Docket:	:	R.12-03-014
Exhibit Number	:	
Commissioner	:	Michel Peter Florio
Admin. Law Judge	:	David M. Gamson
DRA Witness	:	Yakov Lasko
	:	

DIVISION OF RATEPAYER ADVOCATES
CALIFORNIA PUBLIC UTILITIES COMMISSION

DRA TESTIMONY

PREPARED TESTIMONY OF YAKOV LASKO ON BEHALF OF DRA

Order Instituting Rulemaking to Integrate and Refine Procurement Policies and Consider Long-Term Procurement Plans Track 1 – Local Reliability

(R.12-03-014)

San Francisco, California
June 25, 2012

584182

PREPARED TESTIMONY OF YAKOV LASKO

PREPARED TESTIMONY OF YAKOV LASKO

LOAD AND RESOURCE TABLES

Q1. What is the purpose of your testimony?

A1. I will discuss the load and resource assumptions used by DRA to develop and assess the need for new resources in the 2012 LTPP proceeding (R.12-03-014) to meet local capacity requirements (LCR) in Southern California Edison Company's (SCE) Big Creek/Ventura and LA Basin local areas. In the 2011 – 2012 ISO Transmission Plan, CAISO projects an OTC generation need for Big Creek/Ventura Area of 430 MW across all four scenarios.[1] For the Western LA Basin (sub-Area of the LA Basin LCR Area), CAISO projects a range of OTC generation need of 1,870 – 3,896 MW across all four scenarios. As presented in the testimony of Robert Fagan, DRA disagrees with the CAISO's projected need assumptions. Mr. Fagan's testimony shows that accounting for uncommitted incremental energy efficiency and demand response reduces CAISO's projected OTC generation need. The following load and resource tables show calculations and analyses behind DRA's energy efficiency and demand response assumptions.

Q2. Please discuss the assumptions and calculations incorporated into Figure 1.

A2.

Figure 1

Demand Forecast Form 1.5d: Final California Energy Demand Forecast, 2012 - 2022 (MW)												
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
SCE Service Area - LA Basin	17,489	17,931	18,362	18,626	18,884	19,167	19,418	19,670	19,938	20,209	20,478	20,740
SCE LA Basin %	81.2%	81.2%	81.2%	81.2%	81.2%	81.2%	81.2%	81.2%	81.2%	81.2%	81.2%	81.2%
SCE Service Area - Big Creek Ventura	3,374	3,458	3,542	3,593	3,643	3,698	3,746	3,795	3,846	3,898	3,951	4,001
SCE Big Creek Ventura %	15.7%	15.7%	15.7%	15.7%	15.7%	15.7%	15.7%	15.7%	15.7%	15.7%	15.7%	15.7%
SCE Service Area - Out of Basin	674	691	707	716	728	738	747	757	767	778	788	797
SCE Out of Basin %	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%
Total SCE Service Area	21,537	22,081	22,611	22,935	23,254	23,603	23,911	24,222	24,551	24,886	25,217	25,539
Total SCE TAC Area	24,179	24,774	25,353	25,712	26,060	26,436	26,769	27,106	27,462	27,822	28,174	28,516

Figure 1 shows the demand forecast in SCE's Service Areas for the years 2012 – 2022 using the Final California Energy Demand (CED) Forecast posted on May 30, 2012 on the California

[1] The four scenarios are: Trajectory, Environmentally Constrained, ISO Base Case and Time Constrained. Please see Attachment F for an expanded spreadsheet supporting Figure 1.

Energy Commission's (CEC) website.[2] The forecasted energy demand for SCE's two local areas LA Basin and Big Creek/Ventura, and the Out of LA Basin area, are based on a 1-in-10 net electricity peak demand. I took the sum of these three areas to calculate total SCE Service Area demand for each year. This total number was then used to compute each area's demand as a percentage of the total demand in SCE Service Area. I used these percentages to determine the total projected demand response (DR), incremental uncommitted energy efficiency (EE), and combined heat and power (CHP) for SCE for each of these three areas between now and 2022.

Q3. What is the CEC's mid-energy demand scenario?

A3. The CEC describes the mid-energy demand case, along with the high and low California Energy Demand (CED) forecasts on page 6 of its IEPR study as follows:

> "CED 2011 Final includes three full scenarios: a high energy demand case, a low energy demand case, and a mid-energy demand case. The high energy demand case incorporates relatively high economic/demographic growth, relatively low electricity and natural gas rates, and relatively low efficiency program and self-generation impacts. The low energy demand case includes lower economic/demographic growth, higher assumed rates, and higher efficiency program and self-generation impacts. The mid case uses input assumptions at levels between the high and low cases."

Q4. Please discuss the assumptions and calculations incorporated into Figure 2.

A4.

[2] http://www.energy.ca.gov/2012_energypolicy/documents/#no-meeting. The relevant pages are appended as Attachment A.

Figure 2

2010-2020 Mid-Case LTPP Forecast and 2021-2022 DRA Forecast												
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
SCE Total Incremental Uncommitted EE (GWh)	**0**	**0**	**1,147**	**1,837**	**2,501**	**3,312**	**4,255**	**5,206**	**6,033**	**6,764**	**7,440**	**7,812**
LA Basin by %	0	0	931	1492	2031	2690	3455	4227	4899	5493	6042	6344
Big Creek Ventura by %	0	0	180	288	392	519	667	816	945	1060	1166	1224
Out of Basin by %	0	0	36	57	78	104	133	163	188	212	233	244
SCE Total Incremental Uncommitted EE (MW)	**44**	**60**	**325**	**565**	**834**	**1,171**	**1,530**	**1,912**	**2,283**	**2,648**	**2,913**	**3,058**
LA Basin by %	36	49	264	459	677	951	1243	1553	1854	2150	2365	2484
Big Creek Ventura by %	7	9	51	89	131	183	240	300	358	415	456	479
Out of Basin by %	1	2	10	18	26	37	48	60	71	83	91	95
SCE Total DR (MW)	**1,641**	**2,502**	**2,685**	**2,749**	**2,842**	**2,842**	**2,842**	**2,842**	**2,842**	**2,842**	**2,842**	**2,842**
LA Basin by %	1333	2032	2181	2232	2308	2308	2308	2308	2308	2308	2308	2308
Big Creek Ventura by %	257	392	421	431	445	445	445	445	445	445	445	445
Out of Basin by %	51	78	84	86	89	89	89	89	89	89	89	89

Figure 2 shows the allocation of SCE's energy efficiency (EE) and demand response (DR) to each of the three areas for the years 2011 – 2022 using the mid-case LTPP Forecast.[3] To calculate the EE and DR for each area, I used the 2010 – 2020 mid-case LTPP forecast assumptions for SCE's incremental uncommitted EE (GWh), incremental uncommitted EE (MW), and demand response (DR). I then used DRA's assumptions about growth to project the numbers for 2021 and 2022. The methodology was as follows:

1. Incremental Uncommitted Energy Efficiency (GWh): For 2021, I projected an increase of 10% year on year, while for 2022 a more conservative projection of 5% was used. These projections are in line with the declining growth of incremental uncommitted EE (GWh) based on previous years. For example, for 2019, the year on year growth is projected to be 15.90%, while for 2020 it is only projected to be 12.11%.

2. Incremental Uncommitted Energy Efficiency (MW): For 2021 I projected an increase of 10% year on year, while for 2022 the conservative projection of 5% was used. Likewise, these projections are in line with a declining growth of incremental uncommitted EE (MW) based on previous years. For 2019, the year on year growth is projected to be 19.42%, while for 2020 it is only projected to be 15.98%.

[3] Please see Attachment B for the source of numbers used to prepare the CPUC Technical Attachment worksheet for 2010 – 2020 mid-case LTPP forecast. The CPUC Technical Attachment worksheet can be found here: http://www.cpuc.ca.gov/NR/rdonlyres/C382EBDD-7E00-4D2F-863B-7380EDBF843C/0/TechnicalAttachmentSpreadsheetv5.xls Please see Attachment F for an expanded spreadsheet supporting Figure 2.

3. Demand Response (MW): I used the same numbers (2,842 MW) for 2021 and 2022 in line with 2010 – 2020 mid-case LTPP forecast assumptions for the 2015 - 2020 years.

After computing the forecasts for SCE's total incremental uncommitted EE (GWh), total incremental uncommitted EE (MW) and total DR, I allocated the forecasted EE and DR to each of the three areas (LA Basin, Big Creek/Ventura, and Out of Basin) using each area's demand as a percentage of SCE's total Service Area demand. I calculated 81.2% for LA Basin, 15.7% for Big Creek Ventura and 3.1% for Out of Basin areas, as shown in Figure 1.

Q5. Please discuss the assumptions and calculations incorporated into Figure 3.

A5.

Figure 3

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
SCE Incremental Uncommitted Efficiency Savings: Mid Savings Scenario - Peak (MW) Draft for review at DAWG												
SCE Mid Savings Scenario	0	6	84	195	362	510	638	730	872	1002	1116	1225
LA Basin by %	0	5	68	158	294	414	518	593	708	814	906	995
Big Creek Ventura by %	0	1	13	31	57	80	100	114	137	157	175	192
Out of Basin by %	0	0	3	6	11	16	20	23	27	31	35	38
SCE Incremental Uncommitted Energy Savings: Mid Savings Scenario - Energy (GWh) Draft for review at DAWG												
SCE Mid Savings Scenario	25	50	315	809	1587	2304	2903	3265	3974	4626	5178	5684
LA Basin by %	20	41	256	657	1289	1871	2357	2651	3227	3757	4205	4616
Big Creek Ventura by %	4	8	49	127	249	361	455	512	623	725	811	891
Out of Basin by %	1	2	10	25	50	72	91	102	124	145	162	177
SCE Incremental Uncommitted Efficiency Savings: High Savings Scenario - Peak (MW) Draft for review at DAWG												
SCE High Savings Scenario	0	6	105	238	414	580	739	823	1004	1179	1342	1496
LA Basin by %	0	5	85	193	336	471	600	668	815	957	1090	1215
Big Creek Ventura by %	0	1	16	37	65	91	116	129	157	185	210	234
Out of Basin by %	0	0	3	7	13	18	23	26	31	37	42	47
SCE Incremental Uncommitted Energy Savings: High Savings Scenario - Energy (GWh) Draft for review at DAWG												
SCE High Savings Scenario	25	50	402	1060	1987	2887	3738	4226	5228	6191	7053	7845
LA Basin by %	20	41	326	861	1614	2344	3035	3432	4246	5028	5727	6371
Big Creek Ventura by %	4	8	63	166	311	452	586	662	819	970	1105	1229
Out of Basin by %	1	2	13	33	62	90	117	132	163	194	221	245

Figure 3 shows SCE's incremental uncommitted energy savings under two scenarios; the mid savings scenario and high savings scenario. As inputs into this table, I used the CEC's demand analysis working group's (DAWG) forecast assumptions for mid and high savings scenarios for incremental uncommitted efficiency savings.[4] The forecast assumptions were presented as a

[4] Please see Attachment C for CEC demand analysis working group's (DAWG) forecast assumptions for mid and high savings scenarios for incremental uncommitted efficiency savings. Please see Attachment F for an expanded spreadsheet supporting Figure 3.

(continued on next page)

draft for review at the DAWG meeting on June 18, 2012 for Pacific Gas & Electric Company, SCE, San Diego Gas &Electric Company and Southern California Gas Company. I replicated four tables for SCE based on DAWG's forecast assumptions for mid and high savings scenarios for energy (GWh) and Peak (MW).

