

## **Appendix A:**

**San Diego Gas & Electric Company**

**Cost-Effectiveness Requirements**







































Program Summary	Nominal	Present Value
Proposer Name	SDG&E	
Program Name	SDG&E 3rd Party	
Total Program Budget (\$)	\$ 48,808,800	\$ 45,748,538
Net Participant Cost (\$)		\$ 715,264

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Gross Savings for Goal Attainment - kWh						
	1st Year Annual Savings	Decay of single or first baseline	2nd Baseline Savings	2nd Baseline Decay	Total Cumulative	Net Annual Savings
	kWh	kWh	kWh	kWh	kWh	kWh
2013	41,368,340		-	-	41,368,340	41,368,340
2014	81,635,770	-211371.875		-	81,424,399	40,056,059
2015	81,635,770	-2012469.402	685,686		80,308,987	(1,115,412)
2016	81,635,770	-9823510.048	1,839,826		73,652,086	(6,656,901)
2017	81,635,770	-19434686.92	2,339,033		64,540,116	(9,111,970)
2018	81,635,770	-29485592.87	2,371,175		54,521,352	(10,018,764)
2019	81,635,770	-39908185.53	2,371,175		44,098,760	(10,422,593)
2020	81,635,770	-43845869.61	2,371,175		40,161,076	(3,937,684)
2021	81,635,770	-43863027.91	2,371,175		40,143,917	(17,158)
2022	81,635,770	-43890481.19	2,371,175		40,116,464	(27,453)

Gross Savings for Goal Attainment - kW						
	1st Year Annual Savings	Decay or single or first baseline	2nd Baseline Savings	2nd Baseline Decay	Total Cumulative	Net Annual Savings
	kW	kW	kW	kW	kW	kW
2013	10,611		-	-	10,611	10,611
2014	20,799	-61.875		-	20,737	10,125
2015	20,799	-503.426232	163		20,458	(279)
2016	20,799	-2450.53418	444		18,792	(1,666)
2017	20,799	-4837.407189	574		16,535	(2,257)
2018	20,799	-6879.914685	586		14,505	(2,031)
2019	20,799	-8754.519648	586		12,630	(1,875)
2020	20,799	-9447.038999	586		11,938	(693)
2021	20,799	-9449.376129	586		11,935	(2)
2022	20,799	-9453.115537	586		11,931	(4)

Gross Savings for Goal Attainment - Therms						
	1st Year Annual Savings	Decay of single or first baseline	2nd Baseline Savings	2nd Baseline Decay	Total Cumulative	Net Annual Savings
	Therms	Therms	Therms	Therms	Therms	Therms
2013	112,015		-	-	112,015	112,015
2014	211,311	0		-	211,311	99,296
2015	211,311	3826.905358	(1,806)		213,332	2,021
2016	211,311	32326.26337	(4,792)		238,846	25,514
2017	211,311	77918.75832	(6,023)		283,207	44,361
2018	211,311	161869.7257	(6,077)		367,104	83,897
2019	211,311	263416.6217	(6,077)		468,651	101,547
2020	211,311	303223.3138	(6,077)		508,457	39,807
2021	211,311	303223.6641	(6,077)		508,458	0
2022	211,311	303224.2245	(6,077)		508,458	1

Program Summary	Nominal	Present Value
Proposer Name	SDG&E	
Program Name	SDG&E Portfolio	
Total Program Budget (\$)	\$ 218,855,730	\$ 206,813,078
Net Participant Cost (\$)		\$ 72,289,459

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Program Impacts							
	Wtd Annual Net kWh	Lifecycle Net kWh	Wtd Annual Net Therms	Lifecycle Net Therms	Wtd Net Jul-Sept Pk** (kW)	Wtd Net Dec-Feb Pk** (kW)	Wtd User Entered kW
2013	178,811,036	1,990,605,494	1,630,030	29,499,331	32,540	24,302	29,499
2014	187,955,550	2,211,113,177	1,655,025	29,643,475	32,682	22,918	31,627
2013-2014	366,766,586	4,201,718,671	3,285,055	59,142,805	65,222	47,220	61,126

