7	273.4	1,288,623	97,710	0.0	0.0	0.0	0.0
Apr-15	1,115.4	180.0	203.6	1,115.4	180.0	203.6	1,290,138	98,328	0.0	0.0	0.0	0.0
May-15	1,469.4	149.0	200.2	1,469.4	149.0	200.2	1,298,039	98,477	0.0	0.0	0.0	0.0
Jun-15	1,408.5	142.7	186.3	1,408.5	142.7	186.3	1,304,751	98,830	0.0	0.0	0.0	0.0
Jul-15	1,464.2	148.3	203.9	1,464.2	148.3	203.9	1,299,518	99,361	0.0	0.0	0.0	0.0
Aug-15	1,473.6	157.1	175.1	1,473.6	157.1	175.1	1,304,688	99,434	0.0	0.0	0.0	0.0
Sep-15	1,455.0	147.7	159.3	1,455.0	147.7	159.3	1,300,678	99,200	0.0	0.0	0.0	0.0
Oct-15	1,289.9	195.0	169.0	1,289.9	195.0	169.0	1,315,273	99,366	0.0	0.0	0.0	0.0
Nov-15	1,292.3	225.6	180.2	1,292.3	225.6	180.2	1,327,926	99,041	0.0	0.0	0.0	0.0
Dec-15	1,331.7	251.3	194.0	1,331.7	251.3	194.0	1,326,212	99,633	0.0	0.0	0.0	0.0
Jan-16	1,428.1	237.2	180.0	1,441.9	240.1	184.3	1,306,348	98,966	-2.9	-3.4	-13.7	-1.0
Feb-16	1,483.3	232.7	180.6	1,497.5	235.6	185.0	1,316,314	99,060	-2.9	-3.4	-14.3	-1.0
Mar-16	1,507.3	229.3	177.7	1,521.8	232.2	182.1	1,323,940	99,051	-2.9	-3.4	-14.5	-1.0
Apr-16	1,515.8	226.8	176.2	1,530.3	229.7	180.6	1,330,180	98,898	-2.9	-3.4	-14.6	-1.0
May-16	1,521.1	224.9	174.6	1,535.8	227.8	178.9	1,335,324	98,930	-2.9	-3.4	-14.6	-1.0
Jun-16	1,527.0	223.5	173.7	1,541.7	226.4	178.0	1,339,587	99,167	-2.9	-3.4	-14.7	-1.0
Jul-16	1,530.1	220.3	172.7	1,544.8	223.2	177.0	1,329,730	99,305	-2.9	-3.4	-14.7	-1.0
Aug-16	1,534.2	219.8	172.0	1,548.9	222.7	176.3	1,334,374	99,538	-2.9	-3.4	-14.8	-1.0
Sep-16	1,533.2	218.2	170.9	1,548.0	221.1	175.2	1,329,807	99,463	-2.9	-3.4	-14.7	-1.0
Oct-16	1,539.0	219.8	170.6	1,553.8	222.7	175.0	1,344,255	99,831	-2.9	-3.4	-14.8	-1.0
Nov-16	1,535.8	221.2	169.5	1,550.5	224.1	173.8	1,356,288	99,621	-2.9	-3.4	-14.8	-1.0
Dec-16	1,546.8	220.4	170.0	1,561.6	223.3	174.3	1,353,833	100,333	-2.9	-3.4	-14.9	-1.0
Jan-17	1,540.3	215.1	166.6	1,552.8	219.6	172.7	1,333,365	99,765	-4.6	-5.3	-12.5	-0.8
Feb-17	1,543.8	216.4	166.4	1,556.3	220.9	172.5	1,342,592	99,989	-4.6	-5.3	-12.5	-0.8
Mar-17	1,545.7	217.3	166.1	1,558.2	221.8	172.2	1,349,325	100,110	-4.6	-5.3	-12.5	-0.8
Apr-17	1,546.2	217.9	165.7	1,558.8	222.5	171.8	1,354,325	100,147	-4.6	-5.3	-12.5	-0.8
May-17	1,547.8	218.6	165.4	1,560.3	223.1	171.5	1,358,805	100,247	-4.6	-5.3	-12.5	-0.8
Jun-17	1,552.5	219.1	165.5	1,565.1	223.6	171.7	1,362,297	100,555	-4.6	-5.3	-12.6	-0.8

Jul-17	1,557.5	217.1	165.8	1,570.2	221.7	171.9	1,351,002	100,879	-4.6	-5.3	-12.6	-0.8
Aug-17	1,560.4	217.8	165.8	1,573.1	222.4	171.9	1,355,424	101,066	-4.6	-5.3	-12.6	-0.8
Sep-17	1,558.5	217.0	165.3	1,571.1	221.5	171.4	1,350,550	100,942	-4.6	-5.3	-12.6	-0.8
Oct-17	1,563.5	219.3	165.6	1,576.1	223.9	171.7	1,364,956	101,263	-4.6	-5.3	-12.7	-0.8
Nov-17	1,559.5	221.2	164.9	1,572.1	225.8	171.0	1,376,684	101,005	-4.6	-5.3	-12.6	-0.8
Dec-17	1,569.9	220.7	165.9	1,582.7	225.3	172.0	1,373,863	101,683	-4.6	-5.3	-12.7	-0.8
Jan-18	1,559.4	214.9	161.9	1,572.2	221.8	170.7	1,352,656	101,011	-6.9	-8.0	-12.8	-0.8
Feb-18	1,563.1	216.5	162.1	1,575.9	223.4	170.9	1,362,155	101,246	-6.9	-8.0	-12.8	-0.8
Mar-18	1,565.1	217.6	162.2	1,577.9	224.5	171.0	1,369,097	101,376	-6.9	-8.0	-12.8	-0.8
Apr-18	1,565.5	218.4	162.1	1,578.3	225.3	170.9	1,374,041	101,402	-6.9	-8.0	-12.8	-0.8
May-18	1,567.4	219.2	162.2	1,580.3	226.1	171.0	1,378,881	101,531	-6.9	-8.0	-12.8	-0.8
Jun-18	1,572.7	219.8	162.6	1,585.6	226.7	171.5	1,382,694	101,870	-6.9	-8.0	-12.9	-0.8
Jul-18	1,578.7	218.1	163.2	1,591.7	225.0	172.0	1,372,023	102,262	-6.9	-8.0	-12.9	-0.8
Aug-18	1,581.5	218.8	163.4	1,594.5	225.7	172.2	1,376,308	102,444	-6.9	-8.0	-13.0	-0.8
Sep-18	1,579.5	217.9	163.1	1,592.4	224.8	171.9	1,371,148	102,309	-6.9	-8.0	-12.9	-0.8
Oct-18	1,584.5	220.2	163.6	1,597.5	227.1	172.4	1,385,265	102,635	-6.9	-8.0	-13.0	-0.8
Nov-18	1,580.2	222.2	163.1	1,593.2	229.1	171.9	1,397,080	102,358	-6.9	-8.0	-13.0	-0.8
Dec-18	1,590.6	221.7	164.1	1,603.6	228.6	173.0	1,394,145	103,029	-6.9	-8.0	-13.0	-0.8
Jan-19	1,580.8	215.6	159.9	1,593.5	225.1	171.8	1,373,092	102,381	-9.6	-11.1	-12.7	-0.8
Feb-19	1,583.5	217.1	160.2	1,596.2	226.7	172.1	1,382,452	102,555	-9.6	-11.1	-12.8	-0.8
Mar-19	1,584.5	218.2	160.3	1,597.3	227.7	172.1	1,389,079	102,622	-9.6	-11.1	-12.8	-0.8
Apr-19	1,583.9	218.9	160.1	1,596.6	228.5	172.0	1,393,613	102,580	-9.6	-11.1	-12.8	-0.8
May-19	1,584.9	219.7	160.2	1,597.7	229.2	172.1	1,398,144	102,649	-9.6	-11.1	-12.8	-0.8
Jun-19	1,589.3	220.2	160.7	1,602.1	229.8	172.6	1,401,575	102,931	-9.6	-11.1	-12.8	-0.8
Jul-19	1,594.2	218.3	161.2	1,607.1	227.9	173.1	1,389,820	103,252	-9.6	-11.1	-12.9	-0.8
Aug-19	1,596.3	219.0	161.4	1,609.2	228.6	173.3	1,394,249	103,388	-9.6	-11.1	-12.9	-0.8
Sep-19	1,593.5	218.2	161.1	1,606.3	227.8	173.0	1,389,176	103,204	-9.6	-11.1	-12.8	-0.8
Oct-19	1,597.0	220.6	161.4	1,609.9	230.1	173.3	1,403,655	103,432	-9.6	-11.1	-12.9	-0.8
Nov-19	1,592.8	222.5	160.9	1,605.6	232.1	172.8	1,415,561	103,156	-9.6	-11.1	-12.8	-0.8
Dec-19	1,603.3	222.0	162.1	1,616.2	231.6	174.0	1,412,599	103,836	-9.6	-11.1	-12.9	-0.8
Jan-20	1,592.1	216.0	158.1	1,605.9	228.0	172.8	1,390,546	103,173	-11.9	-13.8	-13.8	-0.9
Feb-20	1,595.0	217.7	158.4	1,608.9	229.7	173.1	1,400,936	103,365	-11.9	-13.8	-13.8	-0.9
Mar-20	1,596.4	219.0	158.6	1,610.2	230.9	173.3	1,408,629	103,450	-11.9	-13.8	-13.8	-0.9
Apr-20	1,595.9	220.2	158.5	1,609.7	232.1	173.2	1,415,606	103,418	-11.9	-13.8	-13.8	-0.9
May-20	1,597.3	220.8	158.7	1,611.1	232.8	173.4	1,419,809	103,511	-11.9	-13.8	-13.8	-0.9
Jun-20	1,602.0	221.3	159.2	1,615.9	233.3	173.9	1,422,797	103,819	-11.9	-13.8	-13.9	-0.9
Jul-20	1,607.7	219.3	159.8	1,621.6	231.2	174.5	1,410,346	104,185	-11.9	-13.8	-13.9	-0.9
Aug-20	1,609.9	219.9	160.0	1,623.8	231.9	174.7	1,414,320	104,326	-11.9	-13.8	-13.9	-0.9
Sep-20	1,607.1	219.0	159.7	1,621.0	231.0	174.4	1,408,700	104,146	-11.9	-13.8	-13.9	-0.9
Oct-20	1,610.7	221.3	160.1	1,624.7	233.3	174.8	1,422,843	104,382	-11.9	-13.8	-13.9	-0.9
Nov-20	1,606.5	223.2	159.6	1,620.4	235.2	174.3	1,434,323	104,108	-11.9	-13.8	-13.9	-0.9
Dec-20	1,617.2	222.6	160.8	1,631.2	234.6	175.5	1,430,834	104,798	-11.9	-13.8	-14.0	-0.9
Jan-21	1,606.1	216.3	156.4	1,620.7	231.0	174.3	1,408,821	104,124	-14.7	-17.0	-14.5	-0.9
Feb-21	1,609.3	217.8	156.8	1,623.9	232.5	174.7	1,418,253	104,331	-14.7	-17.0	-14.5	-0.9
Mar-21	1,610.9	218.9	156.9	1,625.4	233.6	174.8	1,424,901	104,430	-14.7	-17.0	-14.6	-0.9
Apr-21	1,611.2	219.6	156.9	1,625.8	234.3	174.9	1,429,275	104,451	-14.7	-17.0	-14.6	-0.9
May-21	1,612.2	220.4	157.1	1,626.8	235.1	175.0	1,433,918	104,519	-14.7	-17.0	-14.6	-0.9
Jun-21	1,616.6	221.0	157.5	1,631.2	235.6	175.5	1,437,253	104,803	-14.7	-17.0	-14.6	-0.9
Jul-21	1,622.1	219.0	158.1	1,636.7	233.7	176.1	1,425,129	105,156	-14.7	-17.0	-14.7	-0.9
Aug-21	1,623.7	219.7	158.3	1,638.4	234.4	176.2	1,429,462	105,263	-14.7	-17.0	-14.7	-0.9
Sep-21	1,620.4	218.8	157.9	1,635.0	233.5	175.9	1,424,146	105,046	-14.7	-17.0	-14.6	-0.9
Oct-21	1,623.7	221.2	158.3	1,638.3	235.9	176.2	1,439,029	105,260	-14.7	-17.0	-14.7	-0.9
Nov-21	1,618.7	223.1	157.7	1,633.3	237.8	175.7	1,450,578	104,937	-14.7	-17.0	-14.6	-0.9
Dec-21	1,628.7	222.6	158.8	1,643.4	237.3	176.8	1,447,138	105,585	-14.7	-17.0	-14.7	-1.0
Jan-22	1,616.3	215.9	154.0	1,632.1	233.7	175.5	1,425,208	104,858	-17.7	-20.5	-15.8	-1.0
Feb-22	1,618.8	217.5	154.3	1,634.6	235.2	175.8	1,434,780	105,021	-17.7	-20.5	-15.8	-1.0
Mar-22	1,619.6	218.6	154.4	1,635.5	236.3	175.9	1,441,489	105,074	-17.7	-20.5	-15.9	-1.0
Apr-22	1,619.0	219.3	154.3	1,634.8	237.0	175.8	1,445,794	105,033	-17.7	-20.5	-15.8	-1.0
May-22	1,619.6	220.1	154.4	1,635.4	237.8	175.9	1,450,561	105,072	-17.7	-20.5	-15.9	-1.0
Jun-22	1,623.5	220.7	154.8	1,639.4	238.4	176.3	1,453,974	105,329	-17.7	-20.5	-15.9	-1.0
Jul-22	1,628.4	218.7	155.3	1,644.3	236.4	176.9	1,441,771	105,645	-17.7	-20.5	-15.9	-1.0
Aug-22	1,629.8	219.4	155.5	1,645.7	237.1	177.0	1,446,223	105,734	-17.7	-20.5	-16.0	-1.0
Sep-22	1,626.1	218.5	155.1	1,642.0	236.2	176.6	1,440,955	105,496	-17.7	-20.5	-15.9	-1.0
Oct-22	1,629.2	221.0	155.4	1,645.2	238.7	176.9	1,456,089	105,699	-17.7	-20.5	-15.9	-1.0
Nov-22	1,623.8	222.9	154.8	1,639.7	240.6	176.4	1,467,701	105,348	-17.7	-20.5	-15.9	-1.0
Dec-22	1,633.5	222.3	155.9	1,649.4	240.1	177.4	1,464,297	105,973	-17.7	-20.5	-16.0	-1.0
Jan-23	1,619.5	215.6	150.9	1,637.4	236.5	176.1	1,442,327	105,201	-20.8	-24.1	-17.9	-1.2
Feb-23	1,621.8	217.2	151.1	1,639.8	238.1	176.4	1,452,121	105,355	-20.8	-24.1	-18.0	-1.2
Mar-23	1,622.5	218.4	151.2	1,640.5	239.2	176.4	1,458,933	105,399	-20.8	-24.1	-18.0	-1.2
Apr-23	1,621.6	219.1	151.1	1,639.6	239.9	176.3	1,463,296	105,341	-20.8	-24.1	-18.0	-1.2
May-23	1,622.2	219.9	151.1	1,640.2	240.7	176.4	1,468,130	105,378	-20.8	-24.1	-18.0	-1.2
Jun-23	1,626.1	220.4	151.6	1,644.2	241.3	176.8	1,471,584	105,634	-20.8	-24.1	-18.0	-1.2
Jul-23	1,631.0	218.4	152.1	1,649.0	239.3	177.4	1,459,377	105,947	-20.8	-24.1	-18.1	-1.2
Aug-23	1,632.3	219.2	152.2	1,650.4	240.0	177.5	1,463,811	106,036	-20.8	-24.1	-18.1	-1.2
Sep-23	1,628.7	218.3	151.8	1,646.7	239.1	177.1	1,458,435	105,797	-20.8	-24.1	-18.0	-1.2
Oct-23	1,631.7	220.8	152.2	1,649.7	241.6	177.4	1,473,740	105,992	-20.8	-24.1	-18.1	-1.2
Nov-23	1,626.4	222.7	151.6	1,644.4	243.5	176.9	1,485,259	105,649	-20.8	-24.1	-18.0	-1.2
Dec-23	1,636.1	222.1	152.7	1,654.3	242.9	177.9	1,481,666	106,284	-20.8	-24.1	-18.1	-1.2
Jan-24	1,622.2	215.2	147.5	1,642.5	239.3	176.7	1,459,442	105,526	-24.1	-27.8	-20.3	-1.3
Feb-24	1,624.5	216.8	147.8	1,644.9	240.9	176.9	1,469,146	105,681	-24.1	-27.8	-20.4	-1.3
Mar-24	1,625.2	217.9	147.9	1,645.6	242.0	177.0	1,475,847	105,725	-24.1	-27.8	-20.4	-1.3
Apr-24	1,624.5	218.6	147.8	1,644.9	242.7	176.9	1,480,139	105,679	-24.1	-27.8	-20.4	-1.3
May-24	1,624.9	219.4	147.8	1,645.3	243.4	177.0	1,484,727	105,705	-24.1	-27.8	-20.4	-1.3
Jun-24	1,628.7	219.9	148.2	1,649.1	244.0	177.4	1,487,951	105,950	-24.1	-27.8	-20.4	-1.3
Jul-24	1,633.3	217.8	148.7	1,653.7	241.9	177.9	1,475,303	106,248	-24.1	-27.8	-20.5	-1.3
Aug-24	1,634.5	218.5	148.9	1,655.0	242.6	178.0	1,479,613	106,330	-24.1	-27.8	-20.5	-1.3
Sep-24	1,630.7	217.6	148.4	1,651.2	241.7	177.6	1,474,049	106,083	-24.1	-27.8	-20.4	-1.3
Oct-24	1,633.8	220.1	148.8	1,654.2	244.2	177.9	1,489,284	106,281	-24.1	-27.8	-20.5	-1.3
Nov-24	1,628.2	222.0	148.2	1,648.6	246.0	177.3	1,500,716	105,919	-24.1	-27.8	-20.4	-1.3