Once the four tables were replicated, I allocated SCE's total incremental uncommitted efficiency savings for each table to LA Basin, Big Creek/Ventura and Out of Basin using each area's demand as a percentage of SCE's total Service Area demand. I calculated 81.2% for LA Basin, 15.7% for Big Creek Ventura and 3.1% for Out of Basin areas, as shown in Figure 1.

Q6. Please discuss the assumptions and calculations incorporated into Figure 4.

A6.

Figure 4

SCE 2011 DR Portfolio Summary Load Impact Final Report

2012-2022 Portfolio Aggregate Ex Ante Load Impact Estimates for 1-in-10 System Conditions

		2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Portfolio Total		1551	1767	1905	1909	1909	1909	1909	1909	1909	1909	1909
	Emergency Response	697	713	732	736	736	736	736	736	736	736	736
	Price Responsive	579	646	705	706	706	706	706	706	706	706	706
	Aggregator Managed	193	210	227	227	227	227	227	227	227	227	227
	Non-Event Based	5	6	7	7	7	7	7	7	7	7	7
	SmartConnect Enabled	82	198	240	240	240	240	240	240	240	240	240
SCE LA Basin		1259.5	1435.0	1547.1	1550.2	1550.2	1550.2	1550.2	1550.3	1550.3	1550.2	1550.3
SCE Big Creek Ventura		242.9	276.8	298.5	299.1	299.1	299.1	299.1	299.1	299.0	299.1	299.1
SCE Out of Basin		48.6	55.3	59.5	59.7	59.7	59.7	59.6	59.6	59.7	59.7	59.6

SCE 2011 DR Portfolio Summary Load Impact Final Report

2012-2022 Program Specific Aggregate Ex Ante Load Impact Estimates for 1-in-10 System Conditions

		2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Portfolio Total		1615	1830	1975	1979	1979	1979	1979	1979	1979	1979	1979
	Emergency Response	697	713	732	736	736	736	736	736	736	736	736
	Price Responsive	642	709	775	775	775	775	775	775	775	775	775
	Aggregator Managed	193	210	227	227	227	227	227	227	227	227	227
	Non-Event Based	17	19	22	23	23	23	23	23	23	23	23
	SmartConnect Enabled	82	198	240	240	240	240	240	240	240	240	240
SCE LA Basin		1311.49	1486.12	1603.90	1607.05	1607.08	1607.07	1607.08	1607.14	1607.11	1607.07	1607.16
SCE Big Creek Ventura		252.95	286.63	309.42	310.03	310.05	310.07	310.08	310.03	310.00	310.06	310.05
SCE Out of Basin		50.56	57.25	61.68	61.92	61.88	61.86	61.84	61.83	61.89	61.87	61.79

(continued from previous page)

Figure 4 looks at SCE's demand response (DR) load impact estimates for the years 2012 – 2022. To calculate this amount, I used SCE's 2011 *Demand Response Load Impact Evaluations Portfolio Summary* prepared by Freeman, Sullivan & Co. on May 30, 2012.[5] This report summarized the load reduction capability from SCE's portfolio of DR programs under a 1-in-2 and 1-in-10 system conditions for 2012 through 2022. The report notes that:

> "Two programs listed in the CPUC decision are not included in this report. Optional Binding Mandatory Curtailment (OBMC) is a program of last resort, triggered immediately prior to rolling blackouts and is not considered a DR program by SCE. The Scheduled Load Reduction Program (SLRP) is also not included because there are no participants in the program and no enrollments are projected."[6]

I created two tables, the first based on Appendix C of the *2012 Portfolio Aggregate Ex Ante Load Impact Estimates for 1-in-10 System Conditions* and Appendix E of the *2012 Program Specific Aggregate Ex Ante Load Impact Estimates for 1-in-10 System Conditions*. The difference between Portfolio Aggregate and Program Specific Aggregate forecasts is that Portfolio Aggregate forecast considers programs' overlap with each other, while Program Specific Aggregate does not. For each year, I chose the highest monthly system peak DR load impact estimate, which happened to be the month of August in all cases, to represent the forecasted amount of DR available to SCE in each year.

Once the two tables were completed, I allocated SCE's total forecasted DR available for each table to LA Basin, Big Creek Ventura and Out of Basin. I calculated 81.2% for LA Basin, 15.7% for Big Creek Ventura and 3.1% for Out of Basin areas, as shown in Figure as shown in Figure 1.

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[5] Please see Attachment D for SCE's 2011 *Demand Response Load Impact Evaluations Portfolio Summary* prepared by Freeman, Sullivan & Co. on May 30, 2012.

[6] SCE's 2011 *Demand Response Portfolio Summary Final Load Impact Report* prepared by Freeman, Sullivan & Co., pg. 1.

Q7. Please discuss the assumptions and calculations incorporated into Figure 5.

A7.

Figure 5

Scenario	SCE New CHP Market Penetration, MW														
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Base Case	28	55.75	83.5	111.25	139	180.6	222.2	263.8	305.4	347	360	373	386	399	412
Medium Case	49	98	147	196	245	325	405	485	565	645	665.8	686.6	707.4	728.2	749
High Case	102	204.25	306.5	408.75	511	702.4	893.8	1085.2	1276.6	1468	1530.6	1593.2	1655.8	1718.4	1781
SCE LA Basin %	81.2%	81.2%	81.2%	81.2%	81.2%	81.2%	81.2%	81.2%	81.2%	81.2%	81.2%	81.2%			
SCE Big Creek Ventura	15.7%	15.7%	15.7%	15.7%	15.7%	15.7%	15.7%	15.7%	15.7%	15.7%	15.7%	15.7%			
SCE Out of Basin %	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%			
SCE Base Case	28	55.75	83.5	111.25	139	180.6	222.2	263.8	305.4	347	360	373			
LA Basin	22.7	45.3	67.8	90.3	112.9	146.7	180.4	214.2	248.0	281.8	292.3	302.9			
Big Creek Ventura	4.4	8.7	13.1	17.4	21.8	28.3	34.8	41.3	47.8	54.4	56.4	58.4			
Out of Basin	0.9	1.7	2.6	3.5	4.3	5.6	6.9	8.2	9.5	10.9	11.3	11.6			
SCE Medium Case	49	98	147	196	245	325	405	485	565	645	665.8	686.6			
LA Basin	39.8	79.6	119.4	159.2	199.0	263.9	328.9	393.9	458.8	523.8	540.7	557.6			
Big Creek Ventura	7.7	15.3	23.0	30.7	38.4	50.9	63.5	76.0	88.5	101.0	104.3	107.6			
Out of Basin	1.5	3.1	4.6	6.1	7.7	10.2	12.7	15.2	17.7	20.2	20.8	21.4			
SCE High Case	102	204.25	306.5	408.75	511	702.4	893.8	1085.2	1276.6	1468	1530.6	1593.2			
LA Basin	82.8	165.9	248.9	331.9	415.0	570.4	725.8	881.3	1036.7	1192.1	1242.9	1293.8			
Big Creek Ventura	16.0	32.0	48.0	64.0	80.1	110.0	140.0	170.0	200.0	230.0	239.8	249.6			
Out of Basin	3.2	6.4	9.6	12.8	16.0	22.0	27.9	33.9	39.9	45.9	47.9	49.7			

Figure 5 looks at the new Combined Heat and Power (CHP) market penetration in SCE's Service Areas. For inputs to Figure 5, I used ICF International's *Combined Heat and Power: Policy Analysis and 2011 – 2030 Market Assessment* consultant report prepared for the CEC.[7] IFC's report contains three potential scenarios to estimate CHP for SCE: base case, medium case, and high case. Since the summary output for each scenario was based only on the years 2011, 2015, 2020, 2025, and 2030, I estimated the forecasted CHP numbers for intermediate years assuming a linear increase. Therefore, the forecasted numbers increase on a linear basis between each of the intervals 2011-2015, 2015 – 2020 and 2020 – 2025 ranges, but not for the entire range between 2011 – 2025.

[7] http://www.energy.ca.gov/2012publications/CEC-200-2012-002/CEC-200-2012-002.pdf

Please see Attachment E for relevant pages.

After I established the intermediate year forecasted projections for each of the three scenarios, I allocated SCE's total available forecasted CHP for each scenario to LA Basin, Big Creek/Ventura and Out of Basin using each area's demand as a percentage of SCE's total Service Area demand. I calculated 81.2% for LA Basin, 15.7% for Big Creek Ventura and 3.1% for Out of Basin areas, as shown in Figure as shown in Figure 1.

Q8. Does this conclude your testimony?

A8. Yes it does.

APPENDIX

WITNESS QUALIFICATIONS FOR YAKOV LASKO

Q.1 Please state your name and your business address.

A.1 My name is Yakov Lasko. I am employed by the California Public Utilities Commission, 505 Van Ness Avenue, San Francisco, California.

Q.2 What is your position with the staff of the Public Utilities Commission?

A.2 I am a Public Utilities Regulatory Analyst I in the Division of Ratepayer Advocates.

Q.3 Please state your related educational background.

A.3 I have a Bachelor of Arts Degree in Political Economy of Industrial Societies from the University of California, Berkeley. I also possess a Master of Science Degree in Corporate Finance from SDA Bocconi School of Management located in Milan, Italy.

Q.4 Please briefly describe your professional background and experience.

A.4 I joined the Division of Ratepayer Advocates' Energy Procurement and Planning Section in 2012. In DRA, I am working as an analyst on Resource Adequacy and Flexible Capacity. Other issues I have worked on include Long-term Planning and Procurement proceedings and Local Area Capacity Requirements.

Q.5 What is the purpose of your testimony?

A.5 The purpose of my testimony is to discuss the load and resource assumptions used by DRA to develop and assess the need for new resources in the 2012 LTPP proceeding (R.12-03-014) to meet Local Capacity Requirements in Southern California Edison Company's Big Creek/Ventura and LA Basin local areas.

Q.6 Does this conclude your statement of qualifications?

A.6 Yes.