Cost Effectiveness (Lifecycle Present Value Dollars)							
	Cost	Electric	Benefits		Benefit - Cost		Notes
			Gas	Incentives	NPV	B/C Ratio	
Program TRC (\$)	\$ 279,102,538	\$353,043,331	\$38,122,261	NA	\$112,063,055	1.40	*1
Program PAC (\$)	\$ 206,813,078	\$353,043,331	\$38,122,261	NA	\$184,352,514	1.89	*1,2
Program RIM (\$)	\$ 649,720,224	\$353,043,331	\$38,122,261	NA	(\$258,554,632)	0.60	*1

\*1 B/C Ratio is an approximation because any supply cost increases are treated as negative benefits rather than as a cost as in the Standard Practice Manual  
\*2 PAC benefits include environmental costs. This is to be consistent with the TRC benefits, but is not strictly consistent with the Standard Practice Manual.

Levelized Cost and Benefit (All Measures Installed through 2023)						
	Discounted Savings			Benefit - Cost		
	kWh	Therms	Cost	Benefits	NPV	
TRC (\$/kWh)	2,493,822,274		\$ 0.0968	\$ 0.1416	\$ 0.0448	
PAC (\$/kWh)	2,493,822,274		\$ 0.0723	\$ 0.1416	\$ 0.0693	
RIM (\$/kWh)	2,493,822,274		\$ 0.2351	\$ 0.1416	\$ (0.0936)	
TRC (\$/therm)		34,457,887	\$ 0.99	\$ 1.11	\$ 0.1132	
PAC (\$/therm)		34,457,887	\$ 0.70	\$ 1.11	\$ 0.4080	
RIM (\$/therm)		34,457,887	\$ 1.84	\$ 1.11	\$ (0.7313)	

Wtd Avg Emissions Reductions						
Annual Reductions	Electric Reductions			Gas Reductions		
	CO2 (tons)	NOX (lbs)	PM-10 (lbs)	CO2 (tons)	NOX (lbs)	
2013	91,103	22,227	12,005	9,536	20,158	* annual reductions are the units implemented in the year, times the annual emission reduction for the measure, weighted for dual baseline.
2014	95,149	23,066	12,557	9,682	20,319	
2015	-	-	-	-	-	
2016	-	-	-	-	-	
2017	-	-	-	-	-	
2018	-	-	-	-	-	
2019	-	-	-	-	-	
2020	-	-	-	-	-	
2021	-	-	-	-	-	
2022	-	-	-	-	-	
2023	-	-	-	-	-	
Total Annual	186,252	45,293	24,563	19,218	40,477	
<b>Lifecycle Reductions</b>						
2013	1,013,297	247,004	133,557	172,571	364,536	
2014	1,116,946	270,187	147,481	173,414	363,193	
2015	-	-	-	-	-	
2016	-	-	-	-	-	
2017	-	-	-	-	-	
2018	-	-	-	-	-	
2019	-	-	-	-	-	
2020	-	-	-	-	-	
2021	-	-	-	-	-	
2022	-	-	-	-	-	
2023	-	-	-	-	-	
Total Lifecycle	2,130,243	517,191	281,039	345,985	727,729	