Dec-24	1,637.7	221.4	149.2	1,658.2	245.4	178.3	1,497,004	106,539	-24.1	-27.8	-20.5	-1.3
Jan-25	1,624.5	214.5	144.1	1,646.0	241.7	177.0	1,474,462	105,753	-27.3	-31.6	-21.5	-1.4
Feb-25	1,626.8	216.1	144.3	1,648.3	243.4	177.3	1,484,324	105,900	-27.3	-31.6	-21.5	-1.4
Mar-25	1,627.4	217.2	144.4	1,648.9	244.5	177.3	1,491,107	105,937	-27.3	-31.6	-21.5	-1.4
Apr-25	1,626.7	217.9	144.3	1,648.2	245.2	177.3	1,495,389	105,892	-27.3	-31.6	-21.5	-1.4
May-25	1,626.8	218.7	144.3	1,648.3	245.9	177.3	1,500,066	105,899	-27.3	-31.6	-21.5	-1.4
Jun-25	1,630.3	219.2	144.7	1,651.8	246.5	177.7	1,503,378	106,126	-27.3	-31.6	-21.6	-1.4
Jul-25	1,634.5	217.1	145.2	1,656.1	244.4	178.1	1,490,625	106,399	-27.3	-31.6	-21.6	-1.4
Aug-25	1,635.5	217.8	145.3	1,657.1	245.1	178.2	1,495,067	106,468	-27.3	-31.6	-21.6	-1.4
Sep-25	1,631.5	216.9	144.9	1,653.1	244.2	177.8	1,489,609	106,209	-27.3	-31.6	-21.6	-1.4
Oct-25	1,634.2	219.5	145.1	1,655.8	246.8	178.1	1,505,315	106,380	-27.3	-31.6	-21.6	-1.4
Nov-25	1,628.6	221.4	144.5	1,650.2	248.7	177.5	1,516,751	106,019	-27.3	-31.6	-21.5	-1.4
Dec-25	1,638.2	220.8	145.6	1,659.8	248.0	178.5	1,512,919	106,640	-27.3	-31.6	-21.7	-1.4
Jan-26	1,625.0	216.7	143.8	1,647.4	244.3	177.2	1,490,039	105,843	-27.6	-31.9	-22.4	-1.4
Feb-26	1,627.4	218.3	144.1	1,649.9	245.9	177.4	1,500,010	106,002	-27.6	-31.9	-22.5	-1.4
Mar-26	1,628.2	219.5	144.2	1,650.7	247.0	177.5	1,506,832	106,052	-27.6	-31.9	-22.5	-1.4
Apr-26	1,627.5	220.1	144.1	1,649.9	247.7	177.5	1,511,070	106,005	-27.6	-31.9	-22.5	-1.4
May-26	1,628.0	220.9	144.2	1,650.5	248.5	177.5	1,515,785	106,041	-27.6	-31.9	-22.5	-1.4
Jun-26	1,631.9	221.5	144.6	1,654.5	249.1	177.9	1,519,125	106,296	-27.6	-31.9	-22.5	-1.4
Jul-26	1,636.6	219.3	145.1	1,659.2	246.9	178.4	1,506,134	106,599	-27.6	-31.9	-22.6	-1.4
Aug-26	1,638.1	220.1	145.2	1,660.7	247.7	178.6	1,510,737	106,697	-27.6	-31.9	-22.6	-1.4
Sep-26	1,634.6	219.2	144.9	1,657.1	246.8	178.2	1,505,400	106,466	-27.6	-31.9	-22.6	-1.4
Oct-26	1,638.4	221.9	145.3	1,661.0	249.5	178.6	1,521,652	106,716	-27.6	-31.9	-22.6	-1.4
Nov-26	1,632.5	223.7	144.6	1,655.1	251.3	178.0	1,533,047	106,334	-27.6	-31.9	-22.5	-1.4
Dec-26	1,641.8	223.1	145.6	1,664.4	250.7	179.0	1,529,087	106,937	-27.6	-31.9	-22.7	-1.5
Jan-27	1,627.6	217.7	142.4	1,651.9	246.9	177.7	1,505,888	106,130	-29.2	-33.7	-24.3	-1.5
Feb-27	1,629.6	219.4	142.6	1,653.9	248.5	177.9	1,515,922	106,258	-29.2	-33.7	-24.3	-1.5
Mar-27	1,629.8	220.5	142.6	1,654.1	249.7	177.9	1,522,739	106,275	-29.2	-33.7	-24.3	-1.5
Apr-27	1,628.8	221.2	142.5	1,653.1	250.4	177.8	1,527,097	106,210	-29.2	-33.7	-24.3	-1.5
May-27	1,628.6	221.9	142.5	1,652.9	251.1	177.8	1,531,614	106,198	-29.2	-33.7	-24.3	-1.5
Jun-27	1,631.8	222.5	142.8	1,656.2	251.6	178.1	1,534,726	106,405	-29.2	-33.7	-24.4	-1.5
Jul-27	1,635.9	220.3	143.3	1,660.3	249.4	178.6	1,521,350	106,672	-29.2	-33.7	-24.4	-1.6
Aug-27	1,636.5	221.0	143.3	1,660.9	250.1	178.6	1,525,745	106,709	-29.2	-33.7	-24.4	-1.6
Sep-27	1,632.0	220.1	142.9	1,656.4	249.2	178.1	1,520,152	106,418	-29.2	-33.7	-24.4	-1.5
Oct-27	1,634.3	222.7	143.1	1,658.7	251.9	178.4	1,536,236	106,569	-29.2	-33.7	-24.4	-1.6
Nov-27	1,628.1	224.6	142.4	1,652.4	253.7	177.7	1,547,568	106,165	-29.2	-33.7	-24.3	-1.5
Dec-27	1,637.0	223.9	143.4	1,661.5	253.1	178.7	1,543,445	106,744	-29.2	-33.7	-24.4	-1.6
Jan-28	1,622.6	219.1	140.9	1,648.6	249.2	177.3	1,519,860	105,918	-30.1	-34.8	-26.0	-1.6
Feb-28	1,624.2	220.8	141.1	1,650.2	250.8	177.5	1,529,974	106,022	-30.1	-34.8	-26.0	-1.6
Mar-28	1,624.1	221.9	141.1	1,650.1	252.0	177.5	1,536,812	106,015	-30.1	-34.8	-26.0	-1.6
Apr-28	1,622.7	222.6	140.9	1,648.7	252.7	177.3	1,541,118	105,923	-30.1	-34.8	-26.0	-1.6
May-28	1,622.2	223.3	140.8	1,648.2	253.4	177.3	1,545,651	105,891	-30.1	-34.8	-26.0	-1.6
Jun-28	1,625.1	223.9	141.2	1,651.1	253.9	177.6	1,548,757	106,079	-30.1	-34.8	-26.0	-1.6
Jul-28	1,628.7	221.6	141.5	1,654.7	251.7	178.0	1,535,174	106,312	-30.1	-34.8	-26.1	-1.6
Aug-28	1,629.1	222.4	141.6	1,655.2	252.4	178.0	1,539,622	106,343	-30.1	-34.8	-26.1	-1.6
Sep-28	1,624.6	221.4	141.1	1,650.6	251.5	177.5	1,534,022	106,046	-30.1	-34.8	-26.0	-1.6
Oct-28	1,626.6	224.1	141.3	1,652.6	254.2	177.7	1,550,284	106,178	-30.1	-34.8	-26.0	-1.6
Nov-28	1,620.5	226.0	140.7	1,646.5	256.0	177.1	1,561,714	105,782	-30.1	-34.8	-25.9	-1.6
Dec-28	1,629.5	225.3	141.6	1,655.5	255.4	178.1	1,557,576	106,365	-30.1	-34.8	-26.1	-1.6
Jan-29	1,615.7	220.9	139.6	1,642.8	251.5	176.7	1,533,885	105,547	-30.6	-35.4	-27.1	-1.7
Feb-29	1,617.3	222.5	139.7	1,644.5	253.2	176.9	1,544,070	105,656	-30.6	-35.4	-27.2	-1.7
Mar-29	1,617.3	223.7	139.7	1,644.5	254.3	176.9	1,550,916	105,655	-30.6	-35.4	-27.2	-1.7
Apr-29	1,616.0	224.3	139.6	1,643.2	255.0	176.7	1,555,078	105,569	-30.6	-35.4	-27.1	-1.7
May-29	1,615.6	225.1	139.6	1,642.8	255.7	176.7	1,559,676	105,544	-30.6	-35.4	-27.1	-1.7
Jun-29	1,618.6	225.6	139.9	1,645.8	256.2	177.0	1,562,846	105,737	-30.6	-35.4	-27.2	-1.7
Jul-29	1,622.4	223.4	140.3	1,649.6	254.0	177.4	1,549,201	105,985	-30.6	-35.4	-27.3	-1.7
Aug-29	1,622.8	224.1	140.3	1,650.1	254.7	177.5	1,553,695	106,013	-30.6	-35.4	-27.3	-1.7
Sep-29	1,618.2	223.2	139.8	1,645.4	253.8	177.0	1,548,081	105,715	-30.6	-35.4	-27.2	-1.7
Oct-29	1,620.2	225.9	140.1	1,647.4	256.5	177.2	1,564,482	105,845	-30.6	-35.4	-27.2	-1.7
Nov-29	1,614.1	227.8	139.4	1,641.2	258.4	176.5	1,576,035	105,446	-30.6	-35.4	-27.1	-1.7
Dec-29	1,623.0	227.1	140.4	1,650.2	257.7	177.5	1,571,879	106,024	-30.6	-35.4	-27.3	-1.7
Jan-30	1,609.5	222.2	138.0	1,637.9	253.6	176.2	1,547,086	105,230	-31.5	-36.4	-28.4	-1.8
Feb-30	1,610.8	224.0	138.1	1,639.2	255.5	176.3	1,558,359	105,312	-31.5	-36.4	-28.4	-1.8
Mar-30	1,610.3	225.3	138.1	1,638.7	256.8	176.2	1,566,272	105,284	-31.5	-36.4	-28.4	-1.8
Apr-30	1,607.9	226.4	137.8	1,636.2	257.9	176.0	1,573,001	105,125	-31.5	-36.4	-28.3	-1.8
May-30	1,607.8	227.1	137.8	1,636.1	258.6	176.0	1,577,105	105,118	-31.5	-36.4	-28.3	-1.8
Jun-30	1,611.0	227.5	138.1	1,639.4	259.0	176.3	1,579,773	105,329	-31.5	-36.4	-28.4	-1.8
Jul-30	1,615.2	225.2	138.6	1,643.6	256.6	176.8	1,565,205	105,600	-31.5	-36.4	-28.5	-1.8
Aug-30	1,615.8	225.8	138.7	1,644.3	257.3	176.8	1,569,357	105,642	-31.5	-36.4	-28.5	-1.8
Sep-30	1,611.5	224.8	138.2	1,639.9	256.3	176.4	1,563,359	105,358	-31.5	-36.4	-28.4	-1.8
Oct-30	1,613.9	227.4	138.5	1,642.3	258.9	176.6	1,579,181	105,517	-31.5	-36.4	-28.4	-1.8
Nov-30	1,607.8	229.4	137.8	1,636.1	260.8	176.0	1,590,830	105,117	-31.5	-36.4	-28.3	-1.8
Dec-30	1,616.5	228.7	138.7	1,645.0	260.1	176.9	1,586,690	105,690	-31.5	-36.4	-28.5	-1.8
Jan-31	1,602.2	224.3	136.7	1,632.2	256.2	175.5	1,562,752	104,862	-31.9	-37.0	-30.0	-1.9
Feb-31	1,603.8	226.0	136.9	1,633.9	257.9	175.7	1,573,260	104,973	-31.9	-37.0	-30.0	-1.9
Mar-31	1,603.9	227.1	136.9	1,633.9	259.1	175.7	1,580,293	104,974	-31.9	-37.0	-30.0	-1.9
Apr-31	1,602.6	227.8	136.8	1,632.6	259.8	175.6	1,584,573	104,889	-31.9	-37.0	-30.0	-1.9
May-31	1,602.2	228.6	136.7	1,632.2	260.6	175.5	1,589,236	104,867	-31.9	-37.0	-30.0	-1.9
Jun-31	1,605.2	229.1	137.1	1,635.3	261.1	175.9	1,592,480	105,062	-31.9	-37.0	-30.1	-1.9
Jul-31	1,608.9	226.9	137.5	1,639.0	258.8	176.3	1,578,714	105,300	-31.9	-37.0	-30.1	-1.9
Aug-31	1,609.5	227.6	137.5	1,639.6	259.6	176.3	1,583,203	105,342	-31.9	-37.0	-30.1	-1.9
Sep-31	1,605.2	226.7	137.1	1,635.2	258.6	175.9	1,577,505	105,059	-31.9	-37.0	-30.0	-1.9
Oct-31	1,607.6	229.4	137.3	1,637.7	261.4	176.1	1,594,192	105,217	-31.9	-37.0	-30.1	-1.9
Nov-31	1,601.5	231.3	136.7	1,631.5	263.3	175.5	1,605,878	104,819	-31.9	-37.0	-30.0	-1.9
Dec-31	1,610.2	230.6	137.6	1,640.4	262.6	176.4	1,601,652	105,391	-31.9	-37.0	-30.1	-1.9
Jan-32	1,596.4	226.5	136.0	1,627.6	258.6	175.1	1,577,324	104,571	-32.1	-37.2	-31.2	-1.9
Feb-32	1,598.0	228.2	136.1	1,629.3	260.4	175.2	1,588,046	104,678	-32.1	-37.2	-31.2	-1.9
Mar-32	1,598.0	229.4	136.1	1,629.2	261.5	175.2	1,595,229	104,675	-32.1	-37.2	-31.2	-1.9
Apr-32	1,596.6	230.1	136.0	1,627.8	262.3	175.1	1,599,650	104,584	-32.1	-37.2	-31.2	-1.9