ATTACHMENT A

Revised California Energy Demand Forecast, 2012-2022, Mid Case
January 2012

List of Forms

Form 1.5d - Statewide
Final California Energy Demand Forecast, 2012 - 2022
1 in 10 Net Electricity Peak Demand by Agency and Balancing Authority (MW)

Balancing Authority	Agency	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Average Annual Growth 2011 - 2022
	CCSF	133	137	141	143	146	148	149	151	152	153	154	155	1.40%
	NCPA - Greater Bay Area	237	244	250	254	258	262	266	269	273	276	279	281	1.56%
	Other NP15 LSEs - Bay Area	3	3	3	3	3	3	3	3	3	3	3	4	2.65%
	PG&E Service Area - Greater Bay Area	8,153	8,346	8,550	8,673	8,798	8,928	9,037	9,145	9,266	9,391	9,512	9,632	1.53%
	Silicon Valley Power	452	463	475	484	491	497	503	508	511	515	518	519	1.26%
Greater Bay Area Subtotal		8,978	9,193	9,418	9,558	9,696	9,838	9,958	10,076	10,205	10,337	10,465	10,590	1.51%
	CDWR-N	264	264	264	264	264	264	264	264	264	264	264	264	0.00%
	NCPA - Non Bay Area	237	243	249	253	257	260	263	267	270	274	277	280	1.53%
	Other NP15 LSEs - Non Bay Area	93	95	97	98	99	101	102	104	105	106	107	107	1.28%
	PG&E Service Area - Non Bay Area	9,696	9,924	10,165	10,314	10,463	10,615	10,746	10,874	11,018	11,165	11,310	11,453	1.53%
	WAPA	248	254	260	264	268	271	273	275	277	280	281	282	1.17%
Total North of Path 15		19,516	19,974	20,453	20,752	21,045	21,350	21,607	21,860	22,140	22,427	22,703	22,977	1.50%
	CDWR-ZP26	315	315	315	315	315	315	315	315	315	315	315	315	0.00%
	PG&E Service Area - ZP26	2,411	2,468	2,529	2,565	2,602	2,641	2,673	2,706	2,741	2,779	2,813	2,849	1.53%
Total Zone Path 26		2,726	2,783	2,844	2,880	2,917	2,956	2,988	3,021	3,056	3,094	3,128	3,164	1.36%
Total Valley		13,264	13,583	13,900	14,114	14,308	14,510	14,681	14,852	15,042	15,240	15,430	15,621	1.50%
Total North of Path 26		22,243	22,757	23,296	23,632	23,963	24,306	24,595	24,879	25,194	25,521	25,832	26,141	1.48%
	Merced	90	92	94	96	97	98	99	100	100	101	101	101	1.05%
	Turlock Irrigation District	512	524	537	545	552	559	564	570	578	584	591	596	1.39%
Total Turlock Irrigation District Control Area		601	616	631	641	649	657	663	671	678	686	692	697	1.36%
	City of Shasta Lake	21	22	22	23	23	23	23	23	23	23	23	23	0.83%
	Modesto Irrigation District	680	697	714	726	734	743	752	759	768	777	786	792	1.40%
	Redding	248	255	260	265	268	272	277	280	285	290	294	299	1.71%
	Roseville	351	360	369	375	381	385	391	396	401	407	411	415	1.53%
	SMUD	3,305	3,384	3,465	3,512	3,558	3,609	3,657	3,699	3,745	3,789	3,831	3,869	1.44%
	WAPA (SMUD)	206	212	217	222	225	228	230	233	235	237	238	239	1.36%
Total SMUD/WAPA Control Area		4,812	4,930	5,047	5,122	5,189	5,261	5,329	5,390	5,458	5,523	5,583	5,638	1.45%
	Anaheim	605	619	634	646	655	664	673	681	690	697	703	710	1.47%
	MWD	21	21	21	21	21	21	21	21	21	21	21	21	0.00%
	Other SP15 LSEs - LA Basin	291	298	305	311	314	318	323	327	331	336	339	343	1.51%
	Pasadena	313	321	328	333	336	339	342	346	349	353	357	360	1.28%
	Riverside	594	610	624	635	643	652	661	671	681	689	698	706	1.58%
	SCE Service Area - LA Basin	17,489	17,931	18,362	18,626	18,884	19,167	19,418	19,670	19,938	20,209	20,478	20,740	1.56%
	Vernon	177	181	185	190	192	193	193	193	193	193	192	191	0.69%
LA Basin Subtotal		19,489	19,981	20,460	20,761	21,044	21,355	21,629	21,909	22,203	22,498	22,788	23,071	1.55%
	CDWR-S	422	422	422	422	422	422	422	422	422	422	422	422	0.00%
	SCE Service Area - Big Creek Ventura	3,374	3,458	3,542	3,593	3,643	3,698	3,746	3,795	3,846	3,898	3,951	4,001	1.56%
Big Creek/Ventura Subtotal		3,796	3,880	3,964	4,015	4,065	4,120	4,168	4,217	4,268	4,320	4,373	4,423	1.40%
	MWD	210	210	210	209	210	210	211	211	212	212	212	212	0.09%
	Other SP15 LSEs - Out of LA Basin	10	12	12	12	13	13	13	13	13	13	13	12	1.67%
	SCE Service Area - Out of LA Basin	674	691	707	716	728	738	747	757	767	778	788	797	1.54%
Total SCE TAC Area		24,179	24,774	25,353	25,712	26,060	26,436	26,769	27,106	27,462	27,822	28,174	28,516	1.51%
SDG&E Service Area		4,851	4,988	5,124	5,224	5,321	5,428	5,544	5,653	5,760	5,863	5,962	6,055	2.04%
Total South of Path 26		29,030	29,762	30,477	30,936	31,381	31,863	32,312	32,759	33,221	33,684	34,135	34,571	1.60%
	Burbank	349	357	366	371	376	380	385	390	393	399	403	408	1.42%
	Glendale	380	390	399	406	410	417	421	427	434	438	445	451	1.57%
	LADWP	6,451	6,601	6,760	6,851	6,929	7,009	7,088	7,165	7,258	7,351	7,439	7,527	1.41%
Total LADWP Control Area		7,180	7,348	7,524	7,628	7,716	7,805	7,894	7,982	8,085	8,188	8,288	8,385	1.42%
Imperial Irrigation District Control Area		1,073	1,105	1,136	1,155	1,174	1,192	1,210	1,231	1,252	1,276	1,275	1,289	1.69%
Total CAISO Noncoincident Peak		51,272	52,519	53,774	54,568	55,344	56,169	56,908	57,637	58,415	59,203	59,966	60,711	1.55%
Total CAISO Coincident Peak		50,042	51,258	52,483	53,257	54,016	54,820	55,542	56,253	57,012	57,782	58,527	59,254	1.55%
Total Statewide Noncoincident Peak		64,939	66,518	68,110	69,113	70,071	71,083	72,004	72,910	73,888	74,875	75,804	76,721	1.53%
Total Statewide Coincident Peak		63,380	64,922	66,475	67,453	68,389	69,377	70,275	71,161	72,115	73,078	73,984	74,880	1.53%

Table only developed for the mid case. Table developed based on weather-adjusted 2011 peak estimates

ATTACHMENT B

Incremental Uncommitted EE (MW)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
PG&E Total	**98**	**128**	**388**	**620**	**871**	**1,180**	**1,511**	**1,857**	**2,184**	**2,496**
PG&E	89	117	354	565	794	1076	1377	1693	1991	2275
IOU Programs			116	229	340	443	548	651	752	853
Goals AB1109			25	24	16	35	71	107	122	119
Goals Standards			16	34	63	125	188	261	336	412
BBEES (Low)			56	114	191	272	356	449	547	648
Decay Replacement	89	117	141	164	184	201	214	225	234	243
SCE Total	**44**	**60**	**325**	**565**	**834**	**1,171**	**1,530**	**1,912**	**2,283**	**2,648**
SCE	41	56	302	525	775	1088	1422	1777	2122	2461
IOU Programs			131	258	382	497	614	727	839	951
Goals AB1109			19	17	10	25	53	83	95	93
Goals Standards			18	37	69	147	226	315	406	500
BBEES (Low)			67	137	231	329	432	547	667	792
Decay Replacement	41	56	67	76	83	90	97	105	115	125
SDG&E Total	**3**	**4**	**66**	**121**	**179**	**247**	**321**	**398**	**471**	**544**
SDG&E	3	4	60	110	163	225	293	363	430	496
IOU Programs			37	73	108	140	174	206	238	270
Goals AB1109			5	5	3	7	13	20	23	23
Goals Standards			3	6	11	22	34	48	61	75
BBEES (Low)			9	19	33	47	62	78	96	114
Decay Replacement	3	4	6	7	8	9	10	11	12	14

* Totals are grossed up to include line loss.

All values were taken from the CEC's Incremental Impacts of Energy Efficiency Policy Initiatives Relative to the 2009 Integrate d Energy Policy Report Adopted Demand Forecast, and the Attachment A: Technical Report
http://www.energy.ca.gov/2010publications/CEC-200-2010-001/index.html

Decay Replacement is from the CEC's report, Table 12, at page 50.
All other values are from the Attachment A, at the following Tables and Pages:
PG&E: BBEES, Table 7-4, at page 139; all other values from Table 7-8, at page 142.
SCE: BBEES, Table 8-4, at page 150; all other values from Table 8-8, at page 153.
SDG&E: BBEES, Table 9-4, at page 161; all other values from Table 9-8, at page 164.
Decay Replacement is from the CEC's report, Table 12, at page 50.

Incremental Uncommitted EE (GWh)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
PG&E Total	**0**	**0**	**1,590**	**2,253**	**2,865**	**3,652**	**4,570**	**5,480**	**6,217**	**6,817**
PG&E	0	0	1,449	2,054	2,612	3,329	4,166	4,995	5,667	6,214
IOU Programs			416	814	1,194	1,520	1,861	2,176	2,491	2,805
Goals AB1109			179	166	104	242	499	764	870	846
Goals Standards			23	56	107	186	266	360	457	556
BBEES (Low)			68	140	230	325	423	529	640	754
Decay Replacement			763	878	977	1,056	1,117	1,166	1,209	1,253
SCE Total	**0**	**0**	**1,147**	**1,837**	**2,501**	**3,312**	**4,255**	**5,206**	**6,033**	**6,764**
SCE	0	0	1,066	1,707	2,324	3,078	3,954	4,838	5,607	6,286
IOU Programs			525	1,028	1,511	1,933	2,372	2,782	3,191	3,599
Goals AB1109			130	105	41	143	343	552	634	613
Goals Standards			26	63	119	206	295	400	508	620
BBEES (Low)			82	168	277	391	511	640	775	916
Decay Replacement			303	343	376	405	433	464	499	538
SDG&E Total	**0**	**0**	**213**	**356**	**492**	**662**	**867**	**1,071**	**1,242**	**1,389**
SDG&E	0	0	194	325	449	604	791	977	1,133	1,267
IOU Programs			109	213	312	395	482	562	642	722
Goals AB1109			36	32	18	45	98	153	174	169
Goals Standards			6	14	27	45	63	84	106	129
BBEES (Low)			16	33	54	76	100	124	150	177
Decay Replacement			27	33	38	43	48	54	61	70

* Totals are grossed up to include line losses. The non-grossed up values have been used for RPS load calculation.

All values were taken from the CEC's Incremental Impacts of Energy Efficiency Policy Initiatives Relative to the 2009 Integrated Energy Policy Report Adopted Demand Forecast, and the Attachment A: Technical Report
http://www.energy.ca.gov/2010publications/CEC-200-2010-001/index.html

Decay Replacement is from the CEC's report, Table 12, at page 50.
All other values are from the Attachment A, at the following Tables and Pages:
PG&E: BBEES, Table 7-3, at page 139; all other values from Table 7-7, at page 142.
SCE: BBEES, Table 8-3, at page 150; all other values from Table 8-7, at page 153.
SDG&E: BBEES, Table 9-3, at page 161; all other values from Table 9-7, at page 164.
Decay Replacement is from the CEC's report, Table 12, at page 50.

Forecasted Demand Response Programs

		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
PG&E	*Total DR**	1,354	1,627	1,670	1,715	1,767	1,816	1,865	1,911	1,956	2,001
	Total DR	1,210	1,454	1,492	1,533	1,579	1,623	1,667	1,708	1,748	1,788
	Non-Emergency Demand Response (DR)	543	741	723	728	736	744	752	759	765	773
	Emergency DR	205	219	230	241	252	263	274	285	297	308
	Total AMI Enabled DR	210	231	259	284	311	336	361	384	406	427
	Non-Event Based DR (PLS/TOU)	252	263	280	280	280	280	280	280	280	280
SCE	*Total DR**	1,641	2,502	2,685	2,749	2,842	2,842	2,842	2,842	2,842	2,842
	Total DR	1,476	2,250	2,415	2,472	2,556	2,556	2,556	2,556	2,556	2,556
	Non-Emergency Demand Response (DR)	213	385	591	782	773	764	754	744	734	724
	Emergency DR	1,251	1,097	929	752	761	771	781	790	800	811
	Total AMI Enabled DR	0	755	883	925	1,009	1,009	1,009	1,009	1,009	1,009
	Non-Event Based DR (RTP)	13	13	13	13	13	13	13	13	13	13
SDG&E	*Total DR**	210	226	270	277	285	289	293	298	302	302
	Total DR	197	212	253	260	267	271	275	280	283	283
	Non-Emergency Demand Response (DR)	165	185	230	241	248	252	255	260	263	263
	Emergency DR	32	27	23	19	19	19	20	20	20	20
	*Total AMI Enabled DR***	0	0	0	0	0	0	0	0	0	0
	Non-Event Based DR	0	0	0	0	0	0	0	0	0	0

* Totals are grossed up to include line loss.
** SDG&E included AMI enabled DR in the 2010 Load Impacts.