Reductions based on total annual installations								
	Annual Wtd Avg Net kWh	Lifecycle Net kWh	Annual Wtd Avg Net Therms	Lifecycle Net Therms	Net July-Sept Wtd Avg Peak** (kW)	Net Wtd Avg Dec-Feb** (kW)	Wtd Avg User Entered kW	Net Annual NCP (kW)
2013	178,811,036	1,990,605,494	1,630,030	29,499,331	32,540	24,302	29,499	31,128
2014	187,955,550	2,211,113,177	1,655,025	29,643,475	32,682	22,918	31,627	43,911
2015	-	-	-	-	-	-	-	25,248
2016	-	-	-	-	-	-	-	(5,110)
2017	-	-	-	-	-	-	-	(7,500)
2018	-	-	-	-	-	-	-	(3,090)
2019	-	-	-	-	-	-	-	(9,119)
2020	-	-	-	-	-	-	-	(8,861)
2021	-	-	-	-	-	-	-	(2,613)
2022	-	-	-	-	-	-	-	(1,395)
2023	-	-	-	-	-	-	-	(3,776)
Total	366,766,586	4,201,718,671	3,285,055	59,142,805	65,222	47,220	61,126	58,823



Program Summary	Nominal	Present Value
Proposer Name	SDG&E	
Program Name	SDG&E Portfolio	
Total Program Budget (\$)	\$ 218,855,730	\$ 206,813,078
Net Participant Cost (\$)		\$ 72,289,459

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Persistent reductions in the summer (3rd Qtr) or winter (4th Qtr) of each year		
	Net July-Sept Peak (kW)	Net Annual Dec-Feb (kW)
2013	17,442	25,693
2014	53,531	51,538
2015	71,288	49,940
2016	65,719	45,334
2017	59,996	44,140
2018	56,995	38,914
2019	51,326	32,290
2020	46,358	29,500
2021	44,345	27,944
2022	43,245	27,510
2023	39,230	21,441
2024	31,394	15,237

These values are only approximations if there are dual baseline measures in the program

Monthly Impacts					
First Year for Impact Table:	2013 These values are only approximations if there are dual baseline measures in the program				
	Quarter	Hour Avg or TOU Peak	Net Monthly NCP (kW)	Monthly Net kWh	Monthly Net Therms
January-13	1	-	-	-	-
February-13	1	-	-	-	-
March-13	1	-	-	-	-
April-13	2	5,422	10,010	3,749,493	33,536
May-13	2	8,409	12,121	4,164,021	33,536
June-13	2	7,854	12,053	4,072,462	33,536
July-13	3	17,453	24,398	8,517,758	67,072
August-13	3	17,541	24,408	8,564,327	67,072
September-13	3	17,333	24,432	8,350,862	67,072
October-13	4	22,400	31,128	11,957,602	112,625
November-13	4	18,654	29,806	11,155,034	112,625
December-13	4	18,600	29,410	11,339,721	112,625
January-14	5	25,740	39,855	15,201,449	150,212
February-14	5	26,558	39,754	14,586,859	150,212
March-14	5	27,926	39,532	15,278,562	150,212
April-14	6	27,376	50,539	19,132,240	166,184
May-14	6	42,625	61,191	21,145,081	166,184
June-14	6	39,935	60,948	20,731,862	166,184
July-14	7	53,529	74,881	26,342,805	198,223
August-14	7	53,818	74,976	26,482,232	198,223
September-14	7	53,244	75,039	25,897,181	198,223
October-14	8	51,121	74,762	29,164,454	270,163
November-14	8	43,848	71,969	27,459,619	270,163
December-14	8	43,731	71,000	27,787,927	270,163
January-15	9	51,632	82,819	32,181,009	310,166
February-15	9	52,941	82,613	31,122,089	310,166
March-15	9	55,021	82,243	32,338,383	310,166
April-15	10	44,452	82,274	31,565,400	262,329
May-15	10	69,448	99,539	34,641,159	262,329
June-15	10	65,329	99,333	34,065,838	262,329
July-15	11	71,273	100,069	35,275,579	262,357
August-15	11	71,661	100,212	35,458,169	262,357
September-15	11	70,931	100,287	34,713,497	262,357
October-15	12	57,165	83,955	32,857,913	311,565
November-15	12	49,072	80,824	30,954,395	311,565
December-15	12	48,938	79,724	31,315,982	311,565
January-16	13	50,025	80,089	31,168,156	312,573
February-16	13	51,355	79,886	30,117,075	312,573
March-16	13	53,471	79,514	31,317,229	312,573
April-16	14	42,044	78,190	30,029,082	262,980
May-16	14	65,372	95,177	32,986,169	262,980
June-16	14	61,461	94,980	32,424,451	262,980
July-16	15	65,731	94,043	33,027,951	263,549
August-16	15	66,074	94,099	33,200,262	263,549
September-16	15	65,354	94,168	32,455,675	263,549
October-16	16	53,306	77,530	30,394,186	317,225
November-16	16	45,115	74,410	28,514,998	317,225
December-16	16	44,977	73,340	28,886,475	317,225
January-17	17	45,407	72,704	28,345,853	318,737
February-17	17	46,762	72,507	27,304,797	318,737
March-17	17	48,922	72,131	28,484,590	318,737
April-17	18	38,242	72,104	27,691,798	265,140
May-17	18	58,385	87,463	30,298,103	265,140
June-17	18	54,667	87,266	29,748,023	265,140
July-17	19	60,027	87,612	30,845,733	265,596