May-32	1,596.3	230.9	135.9	1,627.5	263.0	175.0	1,604,368	104,562	-32.1	-37.2	-31.2	-1.9
Jun-32	1,599.2	231.4	136.3	1,630.5	263.6	175.4	1,607,651	104,756	-32.1	-37.2	-31.3	-1.9
Jul-32	1,603.0	229.2	136.7	1,634.4	261.3	175.8	1,593,701	105,006	-32.1	-37.2	-31.3	-1.9
Aug-32	1,603.5	229.9	136.7	1,634.8	262.0	175.8	1,598,306	105,034	-32.1	-37.2	-31.4	-1.9
Sep-32	1,599.0	229.0	136.2	1,630.2	261.1	175.3	1,592,684	104,739	-32.1	-37.2	-31.3	-1.9
Oct-32	1,600.8	231.8	136.4	1,632.1	263.9	175.5	1,609,675	104,856	-32.1	-37.2	-31.3	-1.9
Nov-32	1,594.9	233.7	135.8	1,626.1	265.9	174.9	1,621,575	104,473	-32.1	-37.2	-31.2	-1.9
Dec-32	1,603.8	233.0	136.8	1,635.2	265.2	175.9	1,617,373	105,056	-32.1	-37.2	-31.4	-1.9
Jan-33	1,590.1	228.9	135.2	1,622.9	261.2	174.5	1,592,884	104,265	-32.3	-37.3	-32.8	-2.0
Feb-33	1,591.7	230.7	135.4	1,624.5	262.9	174.7	1,603,784	104,372	-32.3	-37.3	-32.8	-2.0
Mar-33	1,591.7	231.9	135.4	1,624.5	264.1	174.7	1,611,027	104,371	-32.3	-37.3	-32.8	-2.0
Apr-33	1,590.3	232.6	135.3	1,623.1	264.9	174.6	1,615,475	104,282	-32.3	-37.3	-32.8	-2.0
May-33	1,590.0	233.4	135.2	1,622.8	265.6	174.5	1,620,157	104,261	-32.3	-37.3	-32.8	-2.0
Jun-33	1,593.0	233.9	135.5	1,625.8	266.2	174.9	1,623,406	104,457	-32.3	-37.3	-32.8	-2.0
Jul-33	1,596.7	231.6	135.9	1,629.6	263.8	175.3	1,609,272	104,701	-32.3	-37.3	-32.9	-2.0
Aug-33	1,597.3	232.3	136.0	1,630.2	264.6	175.3	1,613,836	104,739	-32.3	-37.3	-32.9	-2.0
Sep-33	1,593.0	231.4	135.5	1,625.8	263.7	174.9	1,608,144	104,454	-32.3	-37.3	-32.8	-2.0
Oct-33	1,595.2	234.2	135.8	1,628.0	266.5	175.1	1,625,269	104,598	-32.3	-37.3	-32.9	-2.0
Nov-33	1,589.2	236.2	135.1	1,622.0	268.4	174.4	1,637,224	104,209	-32.3	-37.3	-32.7	-2.0
Dec-33	1,598.0	235.5	136.1	1,631.0	267.7	175.4	1,632,932	104,786	-32.3	-37.3	-32.9	-2.0
Jan-34	1,584.4	231.4	134.7	1,618.5	263.6	174.1	1,608,086	103,985	-32.3	-37.3	-34.1	-2.1
Feb-34	1,586.0	233.2	134.9	1,620.2	265.5	174.3	1,619,142	104,092	-32.3	-37.3	-34.2	-2.1
Mar-34	1,586.0	234.4	134.9	1,620.1	266.7	174.2	1,626,462	104,091	-32.3	-37.3	-34.2	-2.1
Apr-34	1,584.8	235.1	134.7	1,619.0	267.4	174.1	1,630,954	104,016	-32.3	-37.3	-34.1	-2.1
May-34	1,584.3	235.9	134.7	1,618.4	268.2	174.1	1,635,628	103,980	-32.3	-37.3	-34.1	-2.1
Jun-34	1,587.0	236.4	135.0	1,621.2	268.7	174.4	1,638,878	104,160	-32.3	-37.3	-34.2	-2.1
Jul-34	1,590.4	234.1	135.3	1,624.7	266.4	174.7	1,624,639	104,381	-32.3	-37.3	-34.3	-2.1
Aug-34	1,590.8	234.9	135.4	1,625.1	267.1	174.8	1,629,164	104,410	-32.3	-37.3	-34.3	-2.1
Sep-34	1,586.4	233.9	134.9	1,620.6	266.2	174.3	1,623,402	104,117	-32.3	-37.3	-34.2	-2.1
Oct-34	1,588.3	236.7	135.1	1,622.5	269.0	174.5	1,640,551	104,245	-32.3	-37.3	-34.2	-2.1
Nov-34	1,582.4	238.7	134.5	1,616.5	271.0	173.9	1,652,646	103,855	-32.3	-37.3	-34.1	-2.1
Dec-34	1,591.1	238.0	135.4	1,625.4	270.3	174.8	1,648,359	104,426	-32.3	-37.3	-34.3	-2.1
Jan-35	1,576.4	233.9	134.0	1,612.7	266.2	173.4	1,623,452	103,612	-32.3	-37.3	-36.3	-2.2
Feb-35	1,578.1	235.7	134.1	1,614.5	268.0	173.6	1,634,589	103,727	-32.3	-37.3	-36.3	-2.2
Mar-35	1,578.3	236.9	134.2	1,614.6	269.2	173.7	1,641,899	103,735	-32.3	-37.3	-36.3	-2.2
Apr-35	1,577.2	237.7	134.0	1,613.5	269.9	173.5	1,646,303	103,663	-32.3	-37.3	-36.3	-2.2
May-35	1,576.9	238.4	134.0	1,613.2	270.7	173.5	1,650,943	103,642	-32.3	-37.3	-36.3	-2.2
Jun-35	1,579.8	239.0	134.3	1,616.2	271.2	173.8	1,654,177	103,837	-32.3	-37.3	-36.4	-2.2
Jul-35	1,583.4	236.6	134.7	1,619.9	268.8	174.2	1,639,770	104,072	-32.3	-37.3	-36.5	-2.2
Aug-35	1,584.1	237.3	134.8	1,620.5	269.6	174.3	1,644,329	104,116	-32.3	-37.3	-36.5	-2.2
Sep-35	1,579.9	236.4	134.3	1,616.2	268.6	173.8	1,638,534	103,839	-32.3	-37.3	-36.4	-2.2
Oct-35	1,581.8	239.2	134.5	1,618.2	271.5	174.0	1,655,883	103,968	-32.3	-37.3	-36.4	-2.2
Nov-35	1,576.3	241.2	133.9	1,612.6	273.5	173.4	1,668,028	103,608	-32.3	-37.3	-36.3	-2.2
Dec-35	1,585.5	240.5	134.9	1,622.0	272.8	174.4	1,663,700	104,208	-32.3	-37.3	-36.5	-2.2

2016 CALIFORNIA GAS REPORT

NATURAL GAS VEHICLES
JULY 2016

SDG&E 2016 CGR Forecast		
Throughput : based on last 5 years average throughput growth		
Station: based on last 5 years average statin growth		
Year	MDTherms	Station Growth
2015	1,618	34
2020	2,239	40
2025	2,861	46
2030	3,483	52
2035	4,104	58
Average of 1.2 million therms per year over the next 20 years.		