AMI decisions are as follows: D.09-03-026 (PG&E), D.08-09-039 (SCE), and D.0704-043 (SDG&E)

PG&E Values:
PG&E's updated 2010-2010 ex-ante forecast, PG&E's LI forecast which included: residential and non-residential TOU, non-resident ial default PDP, residential voluntary PDP.
PG&E's emergency DR included BIP only assuming the Smart AC will have a "price trigger" (Application pending)
PG&E's AMI enabled DR is PTR and PCT
However, since PG&E did not provide any ex-ante forecast for some AMI-related DR programs, ED Staff developed the AMI-related M W from the AMI upgrade decision (D.09-03-026) and PG&E's workpapers.

SCE Values:
SCE's April 22, 2010 Ex-ante Portfolio Forecast, SCE's LI which included: non-residential default CPP
SCE emergency DR had the LI set at the cap, assuming AC cycling will have a "price trigger", and are based on the percentage fr om the Phase 3 settlement, with a peak load forecast consistent with the 2010 LTPP
SCE's AMI enabled DR includes CPP, PTR, and PCT
However, since SCE did not provide any ex-ante forecast for AMI-related DR programs, ED Staff developed the AMI-related MW from the SCE's AMI testimony & SCE AMI testimony (SCE-4 Errata) and the settlement adopted in D.08-09-039.

SDG&E Values:
SDG&E's April 2010 ex-ante portfolio forecast.
Emergency DR is set at the cap, assuming AC cycling will have a "price trigger", and are based on the percentage from the Phase 3 settlement.
In its supplemental comments, SDG&E indicated that the forecast for PTR reflects a degree of uncertainty since it is a new prog ram.
However, SDG&E's forecast is in line with the estimated MWs in its AMI settlement.

CALIFORNIA
ENERGY
COMMISSION

INCREMENTAL IMPACTS OF ENERGY EFFICIENCY POLICY INITIATIVES RELATIVE TO THE *2009 INTEGRATED ENERGY POLICY REPORT* ADOPTED DEMAND FORECAST

COMMITTEE REPORT

May 2010
CEC-200-2010-001-CTF

Arnold Schwarzenegger, *Governor*

Table 12: Cumulative Additional IOU Program Committed Savings From 50 Percent Decay Replacement Starting in 2006

	PG&E		SCE		SDG&E	
Forecast Year	Energy (GWh)	Peak (MW)	Energy (GWh)	Peak (MW)	Energy (GWh)	Peak (MW)
2006	15	3	3	1	0	0
2007	51	9	9	2	1	0
2008	131	23	35	7	3	1
2009	229	41	79	17	5	1
2010	350	63	129	28	9	2
2011	489	89	190	41	14	3
2012	637	117	255	56	21	4
2013	763	141	303	67	27	6
2014	878	164	343	76	33	7
2015	977	184	376	83	38	8
2016	1,056	201	405	90	43	9
2017	1,117	214	433	97	48	10
2018	1,166	225	464	105	54	11
2019	1,209	234	499	115	61	12
2020	1,253	243	538	125	70	14

Source: California Energy Commission, 2009

Alternative Peak Case

The end-use peak-to-energy ratios used to convert energy savings to peak are very sensitive to weather assumptions, particularly in the residential sector. The peak savings results presented in the previous section and corresponding ratios developed by Energy Commission staff assume an "average" weather year. In the *2008 Goals Study*, which formed the basis for the current IOU efficiency goals, Itron employed peak-to-energy ratios estimated for 2004 from load shapes used in the ASSET model.[49] In part because 2004 was a relatively cool year statewide, the ratios are significantly lower than in the "average" case. **Table 13** shows the effect in 2020 of replacing the Energy Commission average ratios with the 2004 values used by Itron for the combined IOUs during the uncommitted period, and **Table 14** provides the same comparison for the individual IOUs.

49. For a description of the sources of these load shapes, see pages 3-33 and 3-34 in the *2008 California Energy Efficiency Potential Study*: http://www.calmac.org/startDownload.asp?Name=PGE0264_Final_Report.pdf&Size=5406KB.

Incremental Impacts of Energy Efficiency Policy Initiatives Relative to the 2009 Integrated Energy Policy Report Adopted Demand Forecast

ATTACHMENT A: TECHNICAL REPORT

CONSULTANT REPORT

Prepared For:
California Energy Commission

Prepared By:
ITRON, Inc.

January 2010
CEC-200-2010-001-ATA

Prepared By:
Itron, Inc.
Consulting and Analysis Services
Oakland, cA
Contract No. 000-00-000

Prepared For:
California Energy Commission

Michael Jaske
Contract Manager

Michael Jaske
Project Manager

Bill Junker
Manager
Demand Analysis Office

Sylvia Bender
Deputy Director
Electricity Supply Analysis Division

Melissa Jones
Executive Director

Table 8-3. Summary of Incremental Uncommitted Energy Savings (GWh) Under Low Goals Case

SCE Results	2013	2014	2015	2016	2017	2018	2019	2020
Total All Sectors								
IOU programs	321	629	926	1,187	1,459	1,715	1,969	2,223
Huffman Bill	298	310	247	479	886	1,300	1,476	1,454
Title 24 & Fed Standards	14	35	67	122	179	244	310	378
BBEES	82	168	277	391	511	640	775	916
Incremental uncommitted	***715***	***1,142***	***1,517***	***2,181***	***3,035***	***3,899***	***4,530***	***4,971***
Total Residential								
IOU programs	130	250	363	449	542	624	705	785
Huffman Bill	173	157	94	228	481	742	848	827
Title 24 & Fed Standards	4	15	28	65	103	142	182	222
BBEES	36	74	125	179	234	297	363	431
Incremental uncommitted	***342***	***496***	***610***	***921***	***1,360***	***1,805***	***2,097***	***2,265***
Total Commercial								
IOU programs	89	175	258	332	408	480	552	624
Huffman Bill	126	153	153	251	405	558	628	628
Title 24 & Fed Standards	10	21	38	57	76	102	128	156
BBEES	46	93	152	213	277	343	413	485
Incremental uncommitted	***270***	***443***	***602***	***853***	***1,166***	***1,483***	***1,721***	***1,892***
Total Industry								
IOU programs	102	204	305	407	509	611	712	814
Title 24 & Fed Standards	0	0	0	0	0	0	0	0
BBEES	0	0	0	0	0	0	0	0
Incremental uncommitted	***102***	***204***	***305***	***407***	***509***	***611***	***712***	***814***

Table 8-4. Summary of Incremental Uncommitted Peak Demand Savings (MW) Under Low Goals Case

SCE Results	2013	2014	2015	2016	2017	2018	2019	2020
Total All Sectors								
IOU programs	87	171	255	332	410	486	562	637
Huffman Bill	43	46	38	72	129	188	213	211
Title 24 & Fed Standards	8	17	32	82	132	188	244	301
BBEES	67	137	231	329	432	547	667	792
Incremental uncommitted	***205***	***372***	***556***	***815***	***1,104***	***1,409***	***1,686***	***1,941***
Total Residential								
IOU programs	31	61	91	117	143	169	194	219
Huffman Bill	21	20	12	29	60	92	105	103
Title 24 & Fed Standards	5	12	22	68	114	163	213	264
BBEES	57	116	197	282	370	470	574	683
Incremental uncommitted	***115***	***209***	***322***	***495***	***687***	***894***	***1,087***	***1,269***
Total Commercial								
IOU programs	41	81	121	157	195	230	266	302
Huffman Bill	22	26	26	43	69	96	108	108
Title 24 & Fed Standards	2	5	9	14	19	25	31	38
BBEES	10	21	34	48	62	77	93	109
Incremental uncommitted	***75***	***134***	***190***	***262***	***345***	***428***	***498***	***557***
Total Industry								
IOU programs	14	29	43	58	72	87	101	115
Title 24 & Fed Standards	0	0	0	0	0	0	0	0
BBEES	0	0	0	0	0	0	0	0
Incremental uncommitted	***14***	***29***	***43***	***58***	***72***	***87***	***101***	***115***

Table 8-7. Summary of Incremental Uncommitted Energy Savings (GWh) Under Mid Goals Case

SCE Results	2013	2014	2015	2016	2017	2018	2019	2020
Total All Sectors								
IOU programs	525	1,028	1,511	1,933	2,372	2,782	3,191	3,599
Huffman Bill	130	105	41	143	343	552	634	613
Title 24 & Fed Standards	26	63	119	206	295	400	508	620
BBEES	92	189	313	443	579	727	882	1,042
Incremental uncommitted	***773***	***1,384***	***1,985***	***2,725***	***3,590***	***4,462***	***5,215***	***5,874***
Total Residential								
IOU programs	205	395	572	705	851	977	1,102	1,226
Huffman Bill	63	23	-40	9	129	256	301	279
Title 24 & Fed Standards	8	26	51	105	159	219	280	342
BBEES	50	103	173	246	323	410	500	594
Incremental uncommitted	***327***	***547***	***756***	***1,066***	***1,463***	***1,862***	***2,183***	***2,441***
Total Commercial								
IOU programs	178	350	516	663	815	958	1,101	1,244
Huffman Bill	67	81	81	133	215	296	333	333
Title 24 & Fed Standards	18	36	68	101	136	181	228	277
BBEES	42	86	140	197	256	317	382	448
Incremental uncommitted	***305***	***555***	***806***	***1,094***	***1,422***	***1,753***	***2,044***	***2,303***
Total Industry								
IOU programs	141	282	423	565	706	847	988	1,129
Title 24 & Fed Standards	0	0	0	0	0	0	0	0
BBEES	0	0	0	0	0	0	0	0
Incremental uncommitted	***141***	***282***	***423***	***565***	***706***	***847***	***988***	***1,129***

Table 8-8. Summary of Incremental Uncommitted Peak Demand Savings (MW) Under Mid Goals Case

SCE Results	2013	2014	2015	2016	2017	2018	2019	2020
Total All Sectors								
IOU programs	131	258	382	497	614	727	839	951
Huffman Bill	19	17	10	25	53	83	95	93
Title 24 & Fed Standards	18	37	69	147	226	315	406	500
BBEES	89	181	306	436	572	724	883	1,049
Incremental uncommitted	***256***	***493***	***767***	***1,104***	***1,465***	***1,849***	***2,224***	***2,593***
Total Residential								
IOU programs	46	91	134	172	210	248	284	320
Huffman Bill	8	3	-4	2	17	33	38	36
Title 24 & Fed Standards	13	27	51	120	190	267	346	427
BBEES	79	161	272	389	510	648	792	941
Incremental uncommitted	***146***	***282***	***453***	***682***	***927***	***1,195***	***1,460***	***1,724***
Total Commercial								
IOU programs	64	127	188	244	302	358	414	470
Huffman Bill	11	14	14	23	37	50	57	57
Title 24 & Fed Standards	5	10	18	27	36	48	60	73
BBEES	10	21	34	47	61	76	92	108
Incremental uncommitted	***90***	***171***	***253***	***341***	***436***	***533***	***622***	***707***
Total Industry								
IOU programs	20	40	61	81	101	121	141	162
Title 24 & Fed Standards	0	0	0	0	0	0	0	0
BBEES	0	0	0	0	0	0	0	0
Incremental uncommitted	***20***	***40***	***61***	***81***	***101***	***121***	***141***	***162***

