Application of SAN DIEGO GAS & ELECTRIC COMPANY (U 902 E) For Authority To Update Marginal Costs, Cost Allocation, And Electric Rate Design.

Application: 15-04-012
Exhibit No.: SDG&E-04

(PUBLIC VERSION)

PREPARED DIRECT TESTIMONY OF

KENNETH E. SCHIERMEYER

ON BEHALF OF SAN DIEGO GAS & ELECTRIC COMPANY IN

SUPPORT OF SECOND AMENDED APPLICATION

CHAPTER 4

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

February 9, 2016

TABLE OF CONTENTS

PREPARED DIRECT TESTIMONY OF

KENNETH E. SCHIERMEYER IN SUPPORT OF SECOND AMENDED APPLICATION

CHAPTER 4

I. OVERVIEW AND PURPOSE

The purpose of this testimony is to present the forecast of electric sales for San Diego Gas & Electric Company's ("SDG&E") Test Year ("TY") 2016 General Rate Case ("GRC") Phase 2. This testimony also discusses the request to update the electric sales forecast, beyond the approved test-year, for use in the billing determinant process.

The testimony is organized as follows:

- **Section II – Background:** Provides a background of recent applications that introduced an electric sales forecast. Provides the justification for the introduction of an updated electric sales forecast in this proceeding.
- **Section III – Forecast of TY 2016 Electric Sales:** Presents SDG&E's updated electric sales for TY 2016. Presents the differences between the electric sales forecast provided in this testimony and the electric sales forecast that was provided in TY 2016 GRC Phase 1 application.
- **Section IV – Update to Sales Forecast Drivers:** Describes the sources and development of the electric sales forecast. Outlines the changes in the electric sales forecast drivers with those submitted in TY 2016 GRC Phase 1.
- **Section V – TY 2016 Monthly Rate Schedule & Hourly Forecasts:** Describes the process that splits the annual electric sales forecast into monthly rate schedule and hourly forecasts. The monthly rate schedule breakout of the electric sales forecast is used by SDG&E witness Christopher Swartz (Chapter 2), and the

hourly breakout of the electric sales forecast is used by SDG&E witnesses Robert Anderson (Chapter 3) and Jeffrey Shaughnessy (Chapter 7).

- **Section VI - Proposal for Annual Sales Forecast Updates:** Presents SDG&E's proposal to update its electric sales forecast on an annual basis, beyond the approved test-year.
- **Section VII - Conclusion**
- **Section VIII - Witness Qualifications**
- **Attachment A – CEC Consumption Tables**
- **Attachment B – CEC Private Supply Tables**
- **Attachment C – CEC AAEE Table**
- **Attachment D – R1 Electric Sales** (contains confidential information)
- **Attachment E – Net Electric Sales** (contains confidential information)
- **Attachment F – Delivered Electric Sales** (contains confidential information)

II. BACKGROUND

In the prior GRC, SDG&E submitted an electric sales forecast in Phase 1 of the proceeding, and the same forecast was subsequently used in and implemented with Phase 2 of the proceeding. In this GRC, SDG&E filed a sales forecast as part of the 2016 GRC Phase 1 application (Application ("A.") 14-11-003).[1] However, consistent with direction set forth in in Decision ("D.") 15-08-040, SDG&E is submitting an updated 2016 TY electric sales forecast as part of this testimony in support of its proposal to change its time of use ("TOU") periods, as discussed in the testimony of Cynthia Fang (Chapter 1) and Robert Anderson (Chapter 3).

[1] A.14-11-003, Direct Testimony of Kenneth Schiermeyer.

In D.15-08-040, SDG&E's 2015 Rate Design Window ("RDW") Application ("A.") 14-01-027), the California Public Utility Commission ("Commission") denied SDG&E's proposal to change its TOU periods without prejudice,[2] providing SDG&E the opportunity to make a similar proposal in its GRC Phase 2 application.[3] As discussed in the testimony of Ms. Fang and Mr. Anderson, SDG&E is including in this proceeding, a proposal to change SDG&E's existing TOU periods. In support of this proposal, the most recent, detailed electric sales data is presented in this chapter. Consistent with the direction set forth in D.15-08-040, SDG&E is therefore submitting a revised 2016 TY electric sales forecast as part of this testimony in support of its proposal to change TOU periods.

III. FORECAST OF TY 2016 ELECTRIC SALES

SDG&E requests that the Commission approve the updated forecast of electric sales for SDG&E's TY 2016, as presented in this testimony. Table KS-1 sets forth the updated forecast of energy sales for SDG&E's electric customers.

TABLE KS-1:

ANNUAL ELECTRIC SALES (GWh)

Sector	**TY 2016**
Residential	7,378
Non-Residential	12,302
Total	**19,680**

[2] Ordering Paragraph 1 of D.15-08-040.
[3] Conclusions of Law 5 of D.15-08-040.

Table KS-2 compares the electric sales forecast presented in SDG&E's 2016 GRC Phase 1 with the electric sales forecast presented in this testimony.