SDG&E NGV DELIVERIES: JAN 2008 - DEC 2011

Data Source: SDG&E Data Warehouse / Run Date = Mar. 5, 2015

Month	Bundled Billed Residential GNGVR Total Therms	Bundled Billed Commercial GNGV Uncompressed Therms	Bundled Billed Commercial GNGV SDG&E Compressed Therms**	SDG&E Company Use Non-Billed Commercial SDG&E Fleet Usage Therms	Transport Only Billed Commercial GTCAGNGV Total Therms	All NGV Categories Monthly Therms	All NGV Categories Annual Therms
200801	136	820,468	7,745	19,570		847,919	
200802	156	856,801	7,298	20,787		885,042	
200803	303	806,032	6,510	20,128		832,973	
200804	206	855,907	7,028	22,946		886,087	
200805	171	883,385	7,480	16,198		907,234	
200806	226	875,754	7,453	20,607		904,040	
200807	162	862,942	7,453	19,830		890,387	
200808	330	886,355	8,579	20,706		915,970	
200809	486	896,028	9,318	24,395		930,227	
200810	525	868,940	10,382	19,847		899,694	
200811	748	876,220	11,833	24,621		913,422	
200812	1,280	812,302	9,630	19,711		842,923	10,655,918
200901	2,019	845,437	8,290	17,095		872,841	
200902	1,617	888,234	6,849	21,977		918,677	
200903	1,794	816,933	6,925	13,442		839,094	
200904	1,294	925,472	8,159	9,219		944,144	
200905	1,050	873,420	7,839	8,525		890,834	
200906	973	889,599	7,673	9,092		907,337	
200907	830	212,340	9,092	9,444	652,230	883,936	
200908	698	212,298	9,326	12,981	677,165	912,468	
200909	796	234,443	8,796	18,371	705,709	968,115	
200910	753	250,923	10,763	20,939	653,536	936,914	
200911	1,017	250,736	9,909	19,282	664,307	945,251	
200912	1,644	221,916	9,271	17,678	619,019	869,528	10,889,139
201001	1,773	221,081	11,599	21,230	612,171	867,854	
201002	2,038	234,406	9,642	22,363	634,602	903,051	
201003	1,754	219,874	12,653	20,493	568,116	822,890	
201004	1,199	234,782	15,071	23,946	648,718	923,716	
201005	980	231,053	12,707	22,963	578,020	845,723	
201006	861	228,524	11,324	22,549	613,465	876,723	
201007	758	205,254	14,567	24,682	602,318	847,579	
201008	756	209,425	11,674	20,844	600,968	843,667	
201009	1,087	245,705	11,933	22,280	645,781	926,786	
201010	769	236,983	13,225	22,716	612,537	886,230	
201011	1,035	248,292	13,098	22,913	619,786	905,124	
201012	1,802	240,000	13,193	20,757	658,918	934,670	10,584,013
201101	2,029	237,981	11,617	20,380	557,000	829,007	
201102	2,130	260,374	12,549	20,808	630,720	926,581	
201103	1,787	268,289	11,629	22,511	560,952	865,168	
201104	1,273	271,943	15,577	24,791	615,004	928,588	
201105	1,049	268,075	13,439	20,752	587,995	891,310	
201106	1,029	275,858	16,521	19,418	636,316	949,142	
201107	990	255,687	17,952	20,613	625,411	920,653	
201108	848	257,524	20,285	22,958	657,366	958,981	
201109	1,002	300,693	20,696	24,949	675,405	1,022,745	
201110	839	288,526	22,811	28,363	625,385	965,924	
201111	1,144	305,901	23,362	29,225	682,143	1,041,775	
201112	1,762	303,658	25,358	26,807	609,274	966,859	11,266,733

****NOTE: Compressed Therms represent SDG&E Kearny NGV Station, SDG&E Miramar NGV Station & SDG&E North Coast NGV Station.**

SDG&E NGV DELIVERIES: JAN 2012 - DEC 2014
Data Source: SDG&E Data Warehouse / Run Date = Feb. 11, 2015

Month	Bundled Billed Residential GNGVR Total Therms	Bundled Billed Commercial GNGV Uncompressed Therms	Bundled Billed Commercial GNGV SDG&E Compressed Therms**	SDG&E Company Use Non-Billed Commercial SDG&E Fleet Usage Therms	Transport Only Billed Commercial GTCAGNGV Total Therms	All NGV Categories Monthly Therms	All NGV Categories Annual Therms
201201	1,911	301,364	25,526	30,621	651,853	1,011,275	
201202	1,650	312,235	24,770	33,622	669,474	1,041,751	
201203	1,451	324,249	27,497	32,879	622,830	1,008,906	
201204	1,295	338,412	30,985	38,336	664,465	1,073,493	
201205	970	342,527	28,659	36,569	652,036	1,060,761	
201206	789	325,644	32,312	36,161	605,320	1,000,226	
201207	786	307,272	28,837	36,518	656,100	1,029,513	
201208	623	313,714	19,730	40,875	696,598	1,071,540	
201209	614	347,230	71,429	48,397	708,753	1,176,423	
201210	604	366,861	39,498	60,352	708,633	1,175,948	
201211	712	382,494	42,876	48,867	731,425	1,206,374	
201212	1,188	384,421	38,748	42,760	660,069	1,127,186	12,983,396
201301	2,041	392,199	40,830	44,252	667,802	1,147,124	
201302	1,650	399,709	40,169	46,299	684,433	1,172,260	
201303	1,436	389,203	40,685	44,835	645,585	1,121,744	
201304	873	336,213	45,074	52,845	703,238	1,138,243	
201305	998	379,756	49,487	51,912	728,894	1,211,047	
201306	758	365,059	49,834	56,673	730,381	1,202,705	
201307	907	342,770	47,568	54,223	678,185	1,123,653	
201308	966	348,869	55,432	55,466	815,761	1,276,494	
201309	800	373,270	48,232	40,609	748,467	1,211,378	
201310	1,010	361,986	50,091	64,636	751,875	1,229,598	
201311	808	381,676	50,815	54,370	774,458	1,262,127	
201312	1,534	360,410	46,160	47,869	697,548	1,153,521	14,249,894
201401	2,318	365,597	43,926	48,001	711,851	1,171,693	
201402	1,790	372,198	46,933	50,333	721,790	1,193,044	
201403	1,318	375,039	45,137	50,343	673,686	1,145,523	
201404	1,003	372,271	50,908	54,759	747,607	1,226,548	
201405	721	397,568	49,911	55,231	749,371	1,252,802	
201406	651	395,604	49,425	55,738	763,060	1,264,478	
201407	642	376,914	56,339	57,096	780,994	1,271,985	
201408	785	394,243	56,178	63,370	832,658	1,347,234	
201409	673	413,300	56,684	63,750	832,004	1,366,411	
201410	536	412,182	60,419	61,513	862,174	1,396,824	
201411	709	440,594	56,303	60,161	891,144	1,448,911	
201412	1,829	409,474	45,053	49,929	823,981	1,330,266	15,415,719

****NOTE: Compressed Therms represent SDG&E Kearny NGV Station, SDG&E Miramar NGV Station & SDG&E North Coast NGV Station.**

SDG&E NGV DELIVERIES: JAN 2015 - DEC 2015
Data Source: SDG&E Data Warehouse / Run Date = Jan. 8, 2015

Month	Bundled Billed Residential GNGVR Total Therms	Bundled Billed Commercial GNGV Uncompressed Therms	Bundled Billed Commercial GNGV SDG&E Compressed Therms**	SDG&E Company Use Non-Billed Commercial SDG&E Fleet Usage Therms	Transport Only Billed Commercial GTCAGNGV Total Therms	All NGV Categories Monthly Therms	All NGV Categories Annual Therms
201501	2,581	442,379	47,175	50,624	849,064	1,391,823	
201502	1,363	415,256	43,222	46,646	830,929	1,337,416	
201503	1,174	355,570	36,784	40,540	824,947	1,259,015	
201504	749	380,414	44,548	49,080	946,655	1,421,446	
201505	745	371,827	41,461	45,159	930,349	1,389,541	
201506	578	362,799	41,391	46,581	902,126	1,353,475	
201507	502	376,841	49,812	50,675	909,549	1,387,379	
201508	437	389,826	49,497	54,240	944,293	1,438,293	
201509	376	411,373	52,201	54,605	939,585	1,458,140	
201510	424	424,972	44,279	48,964	936,525	1,455,164	
201511	594	452,744	41,062	44,371	946,195	1,484,966	
201512	1,080	417,179	33,622	35,961	888,361	1,376,203	16,752,861
		4,801,180			10,848,578		

****NOTE: Compressed Therms represent SDG&E Kearny NGV Station, SDG&E Miramar NGV Station & SDG&E North Coast NGV Station.**

		Throughput (therms)				Annual
Year	Month	SoCalGas	SDGE	SoCalGas Time	Monthly Total	
2002		54,906,491	6,691,891	328,540		
2003		58,608,407	7,915,970	360,960		
2004		65,262,687	8,207,502	531,400		
2005		71,464,104	9,078,242	573,460		81,115,806
2006		78,116,129	10,036,511	436,400		88,589,040
2007		85,047,437	9,892,976	340,010		95,280,423
2008		94,320,181	10,422,634	448,540		105,191,355
2009		98,195,141	10,614,907	445,080		109,255,128
201001	Jan	7,641,701	905,700	34,145	8,581,546	
201002	Feb	7,441,630	831,130	30,934	8,303,694	
201003	Mar	8,629,203	918,763	35,260	9,583,226	
201004	Apr	8,312,150	873,464	31,651	9,217,265	
201005	May	8,209,632	942,119	33,269	9,185,020	
201006	Jun	8,411,472	909,062	34,224	9,354,758	
201007	Jul	8,180,948	938,332	31,477	9,150,757	
201008	Aug	8,447,261	981,673	35,329	9,464,263	
201009	Sep	8,433,877	949,754	34,812	9,418,443	
201010	Oct	8,590,294	969,105	33,143	9,592,542	
201011	Nov	8,177,541	923,795	31,777	9,133,113	
201012	Dec	8,209,390	991,002	27,605	9,227,997	110,212,624
2010 Total		98,685,099	11,133,899	393,626	110,212,624	96,567,958
201101	Jan	8,350,621	905,700	31,806	9,288,127	
201102	Feb	7,759,556	831,130	27,917	8,618,603	
201103	Mar	8,971,185	918,763	33,524	9,923,472	
201104	Apr	8,510,705	873,464	30,124	9,414,293	
201105	May	8,793,812	942,119	31,911	9,767,842	
201106	Jun	8,642,492	909,062	30,437	9,581,991	
201107	Jul	8,337,813	938,332	28,868	9,305,013	
201108	Aug	8,965,584	981,673	32,937	9,980,194	
201109	Sep	8,904,754	949,754	27,535	9,882,043	
201110	Oct	8,896,567	969,105	31,052	9,896,724	
201111	Nov	8,384,160	923,795	29,990	9,337,945	
201112	Dec	8,458,014	991,002	30,043	9,479,059	114,475,306
2011 Total		102,975,263	11,133,899	366,144	114,475,306	100,722,619

Years	SoCalGas(therms)	SDG&E (therms)		
2002	55,235,031	6,691,891	55,235	6,692
2003	58,969,367	7,915,970	58,969	7,916
2004	65,794,087	8,207,502	65,794	8,208
2005	72,037,564	9,078,242	72,038	9,078
2006	78,552,529	10,036,511	78,553	10,037
2007	85,387,447	9,892,976	85,387	9,893
2008	94,768,721	10,422,634	94,769	10,423
2009	98,640,221	10,614,907	98,640	10,615
2010	99,078,725	11,133,899	99,079	11,134
2011	103,341,407	11,133,899	103,341	11,134
2012	109,780,376	12,459,473	109,780	12,459
2013	116,936,694	13,655,633	116,937	13,656
2014	125,647,734	15,073,755	125,648	15,074
2015	132,138,995	16,526,744	132,139	16,527

Years	SoCalGas(Mtherms)	SDG&E (Mtherms)
2002	55,235	6,692
2003	58,969	7,916
2004	65,794	8,208
2005	72,038	9,078
2006	78,553	10,037
2007	85,387	9,893
2008	94,769	10,423
2009	98,640	10,615
2010	99,079	11,134
2011	103,341	11,134
2012	109,780	12,459
2013	116,937	13,656
2014	125,648	15,074
2015	132,139	16,527

4,154,661

		Throughput (therms)				Annual					
Year	Month	SoCalGas	SDGE	SoCalGas Time	Monthly Total			Years	SoCalGas(therms)	SDG&E (therms)	
201201	Jan	8,589,523	998,285	31,956	9,619,764						
201202	Feb	8,498,316	963,830	32,001	9,494,147						
201203	Mar	9,199,399	1,046,644	36,133	10,282,176						
201204	Apr	8,815,234	1,021,979	35,923	9,873,136						
201205	May	9,546,827	941,301	41,510	10,529,638						
201206	Jun	8,971,935	995,960	37,085	10,004,980						
201207	Jul	8,911,715	1,045,715	42,114	9,999,544						
201208	Aug	9,808,347	1,090,213	42,231	10,940,791						
201209	Sep	9,180,184	1,120,524	39,000	10,339,708						
201210	Oct	10,039,244	1,125,154	45,865	11,210,263						
201211	Nov	9,069,706	1,015,589	42,526	10,127,821						
201212	Dec	8,686,250	1,094,279	37,352	9,817,881	122,239,849					
2012 Total		109,316,680	12,459,473	463,696	122,239,849		106,998,417		6,275,798		
201301	Jan	9,416,549	1,131,733	44,427	10,592,709						
201302	Feb	8,725,712	1,082,865	34,000	9,842,577						
201303	Mar	9,446,007	1,099,917	32,462	10,578,386						
201304	Apr	9,725,966	1,125,755	36,178	10,887,899						
201305	May	10,129,849	1,169,450	36,620	11,335,919						
201306	Jun	9,230,664	1,077,287	33,675	10,341,626						
201307	Jul	9,832,355	1,210,358	34,131	11,076,844						
201308	Aug	10,132,051	1,147,680	40,126	11,319,857						
201309	Sep	9,965,324	1,190,992	40,534	11,196,850						
201310	Oct	10,713,168	1,202,344	46,234	11,961,746						
201311	Nov	9,517,507	1,097,164	40,185	10,654,856						
201312	Dec	9,642,548	1,120,088	40,422	10,803,058	130,592,327					
2013 Total		116,477,700	13,655,633	458,994	130,592,327		113,973,386	3643965.454	6,974,969		
201401	Jan	9,845,564	1,144,242	49,108	11,038,914						
201402	Feb	9,243,900	1,083,233	44,868	10,372,001						
201403	Mar	10,470,716	1,194,597	46,683	11,711,996						
201404	Apr	10,431,379	1,172,980	47,866	11,652,225						
201405	May	10,810,866	1,170,514	45,947	12,027,327						
201406	Jun	10,337,666	1,188,336	49,456	11,575,458						
201407	Jul	10,554,856	1,208,826	50,515	11,814,197						
201408	Aug	10,643,719	1,298,750	51,870	11,994,339						
201409	Sep	11,046,590	1,828,140	56,072	12,930,802						
201410	Oct	11,258,213	1,326,414	54,224	12,638,851						
201411	Nov	10,043,291	1,234,247	57,516	11,335,054						
201412	Dec	10,347,933	1,223,476	58,916	11,630,325	140,721,489					
2014 Total		125,034,693	15,073,755	613,041	140,721,489		122,463,678		8,490,292		
201501	Jan	10,451,342	1,279,880	63,020	11,794,242						
201502	Feb	9,908,781	1,244,039	55,378	11,208,198						
201503	Mar	11,311,757	1,368,293	63,186	12,743,236						
201504	Apr	10,939,136	1,360,936	56,133	12,356,205						
201505	May	10,812,102	1,481,514	55,014	12,348,630						
201506	Jun	10,858,789	1,351,178	51,867	12,261,834						
201507	Jul	10,962,835	1,384,682	50,478	12,397,995						
201508	Aug	11,488,179	1,422,170	59,272	12,969,621						
201509	Sep	11,487,449	1,421,113	66,216	12,974,778						
201510	Oct	11,693,684	1,441,608	77,394	13,212,686						
201511	Nov	10,668,243	1,396,688	95,759	12,160,690						
201512	Dec	10,787,316	1,374,643	75,665	12,237,624	148,665,739					
2015 Total		131,369,613	16,526,744	769,382	148,665,739		128,790,443	35,260,902	6,326,765	644.45	
						132,138,995				Average yearly change over last 5 years (Mdtherms)	