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Program Name	SDG&E Portfolio	
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August-17	19	60,336	87,611	31,009,882	265,596
September-17	19	59,625	87,678	30,269,336	265,596
October-17	20	51,201	74,360	29,134,425	323,353
November-17	20	42,981	71,266	27,279,957	323,353
December-17	20	42,845	70,220	27,657,509	323,353
January-18	21	44,214	71,188	27,715,706	324,368
February-18	21	45,566	70,992	26,684,501	324,368
March-18	21	47,748	70,622	27,852,577	324,368
April-18	22	37,115	70,695	27,056,588	263,454
May-18	22	56,045	84,587	29,424,989	263,454
June-18	22	52,324	84,323	28,865,087	263,454
July-18	23	57,016	83,356	29,386,838	260,402
August-18	23	57,321	83,398	29,544,252	260,402
September-18	23	56,648	83,466	28,860,217	260,402
October-18	24	46,200	68,664	27,017,655	351,277
November-18	24	39,407	65,917	25,378,305	351,277
December-18	24	39,292	64,867	25,666,421	351,277
January-19	25	38,990	63,550	24,966,685	367,076
February-19	25	39,975	63,347	24,149,111	367,076
March-19	25	41,493	63,075	25,102,375	367,076
April-19	26	32,742	61,287	23,903,708	251,271
May-19	26	50,975	75,324	26,147,802	251,271
June-19	26	47,753	75,469	25,795,911	251,271
July-19	27	51,278	74,142	26,024,295	248,245
August-19	27	51,614	74,310	26,170,475	248,245
September-19	27	51,086	74,351	25,650,288	248,245
October-19	28	37,367	58,629	23,478,439	412,817
November-19	28	33,311	56,460	22,193,147	412,817
December-19	28	33,216	55,348	22,296,736	412,817
January-20	29	32,362	53,737	21,526,528	427,927
February-20	29	32,891	53,526	20,966,064	427,927
March-20	29	33,516	53,363	21,660,025	427,927
April-20	30	28,214	51,520	20,677,416	242,121
May-20	30	45,410	65,616	22,761,976	242,121
June-20	30	42,712	66,232	22,628,974	242,121
July-20	31	46,248	66,335	23,254,733	242,049
August-20	31	46,620	66,596	23,395,256	242,049
September-20	31	46,206	66,608	22,994,295	242,049
October-20	32	31,872	52,353	21,332,346	448,777
November-20	32	29,470	50,493	20,233,514	448,777
December-20	32	29,378	49,318	20,219,334	448,777
January-21	33	29,565	49,568	20,130,923	449,156
February-21	33	29,918	49,353	19,663,678	449,156
March-21	33	30,147	49,225	20,263,040	449,156
April-21	34	26,937	49,091	19,841,552	241,904
May-21	34	43,431	62,937	21,816,657	241,904
June-21	34	40,826	63,648	21,722,339	241,904
July-21	35	44,221	63,714	22,316,981	241,904
August-21	35	44,602	63,991	22,457,223	241,904
September-21	35	44,211	63,994	22,077,086	241,904
October-21	36	29,891	49,865	20,456,198	449,731
November-21	36	27,932	48,081	19,402,499	449,731
December-21	36	27,840	46,884	19,355,751	449,731
January-22	37	28,006	47,160	19,289,547	449,799
February-22	37	28,287	46,944	18,859,931	449,799
March-22	37	28,356	46,829	19,421,107	449,799
April-22	38	26,028	47,275	19,224,779	241,904
May-22	38	42,068	61,054	21,142,595	241,904
June-22	38	39,532	61,835	21,077,202	241,904
July-22	39	43,114	62,314	21,793,119	241,904
August-22	39	43,500	62,599	21,933,221	241,904
September-22	39	43,121	62,599	21,563,476	241,904
October-22	40	29,160	48,778	20,064,105	450,172
November-22	40	27,311	47,013	19,021,678	450,172
December-22	40	27,219	45,811	18,966,796	450,172
January-23	41	27,572	46,398	18,995,886	450,479
February-23	41	27,853	46,182	18,566,271	450,479
March-23	41	27,923	46,067	19,127,447	450,479
April-23	42	24,444	44,616	18,173,915	231,729
May-23	42	39,914	58,065	19,974,452	231,729
June-23	42	37,415	58,823	19,924,106	231,729
July-23	43	39,095	56,831	19,642,068	221,553
August-23	43	39,464	57,186	19,770,659	221,553
September-23	43	39,130	57,191	19,479,889	221,553
October-23	44	23,420	41,876	17,246,557	421,585
November-23	44	22,794	40,564	16,472,658	421,585
December-23	44	22,750	39,450	16,358,904	421,585