TABLE KS-2:

COMPARISON OF ANNUAL ELECTRIC SALES (GWh)

Sector	GRC Phase 1 TY 2016	Current Filing GRC Phase 2 TY 2016	Change	% Change
Residential	7,681	7,378	-303	-3.9%
Non-Residential	12,332	12,302	-30	-0.2%
Total	**20,013**	**19,680**	**-333**	**-1.7%**

The basis for the update to the electric sales forecast versus what was submitted in the GRC Phase 1 Application is discussed in Section IV.

IV. UPDATE TO SALES FORECAST DRIVERS

Both electric sales forecasts presented in TY 2016 GRC Phase 1 and TY 2016 GRC Phase 2 are based on a California Energy Commission's ("CEC") adopted California Energy Demand ("CED") forecast. The CEC typically completes a fully updated forecast in the Integrated Energy Policy Report ("IEPR") every two years and provides a limited update of that forecast in the interim years. The TY 2016 GRC Phase 1 forecast was based on the CEC's adopted 2013 CED mid-demand forecast[4] and includes the impacts of the CEC's Private Supply

[4] California Energy Demand 2014-2024 Final Forecast, Volume 2: Electricity Demand by Utility Planning Area, Publication Number CEC-200-2013-004-SF-V2, and Publication Date: December 2013. See "SDG&E Form 1.1 Consumption" available at http://www.energy.ca.gov/2013_energypolicy/documents/demand-forecast_CMF/mid_case/ (Included in the file named "SDG&E_Mid.xls").

and Additional Achievable Energy Efficiency ("AAEE").[5] Forecasts of electric sales are derived from CEC data as follows:

- Electric Consumption
- Less: Private Supply (Self-Generation, e.g. PV)
- Less: AAEE (Future Impacts of Energy Efficiency Programs)
- Equals: Electric Sales

The forecast presented in Table KS-1 reflects the CEC's most recent adopted forecast, the 2014 CED Updated Forecast, mid-demand consumption scenario.[6] The 2014 CED Updated Forecast is an interim year forecast that reflects a partial update from the 2013 CED Forecast. Relative to the 2013 CED Forecast, the 2014 CED Forecast was updated for two major concepts:

- Incorporating more recent economic and demographic projections.
- Adjusting for the latest historical data available for consumption, peak demand, temperatures, and electricity rates.

Details to the CEC's updates can be found in their "California Energy Demand Updated Forecast, 2015-2025" report.[7]

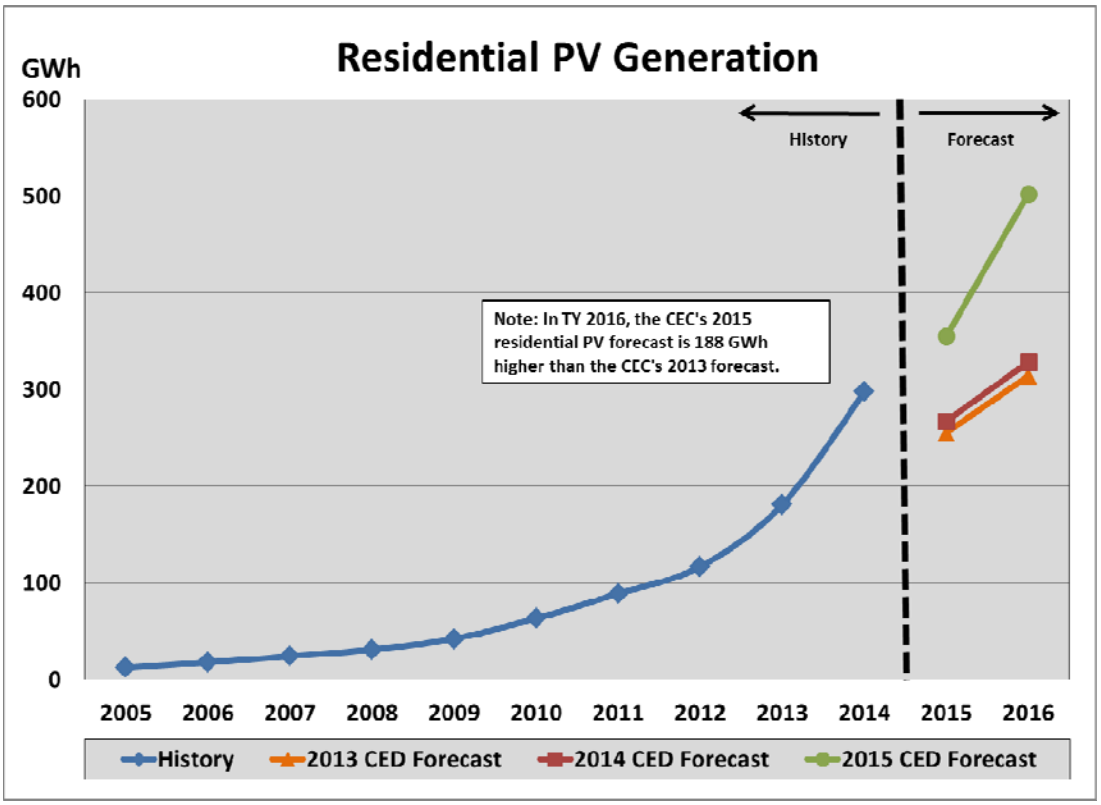
SDG&E's GRC Phase 2 electric sales forecast reflects the private supply component as projected by the CEC in their 2015 Preliminary CED Forecast, mid-demand-scenario. The impact of photovoltaic generation ("PV") has noticeably changed since 2014 and this difference is reflected in SDG&E's updated TY 2016 electric sales forecast. Chart KS-1 compares the most