Table 1 - SDG&E Volume Forecast Growth

Years	Total Volume MDtherms	Yearly % change	CAGR (2011-2015)	CAGR (2006-2015)		
2015	1653	10%	0.107	0.05698	1652.674	124.3349
2014	1507	10%			1507.376	
2013	1365	9%	0.055			
2012	1247	13%			0.509324	
2011	1101	7%				
2010	1031	-3%				
2009	1061	2%				
2008	1042	n/a				
2007	989				989.2976	
2006	1004				1003.651	

SDG&E Historical NGV Station Count

Year	Station count	CAGR (2008 - 2015)	
2015	34	0.03348021	1.2
2014	30		
2013	31		
2012	30		
2011	29		
2010	28		
2009	26		
2008	27		

SDG&E NGV Station Count Forecast increase

Year	Station Forecast	
2015	34	0
2016	35	1
2017	36	1
2018	38	1
2019	39	1
2020	40	1
2021	41	1
2022	42	1
2023	44	1
2024	45	1
2025	46	1
2026	47	1
2027	48	1
2028	50	1
2029	51	1
2030	52	1
2031	53	1
2032	54	1
2033	56	1
2034	57	1
2035	58	

2016 CALIFORNIA GAS REPORT

ENERGY EFFICIENCY
JULY 2016

San Diego Gas and Electric
2016 California Gas Report
Energy Efficiency

	Reported 2015 Therms	Forecast 2016 Therms	Forecast 2017 Therms	Forecast 2018 Therms	Forecast 2019 Therms	Forecast 2020 Therms	Forecast 2021 Therms	Forecast 2022 Therms	Forecast 2023 Therms	Forecast 2024 Therms	Forecast 2025 Therms	Forecast 2026 Therms	Forecast 2027 Therms	Forecast 2028 Therms	Forecast 2029 Therms
SDG&E Energy Efficiency Programs TOTAL	**1,521,847**														
PUC Goal	**2,500,000**	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000
Difference	**(978,153)**														

SDG&E Sector Savings *	**2015 Therms**
Core Residential	(140,327)
Core Commercial	1,278,535
Core Industrial	37,673
Noncore Commercial	174,346
Noncore Industrial retail	171,620
NonCore Industrial refinery	0
Total	**1,521,847**

***Proportionally scale savings down or up to match PUC Goals for 2013 - 2015**

SDG&E Sector Savings Annual Savings mdth	**2015 mdth**	**2016 mdth**	**2017 mdth**	**2018 mdth**	**2019 mdth**	**2020 mdth**	**2021 mdth**	**2022 mdth**	**2023 mdth**	**2024 mdth**	**2025 mdth**	**2026 mdth**	**2027 mdth**	**2028 mdth**	**2029 mdth**
Residential	(23)	(30)	(30)	(30)	(30)	(30)	(30)	(30)	(30)	(30)	(30)	(30)	(30)	(30)	(30)
Core Commercial	210	269	269	269	269	269	269	269	269	269	269	269	269	269	269
Core Industrial	6	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Noncore Commercial	29	37	37	37	37	37	37	37	37	37	37	37	37	37	37
Noncore Industrial	28	36	36	36	36	36	36	36	36	36	36	36	36	36	36
Total Annual Load	**250**	**320**	**320**	**320**	**320**	**320**	**320**	**320**	**320**	**320**	**320**	**320**	**320**	**320**	**320**

SDG&E Sector Savings Cumulative Savings mdth	**2015 mdth**	**2016 mdth**	**2017 mdth**	**2018 mdth**	**2019 mdth**	**2020 mdth**	**2021 mdth**	**2022 mdth**	**2023 mdth**	**2024 mdth**	**2025 mdth**	**2026 mdth**	**2027 mdth**	**2028 mdth**	**2029 mdth**
Residential	-	(30)	(59)	(89)	(118)	(148)	(177)	(207)	(236)	(266)	(272)	(272)	(272)	(272)	(272)
Core Commercial	-	269	538	807	1,075	1,344	1,613	1,882	2,151	2,420	2,478	2,478	2,478	2,478	2,478
Core Industrial	-	8	16	24	32	40	48	55	63	71	73	73	73	73	73
Noncore Commercial	-	37	73	110	147	183	220	257	293	330	338	338	338	338	338
Noncore Industrial	-	36	72	108	144	180	217	253	289	325	333	333	333	333	333
Total Cumulative Load	**0**	**320**	**640**	**960**	**1280**	**1600**	**1920**	**2240**	**2560**	**2880**	**2950**	**2950**	**2950**	**2950**	**2950**

	1.03969														
SDG&E Sector Savings Cumulative Savings MMCF	**2015 mmcf**	**2016 mmcf**	**2017 mmcf**	**2018 mmcf**	**2019 mmcf**	**2020 mmcf**	**2021 mmcf**	**2022 mmcf**	**2023 mmcf**	**2024 mmcf**	**2025 mmcf**	**2026 mmcf**	**2027 mmcf**	**2028 mmcf**	**2029 mmcf**
Residential	-	(28)	(57)	(85)	(114)	(142)	(170)	(199)	(227)	(255)	(262)	(262)	(262)	(262)	(262)
Core Commercial	-	259	517	776	1,034	1,293	1,551	1,810	2,069	2,327	2,384	2,384	2,384	2,384	2,384
Core Industrial	-	8	15	23	30	38	46	53	61	69	70	70	70	70	70
Noncore Commercial	-	35	71	106	141	176	212	247	282	317	325	325	325	325	325
Noncore Industrial	-	35	69	104	139	174	208	243	278	312	320	320	320	320	320
Total Cumulative Load	**-**	**308**	**616**	**923**	**1,231**	**1,539**	**1,847**	**2,154**	**2,462**	**2,770**	**2,837**	**2,837**	**2,837**	**2,837**	**2,837**

Forecast Year ====>	1	2	3	4	5	6	7	8	9	10	11	12	13	14

NOTES:
2015 Reported data is preliminary. Final reported data will be filed in the EE Annual Report on May 2, 2016.
Median Life Cycle of 10 years is assumed.

	Forecast 2030 Therms	Forecast 2031 Therms	Forecast 2032 Therms	Forecast 2033 Therms	Forecast 2034 Therms	Forecast 2035 Therms	Forecast 2036 Therms	Forecast 2037 Therms	Forecast 2038 Therms	Forecast 2039 Therms	Forecast 2040 Therms	Forecast 2041 Therms	Forecast 2042 Therms	Forecast 2043 Therms	Forecast 2044 Therms	Forecast 2045 Therms
SDG&E Energy Efficiency Programs TOTAL																
PUC Goal	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000
Difference																

SDG&E Sector Savings *

Core Residential
Core Commercial
Core Industrial
Noncore Commercial
Noncore Industrial retail
NonCore Industrial refinery
Total
***Proportionally scale savings down or up to match PUC**

SDG&E Sector Savings Annual Savings mdth	**2030 mdth**	**2031 mdth**	**2032 mdth**	**2033 mdth**	**2034 mdth**	**2035 mdth**	**2036 mdth**	**2037 mdth**	**2038 mdth**	**2039 mdth**	**2040 mdth**	**2041 mdth**	**2042 mdth**	**2043 mdth**	**2044 mdth**	**2045 mdth**
Residential	(30)	(30)	(30)	(30)	(30)	(30)	(30)	(30)	(30)	(30)	(30)	(30)	(30)	(30)	(30)	(30)
Core Commercial	269	269	269	269	269	269	269	269	269	269	269	269	269	269	269	269
Core Industrial	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Noncore Commercial	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37
Noncore Industrial	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
Total Annual Load	**320**	**320**	**320**	**320**	**320**	**320**	**320**	**320**	**320**	**320**	**320**	**320**	**320**	**320**	**320**	**320**

SDG&E Sector Savings Cumulative Savings mdth	**2030 mdth**	**2031 mdth**	**2032 mdth**	**2033 mdth**	**2034 mdth**	**2035 mdth**	**2036 mdth**	**2037 mdth**	**2038 mdth**	**2039 mdth**	**2040 mdth**	**2041 mdth**	**2042 mdth**	**2043 mdth**	**2044 mdth**	**2045 mdth**
Residential	(272)	(272)	(272)	(272)	(272)	(272)	(272)	(272)	(272)	(272)	(272)	(272)	(272)	(272)	(272)	(272)
Core Commercial	2,478	2,478	2,478	2,478	2,478	2,478	2,478	2,478	2,478	2,478	2,478	2,478	2,478	2,478	2,478	2,478
Core Industrial	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73
Noncore Commercial	338	338	338	338	338	338	338	338	338	338	338	338	338	338	338	338
Noncore Industrial	333	333	333	333	333	333	333	333	333	333	333	333	333	333	333	333
Total Cumulative Load	**2950**	**2950**	**2950**	**2950**	**2950**	**2950**	**2950**	**2950**	**2950**	**2950**	**2950**	**2950**	**2950**	**2950**	**2950**	**2950**

SDG&E Sector Savings Cumulative Savings MMCF	**2030 mmcf**	**2031 mmcf**	**2032 mmcf**	**2033 mmcf**	**2034 mmcf**	**2035 mmcf**	**2036 mmcf**	**2037 mmcf**	**2038 mmcf**	**2039 mmcf**	**2040 mmcf**	**2041 mmcf**	**2042 mmcf**	**2043 mmcf**	**2044 mmcf**	**2045 mmcf**
Residential	(262)	(262)	(262)	(262)	(262)	(262)	(262)	(262)	(262)	(262)	(262)	(262)	(262)	(262)	(262)	(262)
Core Commercial	2,384	2,384	2,384	2,384	2,384	2,384	2,384	2,384	2,384	2,384	2,384	2,384	2,384	2,384	2,384	2,384
Core Industrial	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70
Noncore Commercial	325	325	325	325	325	325	325	325	325	325	325	325	325	325	325	325
Noncore Industrial	320	320	320	320	320	320	320	320	320	320	320	320	320	320	320	320
Total Cumulative Load	**2,837**	**2,837**	**2,837**	**2,837**	**2,837**	**2,837**	**2,837**	**2,837**	**2,837**	**2,837**	**2,837**	**2,837**	**2,837**	**2,837**	**2,837**	**2,837**

Fore	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30

NOTES:
2015 Reported data is preliminary. Final reported data v
Median Life Cycle of 10 years is assumed.

	Forecast 2046 Therms	Forecast 2047 Therms	Forecast 2048 Therms	Forecast 2049 Therms	Forecast 2050 Therms
SDG&E Energy Efficiency Programs TOTAL					
PUC Goal	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000
Difference					

SDG&E Sector Savings *
Core Residential
Core Commercial
Core Industrial
Noncore Commercial
Noncore Industrial retail
NonCore Industrial refinery
Total
***Proportionally scale savings down or up to match PUC**

SDG&E Sector Savings Annual Savings mdth	**2046 mdth**	**2047 mdth**	**2048 mdth**	**2049 mdth**	**2050 mdth**
Residential	(30)	(30)	(30)	(30)	(30)
Core Commercial	269	269	269	269	269
Core Industrial	8	8	8	8	8
Noncore Commercial	37	37	37	37	37
Noncore Industrial	36	36	36	36	36
Total Annual Load	**320**	**320**	**320**	**320**	**320**

SDG&E Sector Savings Cumulative Savings mdth	**2046 mdth**	**2047 mdth**	**2048 mdth**	**2049 mdth**	**2050 mdth**
Residential	(272)	(272)	(272)	(272)	(272)
Core Commercial	2,478	2,478	2,478	2,478	2,478
Core Industrial	73	73	73	73	73
Noncore Commercial	338	338	338	338	338
Noncore Industrial	333	333	333	333	333
Total Cumulative Load	**2950**	**2950**	**2950**	**2950**	**2950**

SDG&E Sector Savings Cumulative Savings MMCF	**2046 mmcf**	**2047 mmcf**	**2048 mmcf**	**2049 mmcf**	**2050 mmcf**
Residential	(262)	(262)	(262)	(262)	(262)
Core Commercial	2,384	2,384	2,384	2,384	2,384
Core Industrial	70	70	70	70	70
Noncore Commercial	325	325	325	325	325
Noncore Industrial	320	320	320	320	320
Total Cumulative Load	**2,837**	**2,837**	**2,837**	**2,837**	**2,837**

Fore	31	32	33	34	35

NOTES:
2015 Reported data is preliminary. Final reported data v
Median Life Cycle of 10 years is assumed.