ATTACHMENT C

California Energy Commission
Demand Analysis Working Group (DAWG)

June 18, 2012

Hearing Room B
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814

Dial-in: 866-740-1260
Participant code: 5859653#

Webex: https://cacconsulting.webex.com/cacconsulting/onstage/g.php?p=668631026&t=a
Password: DAWG

Agenda

10:00	Welcome and Introductions -- Dickerson	
10:10	Agenda Overview – Dickerson	
10:15:	DAWG Meeting dates through 2012 -- Dickerson	
10:20	IEPR Status – Kavalec	
10:30	Upcoming CPUC Workshop on Demand Forecasting & EM&V ---	Mackin
10:40	Update on LTPP -- Skinner	
10:50:	Expert Panel Report – Linville/Kavalec	
11:00	CPUC EE Potential and Goals -- Navigant	
12:00	Lunch on your own	
1:30	Incremental Uncommitted Energy Efficiency -- Kavalec	
3:30	Next Steps/Adjourn	

SCE – Incremental Uncommitted Efficiency Savings

Mid Savings Scenario – Energy (GWh)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Title 20 (non-lighting)	0	0	0	96	213	354	436	477	509	529	538	544
Fed Standards (non-lighting)	15	31	49	87	188	294	397	481	551	615	680	744
Title 24 (non-lighting)	10	19	29	53	108	160	211	261	309	357	403	449
Total Standards (non-lighting)	25	50	77	236	508	807	1044	1218	1370	1501	1621	1736
Total ET	0	0	0	0	0	0	0	0	0	0	0	0
Total HIM (non-lighting)	0	0	64	126	191	259	326	377	412	441	466	485
Total LI (non-lighting)	0	0	34	68	102	134	155	167	174	180	184	186
Total MOI (non-lighting)	0	0	20	47	86	136	198	270	345	418	480	529
Total Secondary (non-lighting)	0	0	109	241	373	502	626	750	869	985	1097	1206
Usage-Based Behavior	0	0	11	22	23	25	27	29	31	33	35	37
Lighting (non-ET)	0	0	0	68	303	441	527	455	773	1069	1297	1504
Total ET and Measures	0	0	238	573	1079	1497	1859	2047	2604	3125	3557	3947
Total Savings	25	50	315	809	1587	2304	2903	3265	3974	4626	5178	5684

Mid Savings Scenario – Peak (MW)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Title 20 (non-lighting)	0	0	0	8	23	39	49	54	59	61	61	62
Fed Standards (non-lighting)	0	2	4	10	40	69	98	126	152	177	203	228
Title 24 (non-lighting)	0	4	8	15	31	47	61	76	90	104	118	131
Total Standards (non-lighting)	0	6	11	34	94	155	209	256	301	342	382	422
Total ET	0	0	0	0	0	0	0	0	0	0	0	0
Total HIM (non-lighting)	0	0	19	36	52	67	82	94	101	107	112	116
Total LI (non-lighting)	0	0	10	20	30	39	45	48	51	52	53	54
Total MOI (non-lighting)	0	0	5	5	8	12	15	19	23	26	30	33
Total Secondary (non-lighting)	0	0	19	42	65	88	110	132	153	173	193	212
Usage-Based Behavior	0	0	0	0	0	0	0	0	0	0	0	0
Lighting (non-ET)	0	0	20	59	113	150	177	181	244	301	346	387
Total ET and Measures	0	0	73	161	268	356	429	474	571	660	734	803
Total Savings	0	6	84	195	362	510	638	730	872	1002	1116	1225

SCE – Incremental Uncommitted Efficiency Savings

High Savings Scenario – Energy (GWh)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Title 20 (non-lighting)	0	0	0	96	213	354	436	477	509	529	538	544
Fed Standards (non-lighting)	15	31	49	87	188	294	397	481	551	615	680	744
Title 24 (non-lighting)	10	19	29	53	108	160	211	261	309	357	403	449
Total Standards (non-lighting)	25	50	77	236	508	807	1044	1218	1370	1501	1621	1736
Total ET	0	0	60	146	272	449	685	798	1072	1361	1647	1911
Total HIM (non-lighting)	0	0	68	133	201	272	342	396	433	463	489	509
Total LI (non-lighting)	0	0	36	72	107	140	163	175	183	189	193	196
Total MOI (non-lighting)	0	0	21	50	90	143	208	283	363	439	504	555
Total Secondary (non-lighting)	0	0	114	253	392	527	657	787	912	1034	1151	1267
Usage-Based Behavior	0	0	11	22	23	25	27	29	31	33	35	37
Lighting (non-ET)	0	0	16	150	393	524	611	540	865	1171	1414	1634
Total ET and Measures	0	0	325	824	1478	2080	2694	3008	3858	4689	5433	6109
Total Savings	25	50	402	1060	1987	2887	3738	4226	5228	6191	7053	7845

High Savings Scenario – Peak (MW)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Title 20 (non-lighting)	0	0	0	8	23	39	49	54	59	61	61	62
Fed Standards (non-lighting)	0	2	4	8	16	25	34	40	45	49	54	58
Title 24 (non-lighting)	0	4	8	15	31	47	61	76	90	104	118	131
Total Standards (non-lighting)	0	6	11	31	70	111	144	170	194	214	233	251
Total ET	0	0	12	30	55	91	140	151	207	271	336	399
Total HIM (non-lighting)	0	0	20	38	55	71	86	98	106	112	118	122
Total LI (non-lighting)	0	0	10	21	31	41	47	51	53	55	56	57
Total MOI (non-lighting)	0	0	6	5	8	12	16	20	24	28	31	35
Total Secondary (non-lighting)	0	0	20	44	68	92	115	139	161	182	203	223
Usage-Based Behavior	0	0	0	0	0	0	0	0	0	0	0	0
Lighting (non-ET)	0	0	26	69	126	162	190	195	259	318	366	409
Total ET and Measures	0	0	94	206	343	469	595	653	810	965	1109	1244
Total Savings	0	6	105	238	414	580	739	823	1004	1179	1342	1496

ATTACHMENT D

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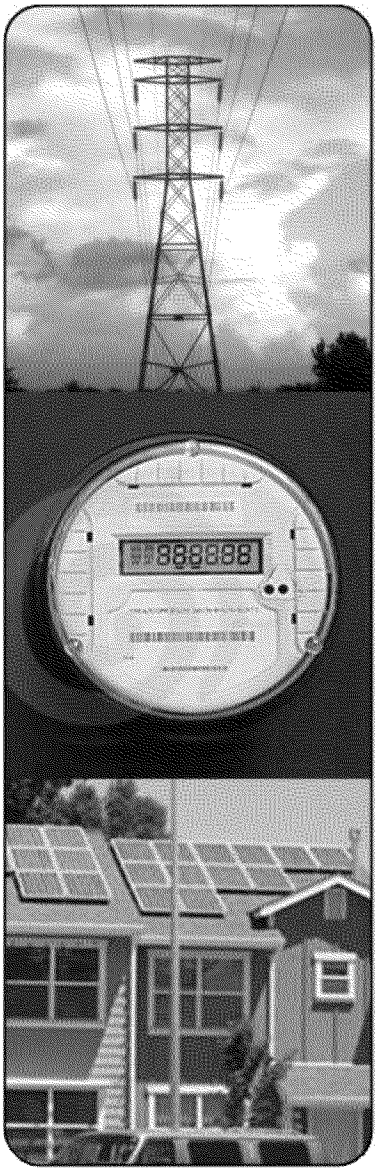

Southern California Edison's 2011 Demand Response Load Impact Evaluations Portfolio Summary

May 30, 2012

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Appendix C Portfolio Aggregate Ex Ante Load Impact Estimates for 1-in-10 System Conditions by Month and Forecast Year

Table C-1:
2012 Portfolio Aggregate Ex Ante Load Impact Estimates for 1-in-10 System Conditions

Program Type	Program	Monthly System Peak											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Emergency Response	BIP-15	115	113	118	128	142	136	129	131	136	134	116	125
	BIP-30	381	477	475	492	468	453	449	460	456	439	352	442
	AP-I	22	24	31	41	47	47	44	46	41	39	20	27
	SDP COM-B	-	-	-	-	-	6	9	12	9	-	-	-
	SDP COM-E	-	-	-	-	-	26	37	49	39	-	-	-
	SUB-TOTAL	518	615	624	661	657	667	668	697	681	611	487	594
Price Responsive	SDP RES	-	-	-	-	-	481	561	544	544	-	-	-
	CPP-L	-	-	-	-	-	28	27	27	27	-	-	-
	CPP-M	-	-	-	-	-	1	1	1	1	-	-	-
	CPP-S	-	-	-	-	-	0	0	0	0	-	-	-
	DBP	5	6	6	7	7	7	7	7	7	7	5	6
	SUB-TOTAL	5	6	6	7	7	516	596	579	580	7	5	6
Aggregator Managed	CBP-DA	-	-	-	-	5	5	5	5	5	5	-	-
	CBP-DO	-	-	-	-	21	21	21	21	21	21	-	-
	DRC-DA	-	-	-	-	10	10	13	14	14	15	-	-
	DRC-DO	-	-	-	-	128	137	144	154	159	161	-	-
	SUB-TOTAL	0	0	0	0	164	174	183	193	200	202	0	0
Non-Event Based	RTP	1	1	1	1	1	-2	2	5	6	5	1	1
	SUB-TOTAL	1	1	1	1	1	-2	2	5	6	5	1	1
SmartConnect Enabled	SPD	-	-	-	-	-	82	82	82	82	-	-	-
	SUB-TOTAL	0	0	0	0	0	82	82	82	82	0	0	0
PORTFOLIO TOTAL		523	620	630	668	828	1440	1528	1551	1542	820	492	600

Table C-2:
2013 Portfolio Aggregate Ex Ante Load Impact Estimates for 1-in-10 System Conditions

Program Type	Program	Monthly System Peak											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Emergency Response	BIP-15	117	115	120	130	144	138	131	133	138	136	118	127
	BIP-30	388	485	483	501	476	461	456	468	464	446	358	450
	AP-I	23	26	34	44	50	50	47	49	44	41	21	29
	SDP COM-B	-	-	-	-	-	7	10	13	10	-	-	-
	SDP COM-E	-	-	-	-	-	26	37	51	42	-	-	-
	SUB-TOTAL	527	626	636	674	671	681	681	713	698	623	496	606
Price Responsive	SDP RES	-	-	-	-	-	523	616	605	613	-	-	-
	CPP-L	-	-	-	-	-	28	28	27	28	-	-	-
	CPP-M	-	-	-	-	-	1	1	1	1	-	-	-
	CPP-S	-	-	-	-	-	0	0	0	0	-	-	-
	DBP	5	6	7	8	9	12	12	12	12	12	8	10
	SUB-TOTAL	5	6	7	8	9	564	657	646	654	12	8	10
Aggregator Managed	CBP-DA	-	-	-	-	6	6	6	6	6	6	-	-
	CBP-DO	-	-	-	-	22	22	22	22	22	22	-	-
	DRC-DA	-	-	-	-	10	10	13	14	14	15	-	-
	DRC-DO	-	-	-	-	141	151	159	169	175	177	-	-
	SUB-TOTAL	0	0	0	0	178	189	199	210	217	220	0	0
Non-Event Based	RTP	1	1	2	2	2	-2	2	6	8	5	2	2
	SUB-TOTAL	1	1	2	2	2	-2	2	6	8	5	2	2
SmartConnect Enabled	SPD	-	-	-	-	-	198	198	198	198	-	-	-
	SUB-TOTAL	0	0	0	0	0	198	198	198	198	0	0	0
PORTFOLIO TOTAL		533	632	643	682	858	1632	1735	1767	1766	854	504	615