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Program Impacts (Gross)					
	Wtd Annual Gross		Wtd Annual	Lifecycle	Wtd User
	kWh	Lifecycle Gross kWh	Gross Therms	Gross Therms	Entered kW
2013	323,544,144	3,560,894,109	2,643,640	48,034,830	50,171
2014	348,735,323	4,125,678,216	2,701,855	48,454,484	57,044
2013-2014	672,279,467	7,686,572,325	5,345,495	96,489,314	107,214

Wtd Avg Emissions Reductions (Gross)						
Annual Reductions	Electric Reductions			Gas Reductions		* annual reductions are the units implemented in the year, times the annual emission reduction for the measure, weighted for split baseline performance
	CO2 (tons)	NOX (lbs)	PM-10 (lbs)	CO2 (tons)	NOX (lbs)	
2013	165,163	40,374	21,755	15,465	34,033	
2014	177,127	43,082	23,358	15,806	34,359	
2015	-	-	-	-	-	
2016	-	-	-	-	-	
2017	-	-	-	-	-	
2018	-	-	-	-	-	
2019	-	-	-	-	-	
2020	-	-	-	-	-	
2021	-	-	-	-	-	
2022	-	-	-	-	-	
2023	-	-	-	-	-	
Total Annual	342,290	83,455	45,113	31,271	68,392	
<b>Lifecycle Reductions</b>						
2013	1,816,672	443,816	239,323	291,267	634,049	
2014	2,092,534	508,242	276,038	293,274	631,486	
2015	-	-	-	-	-	
2016	-	-	-	-	-	
2017	-	-	-	-	-	
2018	-	-	-	-	-	
2019	-	-	-	-	-	
2020	-	-	-	-	-	
2021	-	-	-	-	-	
2022	-	-	-	-	-	
2023	-	-	-	-	-	
Total Lifecycle	3,909,206	952,058	515,361	584,541	1,265,535	