2016 CALIFORNIA GAS REPORT

Electric Generation
JULY 2016

Please refer to SoCalGas' 2016 California Gas Report workpapers for detail on the documentation regarding non-cogen EG forecasting.

2016 CALIFORNIA GAS REPORT

CORE PEAKDAY FORECAST
JULY 2016

SDG&E Heating Degree Day (HDD) Weather Designs

(Calendar Based)

	Cold		Average	Hot	
	1-in-35 exceedance	1-in-10 exceedance		1-in-10 exceedance	1-in-35 exceedance
January	326.1	301.1	253.7	206.2	181.2
February	292.4	270.0	227.4	184.9	162.5
March	235.9	217.8	183.5	149.1	131.0
April	166.9	154.1	129.8	105.6	92.7
May	66.0	60.9	51.3	41.7	36.6
June	16.1	14.9	12.5	10.2	9.0
July	1.0	0.9	0.8	0.6	0.6
August	0.1	0.1	0.1	0.1	0.0
September	1.5	1.4	1.1	0.9	0.8
October	36.1	33.4	28.1	22.9	20.1
November	163.5	150.9	127.1	103.3	90.8
December	350.4	323.5	272.5	221.5	194.6
	1656.0	1529.0	**1288.0**	1047.0	920.0

Notes:

1/ 20-Yr-Avg (Jan1996-Dec2015)

2/ Daily system wide temperature based on simple average of three locations: Lindberg Field, Mirimar NAS and El Cajon.

2016-CGR Sales + Transport + Exchange for Month of DECEMBER
(units=Mdth/Day)
"1-in-2" Likelihood Cold Day Temperature

No.	"CGR_B"	CLASS	2015	2016	2017	2018	2019	2020	2021	2022	2025	2030	2035
1	RESIDEN		236.1	236.3	240.7	241.2	242.1	243.0	243.5	244.1	246.9	252.1	257.8
2	Com GN3		91.6	89.3	91.5	90.7	89.5	88.5	86.7	84.7	79.4	77.1	76.9
2	GAC 2/		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	GEN 2/		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	Ind GN3		6.2	6.1	6.3	6.3	6.2	6.2	6.1	6.0	5.8	5.4	5.0
4	NGV 2/		4.3	4.7	5.0	5.4	5.7	6.0	6.4	6.7	7.7	9.4	11.0
Total:		MDth/day	338.2	336.3	343.5	343.5	343.5	343.7	342.7	341.5	339.7	343.9	350.8
		MMcf/day 4/	325.3	323.5	330.4	330.4	330.4	330.6	329.6	328.5	326.7	330.7	337.4
		Days per Mo	31	31	31	31	31	31	31	31	31	31	31
		Pk-Day Temp. (deg-F) =	**47.6**	47.6	47.6	47.6	47.6	47.6	47.6	47.6	47.6	47.6	47.6
		Hdd: December--ColdYr =	350.4	350.4	350.4	350.4	350.4	350.4	350.4	350.4	350.4	350.4	350.4
		"Wkday/Wkend" Factor-Res:	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
		"Wkday/Wkend" Factor-NonRes:	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Use this Methodology for the 2016-CGR Res and C&I Calculations

Notes:

1/ =("Base-Dec" / 31 days)+[("Cold-Dec" - "Base-Dec")
/ Cold-Dec_Hdd]*(65 degF - 47.6 degF

2/ "Non-temperature" sensitive market segment.

3/ "Weekday/Weekend" Factor applies to the "raw" estimate.

4/ Dth/Mcf= 1.0397

2016-CGR Sales + Transport + Exchange for Month of DECEMBER
(units=Mdth/Day)
"1-in-10" Likelihood Cold Day Temperature

No.	"CGR_B"	CLASS	2015	2016	2017	2018	2019	2020	2021	2022	2025	2030	2035
1	RESIDEN		269.8	270.0	275.1	275.7	276.7	277.7	278.2	278.9	282.1	288.0	294.5
2	Com GN3		101.8	99.2	101.7	100.8	99.4	98.3	96.3	94.1	88.2	85.6	85.5
2	GAC 2/		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	GEN 2/		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	Ind GN3		6.7	6.6	6.8	6.8	6.8	6.7	6.7	6.6	6.2	5.8	5.5
4	NGV 2/		4.3	4.7	5.0	5.4	5.7	6.0	6.4	6.7	7.7	9.4	11.0
Total:		MDth/day	382.7	380.5	388.5	388.6	388.5	388.7	387.6	386.3	384.2	388.8	396.5
		MMcf/day 4/	368.1	366.0	373.7	373.8	373.7	373.9	372.8	371.5	369.5	374.0	381.4
		Days per Mo	31	31	31	31	31	31	31	31	31	31	31
		Pk-Day Temp. (deg-F) =	**44.4**	44.4	44.4	44.4	44.4	44.4	44.4	44.4	44.4	44.4	44.4
		Hdd: December--ColdYr =	350.4	350.4	350.4	350.4	350.4	350.4	350.4	350.4	350.4	350.4	350.4
		"Wkday/Wkend" Factor-Res:	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
		"Wkday/Wkend" Factor-NonRes:	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Use this Methodology for the 2016-CGR Res and C&I Calculations

Notes:

1/ =("Base-Dec" / 31 days)+[("Cold-Dec" - "Base-Dec")
/ Cold-Dec_Hdd]*(65 degF - 44.4 degF

2/ "Non-temperature" sensitive market segment.

3/ "Weekday/Weekend" Factor applies to the "raw" estimate.

4/ Dth/Mcf= 1.0397

2016-CGR Sales + Transport + Exchange for Month of DECEMBER
(units=Mdth/Day)
"1-in-35" Likelihood Cold Day Temperature

No.	"CGR_B"	CLASS	2015	2016	2017	2018	2019	2020	2021	2022	2025	2030	2035
1		RESIDEN	286.8	287.0	292.3	293.0	294.0	295.1	295.7	296.4	299.7	306.0	313.0
2		Com GN3	106.9	104.2	106.8	105.8	104.4	103.2	101.1	98.8	92.6	89.9	89.8
2		GAC 2/	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2		GEN 2/	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3		Ind GN3	6.9	6.9	7.1	7.1	7.0	7.0	6.9	6.8	6.5	6.1	5.7
4		NGV 2/	4.3	4.7	5.0	5.4	5.7	6.0	6.4	6.7	7.7	9.4	11.0
Total:		MDth/day	405.0	402.7	411.2	411.2	411.1	411.4	410.1	408.7	406.6	411.4	419.5
		MMcf/day 4/	389.5	387.3	395.5	395.5	395.4	395.7	394.4	393.1	391.0	395.7	403.5
		Days per Mo	31	31	31	31	31	31	31	31	31	31	31
		Pk-Day Temp. (deg-F) =	**42.9**	42.9	42.9	42.9	42.9	42.9	42.9	42.9	42.9	42.9	42.9
		Hdd: December--ColdYr =	350.4	350.4	350.4	350.4	350.4	350.4	350.4	350.4	350.4	350.4	350.4
		"Wkday/Wkend" Factor-Res:	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
		"Wkday/Wkend" Factor-NonRes:	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Use this Methodology for the 2016-CGR Res and C&I Calculations

Notes:

1/ =("Base-Dec" / 31 days)+[("Cold-Dec" - "Base-Dec")
/ Cold-Dec_Hdd]*(65 degF - 42.9 degF

2/ "Non-temperature" sensitive market segment.

3/ "Weekday/Weekend" Factor applies to the "raw" estimate.

4/ Dth/Mcf= 1.0397

2016-CGR Sales + Transport + Exchange for Month of DECEMBER
(units=mdth)
Temp=December, Cold Year

No.	"CGR_CLASS	2015	2016	2017	2018	2019	2020	2021	2022	2025	2030	2035
1	Residen	5287.9	5292.1	5391.0	5403.5	5423.4	5443.8	5455.0	5469.4	5532.8	5650.7	5780.3
2	Com GN3	2228.1	2170.5	2224.6	2205.0	2174.9	2151.2	2107.6	2059.0	1930.5	1873.5	1870.9
2	GAC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	GEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	Ind GN3	159.5	157.9	162.8	162.7	161.9	161.2	159.3	156.7	149.4	139.8	130.8
4	NGV	134.8	145.2	155.5	165.9	176.2	186.6	197.0	207.3	238.4	290.2	342.0
		7810	7766	7934	7937	7936	7943	7919	7892	7851	7954	8124
	2016 CGR: Mdth/Hdd	14.1	14.0	14.3	14.3	14.3	14.3	14.3	14.2	14.1	14.3	14.5

2016-CGR Sales + Transport + Exchange for Month of DECEMBER
(units=mdth)
Temp=December, "Base/Zero-Hdd" Year

No.	"CGR_CLASS	2015	2016	2017	2018	2019	2020	2021	2022	2025	2030	2035
1	Residen	1531.5	1533.4	1562.2	1566.6	1573.4	1580.2	1584.6	1590.1	1612.6	1650.4	1690.3
2	Com GN3	1095.0	1066.7	1093.2	1083.6	1068.8	1057.2	1035.8	1011.9	948.7	920.7	919.4
2	GAC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	GEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	Ind GN3	101.9	100.9	104.0	104.0	103.4	103.0	101.8	100.0	95.4	89.2	83.5
4	NGV	134.8	145.2	155.5	165.9	176.2	186.6	197.0	207.3	238.4	290.2	342.0
		2863	2846	2915	2920	2922	2927	2919	2909	2895	2951	3035
	2016 CGR: Mdth	2863	2846	2915	2920	2922	2927	2919	2909	2895	2951	3035

2016 CALIFORNIA GAS REPORT

SUPPORTING DATA
JULY 2016

2016 CALIFORNIA GAS REPORT

WEATHER: HEATING DEGREE DAYS – AVERAGE AND "COLD" YEAR DESIGNS; AND WINTER PEAK DAY DESIGN TEMPERATURES

JULY 2016

SDGE
A Sempra Energy utility™

Weather for SDG&E: Heating Degree Days – Average and Cold Year Designs; and Winter Peak Day Design Temperatures

July 2016

I. Overview

San Diego Gas and Electric Company's service area for natural gas extends from southern Orange County throughout San Diego County to the Mexican border. To quantify the overall temperature experienced within this region, SDGandE aggregates daily temperature recordings from three U.S. Weather Bureau weather stations into one system average heating degree-day ("HDD") figure. The table below lists weather station locations along with its associated temperature zone(s).

Table 1

Representative Weather Stations with Temperature Zones

Station Location	Weight	Temperature Zone
1. El Cajon[1]	1/3	Coastal and Inland
2. San Diego's Lindberg Field	(1/3) x (#Coastal/(#Coastal + #Inland))	Coastal
3. Miramar Naval Air Station	1/3 x (#Inland/(#Coastal + #Inland))	Inland

SDGandE 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 system average HDDs figure for its entire service area, SDGandE weights the HDD figure for each zone using the weights[2] shown in Table 1. These weights are used in calculating the data shown from January 1996 to December 2015.

Daily maximum and minimum temperatures, for each individual weather station in the table above, are compiled from National Weather Service data. The web-site:

http://www.wrh.noaa.gov/sgx/obs/rtp/rtpmap.php?wfo=sgx

[1] It turns out that the location of the station for El Cajon is at the boundary of the Coastal and Inland zones. Therefore, El Cajon is use to represent the entire combined Coastal and Inland zones.

[2] As of December 2015, there were 471,820 gas customers associated with the Coastal temperature zone and 400,740 gas customers associated with the Inland temperature zone. The following URL shows a map of the SDG&E service area and temperature zones: http://www.sdge.com/tm2/pdf/ELEC_MAPS_Maps_-_Elec.pdf ; less than 0.04% of SDG&E's gas customers were in the mountain and desert zones.

provides easy access to temperature data for San Diego and parts of surrounding counties. For each station, the average temperature is computed as the (maximum + minimum)/2 and this value is used to compute the heating degrees (i.e., the *daily* HDD) for each station as well. System average values of HDD are then computed using the weights for each respective station. Annual and monthly HDDs for the entire SDG&E service area from 1977 to 2015 are listed in Table 2, below.