Table C-3:
2014 Portfolio Aggregate Ex Ante Load Impact Estimates for 1-in-10 System Conditions

Program Type	Program	Monthly System Peak											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Emergency Response	BIP-15	118	117	121	132	147	140	133	135	140	138	119	129
	BIP-30	395	494	491	509	485	469	464	476	472	454	364	458
	AP-I	24	27	36	46	53	53	50	52	46	43	22	30
	SDP COM-B	-	-	-	-	-	8	11	15	12	-	-	-
	SDP COM-E	-	-	-	-	-	29	41	55	46	-	-	-
	SUB-TOTAL	537	638	649	687	684	699	699	732	715	635	505	617
Price Responsive	SDP RES	-	-	-	-	-	583	681	664	666	-	-	-
	CPP-L	-	-	-	-	-	29	28	28	28	-	-	-
	CPP-M	-	-	-	-	-	1	1	1	1	-	-	-
	CPP-S	-	-	-	-	-	0	0	0	0	-	-	-
	DBP	9	10	10	12	12	12	12	13	13	12	9	10
	SUB-TOTAL	9	10	10	12	12	625	723	705	708	12	9	10
Aggregator Managed	CBP-DA	-	-	-	-	6	6	6	6	6	6	-	-
	CBP-DO	-	-	-	-	22	22	22	22	22	22	-	-
	DRC-DA	-	-	-	-	10	10	13	14	14	15	-	-
	DRC-DO	-	-	-	-	155	166	174	186	193	195	-	-
	SUB-TOTAL	0	0	0	0	193	204	215	227	235	237	0	0
Non-Event Based	RTP	2	2	2	2	3	-2	3	7	9	6	3	3
	SUB-TOTAL	2	2	2	2	3	-2	3	7	9	6	3	3
SmartConnect Enabled	SPD	-	-	-	-	-	240	240	240	240	-	-	-
	SUB-TOTAL	0	0	0	0	0	240	240	240	240	0	0	0
PORTFOLIO TOTAL		547	648	659	699	889	1768	1877	1905	1898	885	514	627

Table C-4:
2015-2022 Portfolio Aggregate Ex Ante Load Impact Estimates for 1-in-10 System Conditions

Program Type	Program	Monthly System Peak											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Emergency Response	BIP-15	120	118	123	133	148	141	134	135	141	138	119	129
	BIP-30	401	501	498	515	489	473	468	478	474	455	364	458
	AP-I	26	28	37	47	54	54	51	52	46	43	22	30
	SDP COM-B	-	-	-	-	-	8	11	15	12	-	-	-
	SDP COM-E	-	-	-	-	-	29	41	55	46	-	-	-
	SUB-TOTAL	546	648	657	696	692	705	704	736	718	637	505	618
Price Responsive	SDP RES	-	-	-	-	-	583	681	664	666	-	-	-
	CPP-L	-	-	-	-	-	29	28	28	28	-	-	-
	CPP-M	-	-	-	-	-	1	1	1	1	-	-	-
	CPP-S	-	-	-	-	-	0	0	0	0	-	-	-
	DBP	9	10	10	12	12	12	12	13	13	12	9	10
	SUB-TOTAL	9	10	10	12	12	626	723	706	708	12	9	10
Aggregator Managed	CBP-DA	-	-	-	-	6	6	6	6	6	6	-	-
	CBP-DO	-	-	-	-	22	22	22	22	22	22	-	-
	DRC-DA	-	-	-	-	10	10	13	14	14	15	-	-
	DRC-DO	-	-	-	-	155	166	174	186	193	195	-	-
	SUB-TOTAL	0	0	0	0	193	204	215	227	235	237	0	0
Non-Event Based	RTP	3	3	3	3	3	-2	3	7	10	6	3	3
	SUB-TOTAL	3	3	3	3	3	-2	3	7	10	6	3	3
SmartConnect Enabled	SPD	-	-	-	-	-	240	240	240	240	-	-	-
	SUB-TOTAL	0	0	0	0	0	240	240	240	240	0	0	0
PORTFOLIO TOTAL		556	658	668	708	897	1775	1882	1909	1901	887	514	628

Appendix E Program Specific Ex Ante Load Impact Estimates for 1-in-10 System Conditions by Month and Forecast Year

Table E-1:
2012 Program Specific Aggregate Ex Ante Load Impact Estimates for 1-in-10 System Conditions

Program Type	Program	Monthly System Peak											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Emergency Response	BIP-15	115	113	118	128	142	136	129	131	136	134	116	125
	BIP-30	381	477	475	492	468	453	449	460	456	439	352	442
	AP-I	22	24	31	41	47	47	44	46	41	39	20	27
	SDP COM-B	-	-	-	-	-	6	9	12	9	-	-	-
	SDP COM-E	-	-	-	-	-	26	37	49	39	-	-	-
	SUB-TOTAL	518	615	624	661	657	667	668	697	681	611	487	594
Price Responsive	SDP RES	-	-	-	-	-	481	561	544	544	-	-	-
	CPP-L	-	-	-	-	-	29	28	28	28	-	-	-
	CPP-M	-	-	-	-	-	1	1	1	1	-	-	-
	CPP-S	-	-	-	-	-	0	0	0	0	-	-	-
	DBP	53	57	59	66	66	66	67	70	68	67	50	58
	SUB-TOTAL	53	57	59	66	66	576	657	642	642	67	50	58
Aggregator Managed	CBP-DA	-	-	-	-	5	5	5	5	5	5	-	-
	CBP-DO	-	-	-	-	21	21	21	21	21	21	-	-
	DRC-DA	-	-	-	-	10	10	13	14	14	15	-	-
	DRC-DO	-	-	-	-	128	137	144	154	159	161	-	-
	SUB-TOTAL	0	0	0	0	164	174	183	193	200	202	0	0
Non-Event Based	RTP	-1	-1	-2	0	0	-6	6	17	23	15	-1	-1
	SUB-TOTAL	-1	-1	-2	0	0	-6	6	17	23	15	-1	-1
SmartConnect Enabled	SPD	-	-	-	-	-	82	82	82	82	-	-	-
	SUB-TOTAL	0	0	0	0	0	82	82	82	82	0	0	0
PORTFOLIO TOTAL		570	671	683	727	887	1499	1589	1615	1605	880	537	652

Table E-2:
2013 Program Specific Aggregate Ex Ante Load Impact Estimates for 1-in-10 System Conditions

Program Type	Program	Monthly System Peak											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Emergency Response	BIP-15	117	115	120	130	144	138	131	133	138	136	118	127
	BIP-30	388	485	483	501	476	461	456	468	464	446	358	450
	AP-I	23	26	34	44	50	50	47	49	44	41	21	29
	SDP COM-B	-	-	-	-	-	7	10	13	10	-	-	-
	SDP COM-E	-	-	-	-	-	26	37	51	42	-	-	-
	SUB-TOTAL	527	626	636	674	671	681	681	713	698	623	496	606
Price Responsive	SDP RES	-	-	-	-	-	523	616	605	613	-	-	-
	CPP-L	-	-	-	-	-	29	29	28	29	-	-	-
	CPP-M	-	-	-	-	-	1	1	1	1	-	-	-
	CPP-S	-	-	-	-	-	0	0	0	0	-	-	-
	DBP	52	57	59	68	69	71	72	74	73	72	51	62
	SUB-TOTAL	52	57	59	68	69	625	718	709	715	72	51	62
Aggregator Managed	CBP-DA	-	-	-	-	6	6	6	6	6	6	-	-
	CBP-DO	-	-	-	-	22	22	22	22	22	22	-	-
	DRC-DA	-	-	-	-	10	10	13	14	14	15	-	-
	DRC-DO	-	-	-	-	141	151	159	169	175	177	-	-
	SUB-TOTAL	0	0	0	0	178	189	199	210	217	220	0	0
Non-Event Based	RTP	-1	-1	-2	0	0	-7	7	19	26	17	-1	-1
	SUB-TOTAL	-1	-1	-2	0	0	-7	7	19	26	17	-1	-1
SmartConnect Enabled	SPD	-	-	-	-	-	198	198	198	198	-	-	-
	SUB-TOTAL	0	0	0	0	0	198	198	198	198	0	0	0
PORTFOLIO TOTAL		580	684	696	742	918	1693	1796	1830	1828	914	547	667

Table E-3:
2014 Program Specific Aggregate Ex Ante Load Impact Estimates for 1-in-10 System Conditions

Program Type	Program	Monthly System Peak											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Emergency Response	BIP-15	118	117	121	132	147	140	133	135	140	138	119	129
	BIP-30	395	494	491	509	485	469	464	476	472	454	364	458
	AP-I	24	27	36	46	53	53	50	52	46	43	22	30
	SDP COM-B	-	-	-	-	-	8	11	15	12	-	-	-
	SDP COM-E	-	-	-	-	-	29	41	55	46	-	-	-
	SUB-TOTAL	537	638	649	687	684	699	699	732	715	635	505	617
Price Responsive	SDP RES	-	-	-	-	-	583	681	664	666	-	-	-
	CPP-L	-	-	-	-	-	30	29	29	29	-	-	-
	CPP-M	-	-	-	-	-	1	1	1	1	-	-	-
	CPP-S	-	-	-	-	-	0	0	0	0	-	-	-
	DBP	63	67	70	76	76	79	79	82	79	76	61	69
	SUB-TOTAL	63	67	70	76	76	693	790	775	776	76	61	69
Aggregator Managed	CBP-DA	-	-	-	-	6	6	6	6	6	6	-	-
	CBP-DO	-	-	-	-	22	22	22	22	22	22	-	-
	DRC-DA	-	-	-	-	10	10	13	14	14	15	-	-
	DRC-DO	-	-	-	-	155	166	174	186	193	195	-	-
	SUB-TOTAL	0	0	0	0	193	204	215	227	235	237	0	0
Non-Event Based	RTP	-1	-1	-3	-1	-1	-8	8	22	31	19	-2	-2
	SUB-TOTAL	-1	-1	-3	-1	-1	-8	8	22	31	19	-2	-2
SmartConnect Enabled	SPD	-	-	-	-	-	240	240	240	240	-	-	-
	SUB-TOTAL	0	0	0	0	0	240	240	240	240	0	0	0
PORTFOLIO TOTAL		600	705	719	764	953	1836	1945	1975	1965	949	566	686

Table E-4:
2015-2022 Program Specific Aggregate Ex Ante Load Impact Estimates for 1-in-10 System Conditions