Wtd Avg Reductions based on total annual installations (Gross)					
	Wtd Avg Annual Gross kWh	Wtd Avg Lifecycle Gross kWh	Wtd Avg Annual Gross Therms	Wtd Avg Lifecycle Gross Therms	Wtd Avg User Entered kW
2013	323,544,144	3,560,894,109	2,643,640	48,034,830	50,171
2014	348,735,323	4,125,678,216	2,701,855	48,454,484	57,044
2015	-	-	-	-	-
2016	-	-	-	-	-
2017	-	-	-	-	-
2018	-	-	-	-	-
2019	-	-	-	-	-
2020	-	-	-	-	-
2021	-	-	-	-	-
2022	-	-	-	-	-
2023	-	-	-	-	-
Total	672,279,467	7,686,572,325	5,345,495	96,489,314	107,214



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Gross Savings for Goal Attainment - kWh						
	1st Year Annual Savings	Decay of single or first baseline	2nd Baseline Savings	2nd Baseline Decay	Total Cumulative	Net Annual Savings
	kWh	kWh	kWh	kWh	kWh	kWh
2013	340,172,264		-	-	340,172,264	340,172,264
2014	727,056,780	-234458.2681		-	726,822,322	386,650,057
2015	727,056,780	-19452025.27	8,634,439		716,239,194	(10,583,128)
2016	727,056,780	-88407576.89	37,023,870		675,673,073	(40,566,121)
2017	727,056,780	-129977197.5	51,055,148		648,134,731	(27,538,342)
2018	727,056,780	-157000645.8	52,541,166		622,597,300	(25,537,431)
2019	727,056,780	-205176104.3	54,881,889		576,762,565	(45,834,735)
2020	727,056,780	-240496554.1	57,461,273		544,021,499	(32,741,066)
2021	727,056,780	-257651685.5	59,440,054		528,845,148	(15,176,351)
2022	727,056,780	-266669137	59,832,605		520,220,248	(8,624,900)

Gross Savings for Goal Attainment - kW						
	1st Year Annual Savings	Decay or single or first baseline	2nd Baseline Savings	2nd Baseline Decay	Total Cumulative	Net Annual Savings
	kW	kW	kW	kW	kW	kW
2013	52,904		-	-	52,904	52,904
2014	116,312	-66.69719444		-	116,245	63,341
2015	116,312	-3607.894492	1,577		114,281	(1,964)
2016	116,312	-16225.69453	6,567		106,653	(7,628)
2017	116,312	-24203.9306	9,019		101,127	(5,526)
2018	116,312	-27971.96042	9,148		97,488	(3,638)
2019	116,312	-33803.54354	9,340		91,848	(5,640)
2020	116,312	-38574.88606	9,605		87,341	(4,507)
2021	116,312	-41601.2157	9,828		84,539	(2,803)
2022	116,312	-43239.9305	9,873		82,944	(1,594)

Gross Savings for Goal Attainment - Therms						
	1st Year Annual Savings	Decay of single or first baseline	2nd Baseline Savings	2nd Baseline Decay	Total Cumulative	Net Annual Savings
	Therms	Therms	Therms	Therms	Therms	Therms
2013	2,797,211		-	-	2,797,211	2,797,211
2014	5,645,908	55.1823425		-	5,645,963	2,848,752
2015	5,645,908	13043.99366	(4,522)		5,654,430	8,466
2016	5,645,908	65449.42977	(11,570)		5,699,787	45,358
2017	5,645,908	126713.6497	(14,261)		5,758,361	58,573
2018	5,645,908	28214.41924	51,600		5,725,722	(32,638)
2019	5,645,908	21297.28526	154,164		5,821,369	95,647
2020	5,645,908	130986.5236	192,681		5,969,576	148,207
2021	5,645,908	136990.3075	193,514		5,976,413	6,837
2022	5,645,908	139531.1064	193,680		5,979,119	2,706