Table 2

Calendar Month Heating Degree-Days (Jan. 1977 through Dec. 2015)

	Month												Total "Cal-Year"
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
1977	240	159	266	91	86	3	0	0	0	6	70	115	1035
1978	194	176	93	91	22	0	0	0	0	1	160	372	1108
1979	320	272	198	69	31	5	0	0	0	9	129	188	1221
1980	167	92	155	77	76	3	0	0	0	17	111	164	861
1981	187	138	191	77	23	0	0	0	0	36	102	198	950
1982	311	164	207	112	41	20	0	0	4	12	155	305	1332
1983	201	178	164	157	45	12	0	0	0	0	130	218	1105
1984	202	201	108	73	11	2	0	0	0	25	172	318	1112
1985	312	270	255	74	43	7	0	0	1	9	190	234	1394
1986	140	197	160	114	46	0	0	0	19	26	85	241	1028
1987	327	224	202	76	40	5	2	1	0	4	130	389	1398
1988	285	162	135	101	61	31	0	0	6	9	171	306	1269
1989	357	278	170	60	46	18	0	0	3	23	83	221	1258
1990	273	299	205	66	54	5	0	0	0	1	105	308	1315
1991	256	148	282	121	97	27	0	0	1	32	107	245	1315
1992	241	117	159	13	1	0	0	0	0	3	113	347	993
1993	268	225	132	65	16	9	0	0	2	7	122	262	1107
1994	227	232	160	126	93	2	0	0	0	30	288	306	1464
1995	264	117	163	127	107	23	0	0	0	7	44	221	1073
1996	235	189	175	73	18	3	0	0	1	73	142	243	1152
1997	255	249	145	102	2	2	0	0	0	16	94	287	1153
1998	252	256	205	195	94	22	1	0	5	31	172	338	1571
1999	276	266	279	223	115	51	3	0	4	4	146	243	1610
2000	247	216	224	94	28	3	0	0	0	50	237	227	1327
2001	352	298	199	198	30	5	0	0	0	9	127	325	1543
2002	315	225	247	158	91	13	0	0	2	54	81	294	1479
2003	141	201	179	184	95	32	0	0	0	7	157	275	1270
2004	273	269	98	65	14	4	1	0	0	52	200	265	1241
2005	244	197	159	118	33	5	0	0	4	38	95	231	1122
2006	275	204	305	144	33	0	0	0	1	35	88	287	1372
2007	365	225	155	139	64	20	0	0	4	28	112	340	1451
2008	331	278	187	131	89	16	0	0	0	13	59	287	1391
2009	177	247	202	141	30	11	0	0	0	41	124	291	1262

2010	240	212	195	178	88	24	10	1	2	31	181	238	1402
2011	220	277	196	96	75	20	0	0	0	25	172	340	1422
2012	232	239	230	129	37	13	0	0	0	16	102	268	1267
2013	323	269	150	104	23	6	0	0	0	40	104	241	1262
2014	158	140	80	78	20	1	0	0	0	0	44	170	691
2015	161	89	59	45	48	0	0	0	0	0	106	258	767
20-Yr-Avg (Jan1996-Dec2015)													
Avg.	**253.6**	**227.4**	**183.4**	**129.8**	**51.3**	**12.5**	**0.8**	**0.1**	**1.1**	**28.1**	**127.1**	**272.4**	**1287.7**
St.Dev.	**63.3**	**50.1**	**61.0**	**48.8**	**34.0**	**12.9**	**2.4**	**0.2**	**1.6**	**20.1**	**48.7**	**43.5**	**236.0**
Min.	**141.4**	**88.7**	**58.9**	**45.3**	**2.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**44.2**	**170.3**	**691.3**
Max.	**364.6**	**298.2**	**304.9**	**222.7**	**115.4**	**51.1**	**10.2**	**1.1**	**4.7**	**73.0**	**237.1**	**340.0**	**1610.2**

II. Calculations to Define Our Average-Temperature Year

The simple average of the 20-year period (January 1996 through December 2015) was used to represent the Average Year total and the individual monthly values for HDD. The average of the standard deviations of the 20 most recent 20 year periods (1977-1996, 1978-1997,…,1996-2015) of annual HDDs was used to design the two Cold Years based on a "1-in-10" and "1-in-35" chance, ***c***, that the respective annual "Cold Year" $\boldsymbol{hdd_c}$ value would be exceeded.

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, μ is the average of the last 20 years of HDD, and S_{20} is the average of the standard deviations of the 20 most recent 20 year periods:

$U = (HDD_y - \mu)/S_{20}$, has a t-Distribution with N-1 degrees of freedom.

III. Calculating the Cold-Temperature Year Weather Designs

Cold Year HDD Weather Designs

For SDG&E, 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 average of the standard deviations of the 20 most recent 20 year periods, 181.6 HDD, these equations yield values of about 1,656 HDD for a "1-in-35" cold year and 1,529 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 = 1,656 which equals approximately

1,288 average-year HDDs + 2.025 * 181.6

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 1996 to 2015, as shown as the bottom of Table 2, above. For example, the average-year December value of 272.5 HDD equals the simple average of the 20 December HDD figures from 1996 to 2015 SDG&E calculates the cold--temperature-year monthly HDD values using the same shape of the average-year HDDs. For example, since 21.2 percent of average-temperature-year HDDs occurred in December, the estimated number of HDDs during December for a cold-year is equal to 1,656 HDDs multiplied by 21.2 percent, or 350.4 HDDs.

Table 3

Calendar Month Heating Degree-Day Designs

	Cold		Average	Hot	
	1-in-35 Design	1-in-10 Design		1-in-10 Design	1-in-35 Design
January	326.1	301.1	253.7	206.2	181.2
February	292.4	270.0	227.4	184.9	162.5
March	235.9	217.8	183.5	149.1	131.0
April	166.9	154.1	129.8	105.6	92.7
May	66.0	60.9	51.3	41.7	36.6
June	16.1	14.9	12.5	10.2	9.0
July	1.0	0.9	0.8	0.6	0.6
August	0.1	0.1	0.1	0.1	0.0
September	1.5	1.4	1.1	0.9	0.8
October	36.1	33.4	28.1	22.9	20.1
November	163.5	150.9	127.1	103.3	90.8
December	350.4	323.5	272.5	221.5	194.6
	1656	1529	1288	1047	920

IV. Calculating the Peak-Day Design Temperature

SDG&E's Peak-Day design temperature of 42.9 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 1972 through 2015, 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=1972, 1973, …, 2015.

(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 observed minimum for 1991 was in March, and for 2004 it was in November).

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:

$$- \text{MinAVG}_y = - \min_{d=1}^{n(y)}\{\text{AVG}_{y,d}\} = \max_{d=1}^{n(y)}\{ -\text{AVG}_{y,d}\}, \text{ for y=1972, …, 2015;}$$

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, below.

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:

$$\text{ECDF} = (\text{RANK} - \alpha)/[\text{MaxRANK} + (1 - 2\,\alpha)],$$

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 T_Dist model were selected since the fit to the ECDF was better than that of either the GEV model or the EV1 model. (Although convergence to stable parameter estimates is occasionally a problem with fitting a GEV model to the ECDF, the T_Dist model had no problems with convergence of the iterative procedure to estimate parameters.)

The T_Dist model used here is a three-parameter probability model where the varable $z = (-\text{MinAVG}_y - \gamma) / \theta$, for each year, y, is presumed to follow a T_Dist with location parameter, γ, and scale parameter, θ, and a third parameter, v, that represents the number of degrees of freedom. For a given number of years of data, N, then v=N-2.

The following mathematical expression specifies the T_Dist model we fit to the data for "-MinAVG$_y$ " shown in Table 5, below.

(3) $$\text{ECDF}(-\text{MinAVG}_y) = \text{Prob}\{ -T < -\text{MinAVG}_y \} = \text{T\_Dist}\{z; \gamma, \theta, v=N-2\},$$

where "T_Dist{ . }" is the cumulative probability distribution function for Student's T-Distribution[3], and

[3] A common mathematical expression for Student's T-Distribution is provided at http://en.wikipedia.org/wiki/Student%27s_t-distribution; with a probability density function

$$f(t) = \frac{\Gamma\left(\frac{\nu+1}{2}\right)}{\sqrt{\nu\pi}\,\Gamma\left(\frac{\nu}{2}\right)} \left(1 + \frac{t^2}{\nu}\right)^{-\frac{\nu+1}{2}},$$

(4) $z = (-MinAVG_y - \gamma) / \theta$, for each year, y, and

the parameters "γ" and "θ" are estimated for this model for given degrees of freedom v=N-2. The estimated values for 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) $\delta = Prob\{ T \leq TPDD_\delta \}$, which is equivalent to

(6) $\delta = Prob\{ [(-T - \gamma) / \theta] \geq [(-TPDD_\delta - \gamma) / \theta] \}$, $= Prob\{ [(-T - \gamma) / \theta] \geq [z_\delta] \}$,

where $z_\delta = [(-TPDD_\delta - \gamma) / \theta]$. In terms of our probability model,

(7) $\delta = 1 - T\_Dist\{ z_\delta; \gamma, \theta, v=N-2\}$,

which yields the following equation for z_δ,

(7') $z_\delta = \{ TINV\_Dist\{ (1-\delta); \gamma, \theta, v=N-2\}$, where "TINV_Dist{ . }" is the inverse function of the T_Dist{ . } function[4]. The implied equation for $TPDD_\delta$ is:

(8) $TPDD_\delta = - [\gamma + (z_\delta)(\theta)]$.

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 $TPDD_\delta = - [\gamma + (z_\delta)(\theta)]$.

The value of $z_\delta = 1.959$ and $TPDD_\delta = - [\gamma + (z_\delta)(\theta)] = 42.9$ degrees Fahrenheit, with values for "v=N-2"; along with "γ" and "θ" in Table 5, below.

SDG&E's peak-day design temperature of 44.4 degrees Fahrenheit, is calculated in a methodologically similar way as for the 42.9 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 $z_\delta = 1.303$ and, $TPDD_\delta = - [\gamma + (z_\delta)(\theta)] = 44.4$ with values for "v=N-2"; along with "γ" and "θ" in Table 5, below.

A plot of the cumulative distribution function for $MinAVG_y$ based on "v=N-2", the fitted model parameters, "γ" and "θ" with values in Table 5, below, is shown in Figure 1.

---

such that $T\_Dist\{z; \gamma, \theta, v=N-2\} = \int f(t)\, dt$, from $t=-\infty$ to $t=z$. Also, the notation Γ(.) is known in mathematics as the GAMMA function; see http://www.wikipedia.org/wiki/Gamma_function for a description. Also, see *Statistical Theory*, 3rd Ed., B.W. Lindgren, MacMillian Pub. Inc, 1976, pp. 336-337.

[4] Computer software packages such as SAS and EXCEL have implemented statistical and mathematical functions to readily calculate values for T_Dist{ . } and TINV_Dist{ . } as defined above.

Table 4

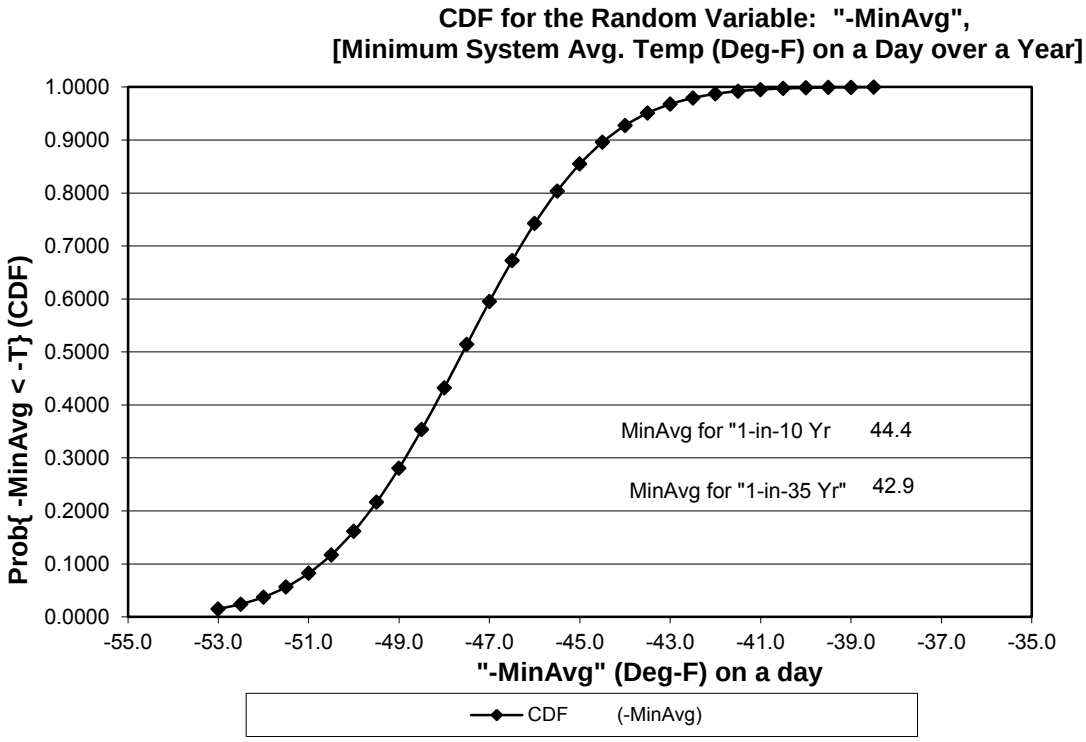
YEAR	MINAVG	Month(MinAvg)
1972	-46.8567	Dec
1973	-46.1086	Jan
1974	-44.2172	Dec
1975	-44.1086	Jan
1976	-45.1629	Jan
1977	-50.7481	Mar
1978	-42.8024	Dec
1979	-45.4963	Jan
1980	-53.8024	Jan
1981	-49.8567	Jan
1982	-48.8296	Dec
1983	-51.4963	Jan
1984	-48.4691	Dec
1985	-46.1086	Dec
1986	-50.1086	Feb
1987	-41.4963	Dec
1988	-45.4419	Dec
1989	-45.1629	Jan
1990	-43.7753	Feb
1991	-48.7753	Mar
1992	-47.1629	Dec
1993	-46.7753	Jan
1994	-48.0543	Nov
1995	-51.1629	Dec
1996	-48.7753	Feb
1997	-49.0815	Dec
1998	-46.7753	Dec
1999	-48.8024	Jan
2000	-50.3605	Jan
2001	-47.6938	Jan
2002	-45.7481	Jan
2003	-49.0543	Dec
2004	-47.7481	Nov
2005	-47.8024	Jan
2006	-48.3605	Dec
2007	-43.3605	Jan
2008	-48.721	Dec
2009	-48.4148	Feb
2010	-48.1901	Dec
2011	-49.0815	Feb
2012	-48.1358	Dec
2013	-44.1358	Jan
2014	-47.7753	Dec
2015	-48.1086	Jan