Program Type	Program	Monthly System Peak											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Emergency Response	BIP-15	120	118	123	133	148	141	134	135	141	138	119	129
	BIP-30	401	501	498	515	489	473	468	478	474	455	364	458
	AP-I	26	28	37	47	54	54	51	52	46	43	22	30
	SDP COM-B	-	-	-	-	-	8	11	15	12	-	-	-
	SDP COM-E	-	-	-	-	-	29	41	55	46	-	-	-
	SUB-TOTAL	546	648	657	696	692	705	704	736	718	637	505	618
Price Responsive	SDP RES	-	-	-	-	-	583	681	664	666	-	-	-
	CPP-L	-	-	-	-	-	30	30	29	30	-	-	-
	CPP-M	-	-	-	-	-	1	1	1	1	-	-	-
	CPP-S	-	-	-	-	-	0	0	0	0	-	-	-
	DBP	63	67	70	76	76	79	79	82	79	76	61	69
	SUB-TOTAL	63	67	70	76	76	693	791	775	776	76	61	69
Aggregator Managed	CBP-DA	-	-	-	-	6	6	6	6	6	6	-	-
	CBP-DO	-	-	-	-	22	22	22	22	22	22	-	-
	DRC-DA	-	-	-	-	10	10	13	14	14	15	-	-
	DRC-DO	-	-	-	-	155	166	174	186	193	195	-	-
	SUB-TOTAL	0	0	0	0	193	204	215	227	235	237	0	0
Non-Event Based	RTP	-2	-2	-3	-1	-1	-8	9	23	33	19	-2	-2
	SUB-TOTAL	-2	-2	-3	-1	-1	-8	9	23	33	19	-2	-2
SmartConnect Enabled	SPD	-	-	-	-	-	240	240	240	240	-	-	-
	SUB-TOTAL	0	0	0	0	0	240	240	240	240	0	0	0
PORTFOLIO TOTAL		609	715	727	772	960	1842	1950	1979	1968	950	566	687

ATTACHMENT E

CONSULTANT REPORT

COMBINED HEAT AND POWER: POLICY ANALYSIS AND 2011 – 2030 MARKET ASSESSMENT

Prepared for: California Energy Commission

Prepared by: ICF International, Inc.

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Table D-3: Base Case SCE Summary Output

CHP Measurement	2011	2015	2020	2025	2030
Cumulative Market Penetration (MW)					
Industrial	17	87	217	254	257
Commercial/Institutional	8	42	108	132	138
Residential	0	1	1	2	2
Cumulative Market Penetration, MW	26	130	326	388	397
Avoided Electric Cooling, MW	2	9	20	24	25
Scenario Grand Total	28	139	347	412	422
Annual Electric Energy (Million kWh)					
Industrial	132	661	1622	1893	1,915
Commercial/Institutional	56	282	707	850	886
Residential	1	4	9	11	12
Total	**189**	**947**	**2,337**	**2,755**	**2812**
Avoided Cooling	6	29	67	78	81
Scenario Grand Total	195	976	2,404	2,833	2,893
CHP Fuel, (billion Btu/year)	1831	9,157	22,233	26,036	26,560
Avoided Boiler Fuel (Billion Btu/year)	672	3,362	7,874	9,207	9,365
Incremental Onsite Fuel (billion Btu/year)	1,159	5,795	14,359	16,829	17,195
Cumulative Investment (million 2011 $)	$38	$192	$497	$600	$627
Cumulative Capital Incentives(Million 2011 $)	$3	$14	$14	$14	$14
Annual Electric Energy (Million 2011 $)					
Total	**$14.17**	**$70.86**	**$199.25**	**$258.89**	**$277.06**
Avoided Cooling	$0.97	$4.83	$11.76	$14.77	$15.86
Scenario Grand Total	$15.14	$75.69	$211.01	$273.66	$292.92
Incremental Onsite Fuel (million 2011 $)					
CHP Fuel	$11.75	$58.77	$171.60	$236.49	$272.27
Avoided Boiler Fuel	$4.74	$23.69	$65.73	$89.47	$101.81
Total	**$7.02**	**$35.09**	**$105.87**	**$147.01**	**$170.45**
Cumulative Market Penetration by Size and Year, MW					
50-500 kW	0.1	0.3	4.2	9.1	10.0
500kW-1,000kW	1.3	6.7	18.9	25.9	27.1
1-5 MW	6.5	32.7	97.8	120.5	124.1
5-20 MW	9.5	47.3	123.1	141.7	144.0
>20 MW	8.6	42.9	82.3	90.5	91.5
Total Market	**26.0**	**130.0**	**326.4**	**387.6**	**396.7**
Avoided CO_2 Emissions, Annual basis compared to RPS/C&T, thousand MT	22	111	173	64	64
Cumulative Avoided CO_2 Emissions, thousand MT	22	332	1,074	1,612	1,932
Average unit Emissions savings, lb/MWh	250.1	250.1	159.1	49.6	48.7
Avoided CO_2 Emissions compared to no policy case, Annual basis, thousand MT	30	148	362	432	441
Cumulative Avoided CO_2 Emissions, thousand MT	30	444	1,827	3,847	6,033
Average unit Emissions savings, lb/MWh	334.6	334.6	331.9	336.2	335.9

Source: ICF International, Inc.

Table D-10: Medium Case SCE Summary Output

CHP Measurement	2011	2015	2020	2025	2030
Cumulative Market Penetration (MW)					
Industrial	38	189	488	559	564
Commercial/Institutional	9	46	131	160	167
Residential	0	1	2	3	3
Cumulative Market Penetration, MW	47	235	621	721	734
Avoided Electric Cooling, MW	2	9	24	28	29
Scenario Grand Total	49	245	645	749	764
Annual Electric Energy (Million kWh)					
Industrial	295	1476	3779	4315	4,356
Commercial/Institutional	61	305	838	1011	1,054
Residential	1	4	16	20	20
Total	**357**	**1,785**	**4,633**	**5,346**	**5431**
Avoided Cooling	6	31	78	92	95
Scenario Grand Total	363	1,817	4,711	5,437	5,526
CHP Fuel, (billion Btu/year)	3385	16,924	43,332	49,766	50,546
Avoided Boiler Fuel (Billion Btu/year)	1335	6,674	16,656	19,080	19,338
Incremental Onsite Fuel (billion Btu/year)	2,050	10,250	26,676	30,687	31,208
Cumulative Investment (million 2011 $)	$65	$326	$856	$1,009	$1,047
Cumulative Capital Incentives(Million 2011 $)	$3	$15	$45	$51	$52
Annual Electric Energy (Million 2011 $)					
Total	**$25.15**	**$125.76**	**$365.12**	**$466.93**	**$504.84**
Avoided Cooling	$1.04	$5.19	$13.73	$17.25	$18.52
Scenario Grand Total	$26.19	$130.95	$378.85	$484.17	$523.37
Incremental Onsite Fuel (million 2011 $)					
CHP Fuel	$20.76	$103.81	$307.05	$412.33	$471.03
Avoided Boiler Fuel	$8.91	$44.54	$126.71	$167.76	$189.54
Total	**$11.85**	**$59.27**	**$180.34**	**$244.57**	**$281.49**
Cumulative Market Penetration by Size and Year, MW					
50-500 kW	0.1	0.5	10.8	18.4	20.1
500kW-1,000kW	1.5	7.7	29.2	38.7	40.4
1-5 MW	7.2	36.2	123.1	150.6	155.1
5-20 MW	10.0	50.1	132.3	152.1	154.6
>20 MW	28.2	140.9	325.4	361.2	364.1
Total Market	**47.1**	**235.3**	**620.8**	**721.1**	**734.2**
Avoided CO_2 Emissions, Annual basis compared to RPS/C&T, thousand MT	48	241	507	413	416
Cumulative Avoided CO_2 Emissions, thousand MT	48	723	2,724	4,976	7,048
Average unit Emissions savings, lb/MWh	292.4	292.4	237.0	167.4	165.8
Avoided CO_2 Emissions compared to no policy case, Annual basis, thousand MT	56	281	730	851	865
Cumulative Avoided CO_2 Emissions, thousand MT	56	844	3,597	7,610	11,906
Average unit Emissions savings, lb/MWh	341.4	341.4	341.7	345.0	344.9

Source: ICF International, Inc.

Table D-17: High Case SCE Summary Output

CHP Measurement	2011	2015	2020	2025	2030
Cumulative Market Penetration (MW)					
Industrial	73	367	1022	1197	1,213
Commercial/Institutional	23	117	366	479	513
Residential	1	3	11	16	17
Cumulative Market Penetration, MW	97	487	1,399	1,692	1743
Avoided Electric Cooling, MW	5	24	69	89	95
Scenario Grand Total	102	511	1,468	1,781	1,839
Annual Electric Energy (Million kWh)					
Industrial	568	2838	7856	9176	9,294
Commercial/Institutional	151	757	2285	2939	3,138
Residential	4	21	78	109	118
Total	**723**	**3,616**	**10,220**	**12,224**	**12550**
Avoided Cooling	16	78	214	270	286
Scenario Grand Total	739	3,694	10,434	12,494	12,836
CHP Fuel, (billion Btu/year)	6609	33,046	92,730	110,951	114,041
Avoided Boiler Fuel (Billion Btu/year)	2156	10,782	29,606	35,536	36,461
Incremental Onsite Fuel (billion Btu/year)	4,453	22,263	63,124	75,414	77,580
Cumulative Investment (million 2011 $)	$131	$655	$1,816	$2,221	$2,205
Cumulative Capital Incentives(Million 2011 $)	$11	$54	$194	$254	$268
Annual Electric Energy (Million 2011 $)					
Total	**$58.69**	**$293.45**	**$918.03**	**$1,211.67**	**$1,316.43**
Avoided Cooling	$2.96	$14.79	$43.09	$57.68	$63.37
Scenario Grand Total	$61.65	$308.24	$961.11	$1,269.34	$1,379.80
Incremental Onsite Fuel (million 2011 $)					
CHP Fuel	$38.53	$192.64	$573.87	$783.70	$895.56
Avoided Boiler Fuel	$14.19	$70.96	$206.94	$280.98	$317.49
Total	**$24.34**	**$121.69**	**$366.93**	**$502.72**	**$578.07**
Cumulative Market Penetration by Size and Year, MW					
50-500 kW	5.6	28.1	117.4	180.0	197.3
500kW-1,000kW	4.3	21.6	77.0	104.8	110.8
1-5 MW	16.9	84.5	288.2	362.4	377.4
5-20 MW	21.6	108.0	303.6	357.1	364.0
>20 MW	48.9	244.4	613.1	687.5	693.9
Total Market	**97.3**	**486.6**	**1399.3**	**1691.8**	**1743.4**
Avoided CO_2 Emissions, Annual basis compared to RPS/C&T, thousand MT	82	412	882	617	617
Cumulative Avoided CO_2 Emissions, thousand MT	82	1,237	4,708	8,325	11,410
Average unit Emissions savings, lb/MWh	246.0	246.0	186.4	108.9	106.0
Avoided CO_2 Emissions compared to no policy case, Annual basis, thousand MT	101	504	1418	1717	1763
Cumulative Avoided CO_2 Emissions, thousand MT	101	1,513	6,777	14,765	23,488
Average unit Emissions savings, lb/MWh	301.1	301.1	299.7	303.0	302.8

Source: ICF International, Inc.

ATTACHMENT F

Figure 1

Demand Forecast Form 1.5d: Final California Energy Demand Forecast, 2012 - 2022 (MW)												
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
SCE Service Area - LA Basin	17,489	17,931	18,362	18,626	18,884	19,167	19,418	19,670	19,938	20,209	20,478	20,740
SCE LA Basin %	81.2%	81.2%	81.2%	81.2%	81.2%	81.2%	81.2%	81.2%	81.2%	81.2%	81.2%	81.2%
SCE Service Area - Big Creek Ventura	3,374	3,458	3,542	3,593	3,643	3,698	3,746	3,795	3,846	3,898	3,951	4,001
SCE Big Creek Ventura %	15.7%	15.7%	15.7%	15.7%	15.7%	15.7%	15.7%	15.7%	15.7%	15.7%	15.7%	15.7%
SCE Service Area - Out of Basin	674	691	707	716	728	738	747	757	767	778	788	797
SCE Out of Basin %	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%
Total SCE Service Area	21,537	22,081	22,611	22,935	23,254	23,603	23,911	24,222	24,551	24,886	25,217	25,539
Total SCE TAC Area	24,179	24,774	25,353	25,712	26,060	26,436	26,769	27,106	27,462	27,822	28,174	28,516

*Numbers from Form 1.5d: Final CA Energy Demand Forecast, 2012-2022; 1 in 10 Net Electricity Peak Demand by Agency and Balancing Authority (MW)

Figure 2

2010-2020 Mid-Case LTPP Forecast and 2021-2022 DRA Forecast												
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
SCE Total Incremental Uncommitted EE (GWh)	**0**	**0**	**1,147**	**1,837**	**2,501**	**3,312**	**4,255**	**5,206**	**6,033**	**6,764**	**7,440**	**7,812**
SCE	0	0	1,066	1,707	2,324	3,078	3,954	4,838	5,607	6,286		
IOU Programs			525	1,028	1,511	1,933	2,372	2,782	3,191	3,599		
Goals AB1109			130	105	41	143	343	552	634	613		
Goals Standards			26	63	119	206	295	400	508	620		
BBEES (Low)			82	168	277	391	511	640	775	916		
Decay Replacement			303	343	376	405	433	464	499	538		
LA Basin by %	0	0	931	1492	2031	2690	3455	4227	4899	5493	6042	6344
Big Creek Ventura by %	0	0	180	288	392	519	667	816	945	1060	1166	1224
Out of Basin by %	0	0	36	57	78	104	133	163	188	212	233	244
SCE Total Incremental Uncommitted EE (MW)	**44**	**60**	**325**	**565**	**834**	**1,171**	**1,530**	**1,912**	**2,283**	**2,648**	**2,913**	**3,058**
SCE	41	56	302	525	775	1088	1422	1777	2122	2461		
IOU Programs			131	258	382	497	614	727	839	951		
Goals AB1109			19	17	10	25	53	83	95	93		
Goals Standards			18	37	69	147	226	315	406	500		
BBEES (Low)			67	137	231	329	432	547	667	792		
Decay Replacement	41	56	67	76	83	90	97	105	115	125		
LA Basin by %	36	49	264	459	677	951	1243	1553	1854	2150	2365	2484
Big Creek Ventura by %	7	9	51	89	131	183	240	300	358	415	456	479
Out of Basin by %	1	2	10	18	26	37	48	60	71	83	91	95
SCE Total DR (MW)	**1,641**	**2,502**	**2,685**	**2,749**	**2,842**	**2,842**	**2,842**	**2,842**	**2,842**	**2,842**	**2,842**	**2,842**
Total DR	1,476	2,250	2,415	2,472	2,556	2,556	2,556	2,556	2,556	2,556		
Non-Emergency DR	213	385	591	782	773	764	754	744	734	724		
Emergency DR	1,251	1,097	929	752	761	771	781	790	800	811		
Total AMI Enabled DR	0	755	883	925	1,009	1,009	1,009	1,009	1,009	1,009		
Non-Event Based DR (RTP)	13	13	13	13	13	13	13	13	13	13		
LA Basin by %	1333	2032	2181	2232	2308	2308	2308	2308	2308	2308	2308	2308
Big Creek Ventura by %	257	392	421	431	445	445	445	445	445	445	445	445
Out of Basin by %	51	78	84	86	89	89	89	89	89	89	89	89

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
SCE LA Basin %	81.2%	81.2%	81.2%	81.2%	81.2%	81.2%	81.2%	81.2%	81.2%	81.2%	81.2%	81.2%
SCE Big Creek Ventura %	15.7%	15.7%	15.7%	15.7%	15.7%	15.7%	15.7%	15.7%	15.7%	15.7%	15.7%	15.7%
SCE Out of Basin %	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%

Source: **Demand Forecast (CED 2012-2022, Form 1.5d)**

Figure 3

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
SCE Incremental Uncommitted Efficiency Savings: Mid Savings Scenario - Peak (MW) Draft for review at DAWG												
SCE Mid Savings Scenario	**0**	**6**	**84**	**195**	**362**	**510**	**638**	**730**	**872**	**1002**	**1116**	**1225**
Title 20 (non-lighting)	0	0	0	8	23	39	49	54	59	61	61	62
Fed Standards (non-lighting)	0	2	4	10	40	69	98	126	152	177	203	228
Title 24 (non-lighting)	0	4	8	15	31	47	61	76	90	104	118	131
Total Standards (non-lighting)	**0**	**6**	**11**	**34**	**94**	**155**	**209**	**256**	**301**	**342**	**382**	**422**
Total ET	0	0	0	0	0	0	0	0	0	0	0	0
Total HIM (non-lighting)	0	0	19	36	52	67	82	94	101	107	112	116
Total LI (non-lighting)	0	0	10	20	30	39	45	48	51	52	53	54
Total MOI (non-lighting)	0	0	5	5	8	12	15	19	23	26	30	33
Total Secondary (non-lighting)	0	0	19	42	65	88	110	132	153	173	193	212
Usage-Based Behavior	0	0	0	0	0	0	0	0	0	0	0	0
Lighting (non-ET)	0	0	20	59	113	150	177	181	244	301	346	387
Total ET and Measures	**0**	**0**	**73**	**161**	**268**	**356**	**429**	**474**	**571**	**660**	**734**	**803**
LA Basin by %	0	5	68	158	294	414	518	593	708	814	906	995
Big Creek Ventura by %	0	1	13	31	57	80	100	114	137	157	175	192
Out of Basin by %	0	0	3	6	11	16	20	23	27	31	35	38
SCE Incremental Uncommitted Energy Savings: Mid Savings Scenario - Energy (GWh) Draft for review at DAWG												
SCE Mid Savings Scenario	**25**	**50**	**315**	**809**	**1587**	**2304**	**2903**	**3265**	**3974**	**4626**	**5178**	**5684**
Title 20 (non-lighting)	0	0	0	96	213	354	436	477	509	529	538	544
Fed Standards (non-lighting)	15	31	49	87	188	294	397	481	551	615	680	744
Title 24 (non-lighting)	10	19	29	53	108	160	211	261	309	357	403	449
Total Standards (non-lighting)	**25**	**50**	**77**	**236**	**508**	**807**	**1044**	**1218**	**1370**	**1501**	**1621**	**1736**
Total ET	0	0	0	0	0	0	0	0	0	0	0	0
Total HIM (non-lighting)	0	0	64	126	191	259	326	377	412	441	466	485
Total LI (non-lighting)	0	0	34	68	102	134	155	167	174	180	184	186
Total MOI (non-lighting)	0	0	20	47	86	136	198	270	345	418	480	529
Total Secondary (non-lighting)	0	0	109	241	373	502	626	750	869	985	1097	1206
Usage-Based Behavior	0	0	11	22	23	25	27	29	31	33	35	37
Lighting (non-ET)	0	0	0	68	303	441	527	455	773	1069	1297	1504
Total ET and Measures	**0**	**0**	**238**	**573**	**1079**	**1497**	**1859**	**2047**	**2604**	**3125**	**3557**	**3947**
LA Basin by %	20	41	256	657	1289	1871	2357	2651	3227	3757	4205	4616
Big Creek Ventura by %	4	8	49	127	249	361	455	512	623	725	811	891
Out of Basin by %	1	2	10	25	50	72	91	102	124	145	162	177
SCE Incremental Uncommitted Efficiency Savings: High Savings Scenario - Peak (MW) Draft for review at DAWG												
SCE High Savings Scenario	**0**	**6**	**105**	**238**	**414**	**580**	**739**	**823**	**1004**	**1179**	**1342**	**1496**
Title 20 (non-lighting)	0	0	0	8	23	39	49	54	59	61	61	62
Fed Standards (non-lighting)	0	2	4	8	16	25	34	40	45	49	54	58
Title 24 (non-lighting)	0	4	8	15	31	47	61	76	90	104	118	131
Total Standards (non-lighting)	**0**	**6**	**11**	**31**	**70**	**111**	**144**	**170**	**194**	**214**	**233**	**251**
Total ET	0	0	12	30	55	91	140	151	207	271	336	399
Total HIM (non-lighting)	0	0	20	38	55	71	86	98	106	112	118	122
Total LI (non-lighting)	0	0	10	21	31	41	47	51	53	55	56	57
Total MOI (non-lighting)	0	0	6	5	8	12	16	20	24	28	31	35
Total Secondary (non-lighting)	0	0	20	44	68	92	115	139	161	182	203	223
Usage-Based Behavior	0	0	0	0	0	0	0	0	0	0	0	0
Lighting (non-ET)	0	0	26	69	126	162	190	195	259	318	366	409
Total ET and Measures	**0**	**0**	**94**	**206**	**343**	**469**	**595**	**653**	**810**	**965**	**1109**	**1244**
LA Basin by %	0	5	85	193	336	471	600	668	815	957	1090	1215
Big Creek Ventura by %	0	1	16	37	65	91	116	129	157	185	210	234
Out of Basin by %	0	0	3	7	13	18	23	26	31	37	42	47
SCE Incremental Uncommitted Energy Savings: High Savings Scenario - Energy (GWh) Draft for review at DAWG												
SCE High Savings Scenario	**25**	**50**	**402**	**1060**	**1987**	**2887**	**3738**	**4226**	**5228**	**6191**	**7053**	**7845**
Title 20 (non-lighting)	0	0	0	96	213	354	436	477	509	529	538	544
Fed Standards (non-lighting)	15	31	49	87	188	294	397	481	551	615	680	744
Title 24 (non-lighting)	10	19	29	53	108	160	211	261	309	357	403	449
Total Standards (non-lighting)	**25**	**50**	**77**	**236**	**508**	**807**	**1044**	**1218**	**1370**	**1501**	**1621**	**1736**
Total ET	0	0	60	146	272	449	685	798	1072	1361	1647	1911
Total HIM (non-lighting)	0	0	68	133	201	272	342	396	433	463	489	509
Total LI (non-lighting)	0	0	36	72	107	140	163	175	183	189	193	196
Total MOI (non-lighting)	0	0	21	50	90	143	208	283	363	439	504	555
Total Secondary (non-lighting)	0	0	114	253	392	527	657	787	912	1034	1151	1267
Usage-Based Behavior	0	0	11	22	23	25	27	29	31	33	35	37
Lighting (non-ET)	0	0	16	150	393	524	611	540	865	1171	1414	1634
Total ET and Measures	**0**	**0**	**325**	**824**	**1478**	**2080**	**2694**	**3008**	**3858**	**4689**	**5433**	**6109**
LA Basin by %	20	41	326	861	1614	2344	3035	3432	4246	5028	5727	6371
Big Creek Ventura by %	4	8	63	166	311	452	586	662	819	970	1105	1229
Out of Basin by %	1	2	13	33	62	90	117	132	163	194	221	245