Table 5

				alpha=	0.375	
YEAR	Days/Yr	**-MinAvg**	Month (-MinAvg)	Rank	**Emprical CDF**	**Fitted Model CDF**
1980	366	-53.8024	Jan	1	0.0141	-2.272
1983	365	-51.4963	Jan	2	0.0367	-1.836
1995	365	-51.1629	Dec	3	0.0593	-1.593
1977	365	-50.7481	Mar	4	0.0819	-1.417
2000	366	-50.3605	Jan	5	0.1045	-1.276
1986	365	-50.1086	Feb	6	0.1271	-1.156
1981	365	-49.8567	Jan	7	0.1497	-1.051
1997	365	-49.0815	Dec	8	0.1723	-0.956
2011	365	-49.0815	Feb	9	0.1949	-0.869
2003	365	-49.0543	Dec	10	0.2175	-0.788
1982	365	-48.8296	Dec	11	0.2401	-0.712
1999	365	-48.8024	Jan	12	0.2627	-0.640
1991	365	-48.7753	Mar	13	0.2853	-0.572
1996	366	-48.7753	Feb	14	0.3079	-0.506
2008	366	-48.7210	Dec	15	0.3305	-0.442
1984	366	-48.4691	Dec	16	0.3531	-0.380
2009	365	-48.4148	Feb	17	0.3757	-0.319
2006	365	-48.3605	Dec	18	0.3983	-0.259
2010	365	-48.1901	Dec	19	0.4209	-0.201
2012	366	-48.1358	Dec	20	0.4435	-0.143
2015	365	-48.1086	Jan	21	0.4661	-0.086
1994	365	-48.0543	Nov	22	0.4887	-0.028
2005	365	-47.8024	Jan	23	0.5113	0.028
2014	365	-47.7753	Dec	24	0.5339	0.086
2004	366	-47.7481	Nov	25	0.5565	0.143
2001	365	-47.6938	Jan	26	0.5791	0.201
1992	366	-47.1629	Dec	27	0.6017	0.259
1972	366	-46.8567	Dec	28	0.6243	0.319
1993	365	-46.7753	Jan	29	0.6469	0.380
1998	365	-46.7753	Dec	30	0.6695	0.442
1973	365	-46.1086	Jan	31	0.6921	0.506
1985	365	-46.1086	Dec	32	0.7147	0.572
2002	365	-45.7481	Jan	33	0.7373	0.640
1979	365	-45.4963	Jan	34	0.7599	0.712
1988	366	-45.4419	Dec	35	0.7825	0.788
1976	366	-45.1629	Jan	36	0.8051	0.869
1989	365	-45.1629	Jan	37	0.8277	0.956
1974	365	-44.2172	Dec	38	0.8503	1.051
2013	365	-44.1358	Jan	39	0.8729	1.156
1975	365	-44.1086	Jan	40	0.8955	1.276
1990	365	-43.7753	Feb	41	0.9181	1.417
2007	365	-43.3605	Jan	42	0.9407	1.593
1978	365	-42.8024	Dec	43	0.9633	1.836
1987	365	-41.4963	Dec	44	0.9859	2.272

"Gamma" (Fitted) =	**-47.59**
"Theta" (Fitted) =	**2.42**
Deg. Freedom=	**42**

Figure 1


CDF 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
-55.0
-53.0
-51.0
-49.0
-47.0
-45.0
-43.0
-41.0
-39.0
-37.0
-35.0
"-MinAvg" (Deg-F) on a day
MinAvg for "1-in-10 Yr 44.4
MinAvg for "1-in-35 Yr" 42.9
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:

$$\text{RMSE} = \text{SQRT}\left\{ \left(\sum_{i=1, \ldots, N} e[\,i\,]^{2} \right) / (N-2) \right\},$$

where e[i] = *observed* less *fitted* value of temperature, T[i]. The number of estimated paramters (3 for the GEV model, 2 for the T-Dist and EV1 models) 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 0.4 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	53.8024	53.0765	0.7260	0.527021
U	51.4963	52.0222	-0.5260	0.276643
U	51.1629	51.4353	-0.2724	0.074202
U	50.7481	51.0101	-0.2619	0.068612
U	50.3605	50.6688	-0.3083	0.095032
U	50.1086	50.3792	-0.2706	0.073213
U	49.8567	50.1248	-0.2680	0.071829
U	49.0815	49.8957	-0.8142	0.662944
U	49.0815	49.6857	-0.6043	0.365119
U	49.0543	49.4906	-0.4363	0.190349
U	48.8296	49.3073	-0.4777	0.228184
U	48.8024	49.1335	-0.3310	0.109584
U	48.7753	48.9674	-0.1921	0.036921
U	48.7753	48.8078	-0.0325	0.001055
U	48.7210	48.6534	0.0676	0.004571
M	48.4691	48.5033	-0.0342	0.001168
M	48.4148	48.3567	0.0581	0.003372
M	48.3605	48.2130	0.1475	0.021749
M	48.1901	48.0715	0.1185	0.014053
M	48.1358	47.9317	0.2040	0.041631
M	48.1086	47.7931	0.3155	0.099545
M	48.0543	47.6552	0.3991	0.159304
M	47.8024	47.5175	0.2850	0.081201
M	47.7753	47.3795	0.3957	0.156605
M	47.7481	47.2409	0.5072	0.257255
M	47.6938	47.1011	0.5927	0.351286
M	47.1629	46.9596	0.2033	0.041322
M	46.8567	46.8159	0.0408	0.001666
M	46.7753	46.6694	0.1059	0.011216
L	46.7753	46.5193	0.2560	0.065531
L	46.1086	46.3649	-0.2563	0.065675
L	46.1086	46.2052	-0.0966	0.009334
L	45.7481	46.0392	-0.2911	0.084715
L	45.4963	45.8654	-0.3691	0.136253
L	45.4419	45.6821	-0.2401	0.057653
L	45.1629	45.4869	-0.3240	0.104990
L	45.1629	45.2770	-0.1141	0.013009
L	44.2172	45.0479	-0.8307	0.690019
L	44.1358	44.7935	-0.6577	0.432560
L	44.1086	44.5039	-0.3953	0.156247
L	43.7753	44.1626	-0.3873	0.150008
L	43.3605	43.7373	-0.3768	0.142012
L	42.8024	43.1504	-0.3480	0.121101
L	41.4963	42.0962	-0.5999	0.359912
			Overall RMSE ($e_{[i]}$):	0.4 °F
			Upper 3rd RMSE ($e_{[i]}$):	0.5 °F
			Middle 3rd RMSE ($e_{[i]}$):	0.3 °F
			Lower 3rd RMSE ($e_{[i]}$):	0.4 °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 (42.9°F) associated with a 1-in-35 annual likelihood, the return period is 35 years (δ=1/35). For the 44.4°F peak-day design temperature, the return period is 10 years (δ=1/10). Occasionally, a less precise terminology is used. For example, the 42.9°F peak-day design temperature may be referred to as a "1-in-35 year cold day"; and the 44.4°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*] = $\left(E[\text{ return period }]\right)^2 \times \left(1 - (1 / E[\text{ return period }])\right)$,

(4') Var[*return period*] = $\left(E[\text{ return period }]\right) \times \left(E[\text{ return period }] - 1\right)$.

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.

2016 CALIFORNIA GAS REPORT

Service Area Economic Forecast
JULY 2016

SAN DIEGO GAS & ELECTRIC COMPANY SERVICE AREA ECONOMIC FORECAST

(based on Global Insight's February 2016 Regional Forecast)

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
EMPLOYMENT (1000's)												
Total	1,290.3	1,327.6	1,358.0	1,399.6	1,432.7	1,456.7	1,478.2	1,498.2	1,518.9	1,535.5	1,552.8	1,570.6
I: Industrial (all manufacturing + mining)	94.9	95.6	96.8	98.6	99.3	100.6	102.0	103.0	103.9	104.8	105.4	105.7
C1: Office (Financial+Bus. & Professional Svcs)	286.9	296.1	300.5	310.9	317.6	326.1	332.5	337.6	344.1	350.5	358.1	366.7
C2: Restaurants	108.4	114.1	121.1	125.5	128.6	130.6	132.9	134.5	135.8	137.0	137.7	138.3
C3: Retail Trade	137.2	141.3	144.2	146.8	149.6	149.7	148.8	148.7	149.0	149.0	148.9	149.0
C4: Laundry & other Personal Services	16.3	16.8	18.0	18.1	17.9	17.8	17.8	17.8	17.8	17.8	17.7	17.7
C5: Wholesale Trade & Warehouses	44.9	45.3	45.3	46.8	47.4	48.0	48.7	49.4	50.0	50.3	50.7	51.1
C6: Primary & Secondary Schools	90.3	91.1	92.8	96.7	100.7	102.8	104.6	106.5	108.0	109.4	110.6	111.8
C7: Colleges (including other adult education)	42.3	43.0	43.4	45.3	47.2	48.1	49.0	49.9	50.6	51.2	51.8	52.4
C8: Health Services	141.5	151.2	156.5	163.1	170.0	173.4	176.4	179.6	182.2	184.5	186.7	188.7
C9: Accommodation	28.6	28.6	28.8	29.9	30.6	31.1	31.6	32.0	32.3	32.6	32.8	32.9
C10: Misc. (all other commercial employment)	57.6	58.4	61.2	61.7	61.0	60.7	60.6	60.6	60.5	60.5	60.4	60.4
C11: Government (non-education)	124.3	125.2	126.0	127.9	128.9	129.6	130.9	132.3	134.7	134.4	135.3	136.1
C12: Transportation, Information, and Utilities	50.4	50.1	50.0	50.7	52.0	52.7	53.8	54.8	55.3	56.1	56.8	57.4
C13: Construction	57.0	60.9	63.5	67.6	71.7	75.3	78.5	81.4	84.2	86.9	89.4	91.8
C14: Agriculture	9.8	9.8	10.0	10.1	10.1	10.2	10.2	10.3	10.3	10.4	10.4	10.5
OTHER INDICATORS												
Southern California Consumer Inflation*	2.0%	1.1%	1.3%	0.9%	1.0%	2.3%	2.6%	2.6%	2.6%	2.7%	2.6%	2.5%
Inflation--US Gross Domestic Product**	1.8%	1.4%	1.6%	0.3%	0.6%	1.7%	2.2%	2.2%	2.2%	2.3%	2.3%	2.2%

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

** Chained Price Index--US GDP, from Global Insight's February 2016 Long-Term Forecast of the U.S. Economy.

SAN DIEGO GAS & ELECTRIC COMPANY SERVICE AREA ECONOMIC FORECAST

(based on Global Insight's February 2016 Regional Forecast)

	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
EMPLOYMENT (1000's)												
Total	1,587.1	1,602.7	1,618.7	1,634.1	1,647.8	1,661.5	1,676.7	1,690.4	1,705.2	1,720.6	1,735.6	1,750.6
I: Industrial (all manufacturing + mining)	106.0	106.1	106.3	106.4	106.1	105.7	105.4	105.1	104.7	104.5	104.1	103.8
C1: Office (Financial+Bus. & Professional Svcs)	374.2	381.2	388.3	395.0	400.1	404.8	410.3	416.6	423.4	429.9	436.0	442.5
C2: Restaurants	138.7	138.6	138.7	139.2	140.0	141.0	141.8	142.8	143.8	144.9	145.9	146.9
C3: Retail Trade	149.3	149.7	150.4	151.0	151.7	152.4	152.7	153.4	154.1	154.9	155.7	156.6
C4: Laundry & other Personal Services	17.7	17.7	17.8	17.9	18.0	18.1	18.2	18.3	18.3	18.4	18.4	18.5
C5: Wholesale Trade & Warehouses	51.6	52.0	52.3	52.5	52.3	52.2	52.0	51.8	51.6	51.4	51.0	50.8
C6: Primary & Secondary Schools	113.0	114.3	115.7	116.9	118.2	119.5	120.7	122.0	123.3	124.8	126.3	127.4
C7: Colleges (including other adult education)	52.9	53.5	54.2	54.7	55.3	56.0	56.5	57.1	57.8	58.5	59.1	59.6
C8: Health Services	190.7	192.9	195.2	197.2	199.4	201.6	203.7	205.8	208.0	210.6	213.0	214.9
C9: Accommodation	33.0	33.0	33.0	33.2	33.3	33.6	33.8	34.0	34.3	34.5	34.7	35.0
C10: Misc. (all other commercial employment)	60.3	60.4	60.6	60.9	61.3	61.7	62.0	62.2	62.4	62.6	62.8	63.0
C11: Government (non-education)	137.1	138.2	139.3	140.4	141.6	142.8	145.3	145.0	146.0	146.9	147.9	148.8
C12: Transportation, Information, and Utilities	57.9	58.4	58.9	59.2	59.6	60.0	60.3	60.7	61.1	61.6	62.0	62.3
C13: Construction	94.2	96.0	97.3	98.8	100.1	101.3	103.1	104.6	105.4	106.2	107.5	109.3
C14: Agriculture	10.5	10.6	10.7	10.7	10.8	10.8	10.9	10.9	11.0	11.0	11.1	11.1
OTHER INDICATORS												
Southern California Consumer Inflation*	2.5%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.4%	2.3%
Inflation--US Gross Domestic Product**	2.2%	2.1%	2.1%	2.1%	2.1%	2.0%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%

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

** Chained Price Index--US GDP, from Global Insight's February 2016 Long-Term Forecast of the U.S. Economy.