[5] Available at http://www.energy.ca.gov/2013_energypolicy/documents/demandforecast_CMF/Additional_Achievable_Energy_Efficiency/AAEE Savings SDG&E Service Territory.xls (see "S3-Mid").
[6] CED 2014, California Energy Demand Updated Forecast, 2015-2025, Volume 2: Electricity Demand by Utility Planning Area, Publication Number CEC-200-2014-009-CMF, and Publication Date: Adopted January 14, 2015. See "SDGE Form 1.1-Mid (Electricity Consumption by Sector)" available at http://www.energy.ca.gov/2014_energypolicy/documents/demand_forecast_cmf/Mid_Case/ (Included in the file named "SDG&E_Mid.xls").
[7] CED 2014, pages 31-34.

recent three residential CEC PV generation forecasts, along with history through 2014. SDG&E incorporated the 2015 preliminary CED forecast for PV to better reflect this recent data, since the 2014 CED Updated Forecast does not include updated projections for PV relative to the 2013 CED Updated Forecast.[8] As shown in Chart KS-1, the private supply estimates from the CEC's most recent 2015 Preliminary CED Forecast, mid-demand-scenario,[9] more appropriately reflect the rapidly-changing residential PV component in SDG&E's service territory.

CHART KS-1:

COMPARISON OF CEC PV FORECASTS (GWh)



[8] The minor differences in the PV information between the 2013 CEC Forecast and 2014 CEC Forecast are attributed to updated actuals between the two reports.

[9] Available at http://www.energy.ca.gov/2015_energypolicy/documents/2015-07-07_preliminary_forecast_forms.html (see "Mid Case Final Baseline Demand Forecast" located in the file "SDGE_Mid_Demand_Case.xlsx" in the tab labeled "Form 1.2-Mid").

A comparison of the electric sales derivation for Phase 1 and Phase 2 is detailed in Table KS-3.

TABLE KS-3:

ELECTRIC SALES FORECAST DERIVATION, TOTAL SYSTEM (GWh)

	GRC Phase 1 TY 2016	GRC Phase 2 TY 2016	Change	% Change
Consumption	21,855	21,691	-164	-0.8%
Less: Private Supply	1,301	1,513	212	16.3%
Less: AAEE	541	498	-43	-7.9%
Equals: Sales	**20,013**	**19,680**	**-333**	**-1.7%**

V. TY 2016 MONTHLY RATE SCHEDULE & HOURLY FORECASTS

The CEC presents forecast concepts on an annual basis. However, in this proceeding, SDG&E witnesses Mr. Swartz, Mr. Anderson and Mr. Shaughnessy require the electric sales forecast to be available on an hourly and monthly basis, by rate schedule.

Econometric models were used to develop hourly forecasts for the Residential, Small Commercial, Medium/Large Commercial and Industrial, Agricultural, and Lighting classes. These hourly models incorporate the impacts of rooftop PV installations, various weather concepts, calendar and seasonal variables, customer count information and other related concepts.

SDG&E's historical billing-cycle data was used to split the CEC's annual forecast into monthly forecasts by rate schedule. SDG&E reports electric sales volumes in its Revenue Reporting System ("R1"), which excludes adjustments for monthly excess PV generation, i.e.,

negative values are excluded rather than "added in." SDG&E also creates monthly rate schedule billing determinants on a net and delivered basis. With the implementation of SDG&E's 2015 RDW[10] Application, SDG&E created determinants based on net and delivered electric sales. Net sales represent R1 sales with the adjustment to account for excess PV generation that occurs on a monthly basis. Delivered sales represent the sales provided to the customer that would have otherwise been netted out by excess generation on an hourly basis. A comparison of the forecasted sales concepts are shown in Table KS-4.

TABLE KS-4:

COMPARISON OF R1, NET AND DELIVERED SALES (GWh)

Forecast Basis	**TY 2016**
Sales in R1 Format	**19,680**
…..*Monthly Excess Generation Adjustment*	*-78*
Net Sales	**19,602**
…..*Hourly Delivered Sales Adjustment*	*+318*
Delivered Sales	**19,920**

Hourly forecast data can be found in this chapter's associated workpapers. Monthly sales by rate schedule, along with the corresponding monthly spread factors that were applied to the CEC's annual forecast, can be found in Attachments D, E and F.

[10] A. 14-01-027, Direct Testimony of Christopher Yunker, at p. CY-13.

VI. REQUEST FOR ANNUAL SALES FORECAST UPDATES

Currently, SDG&E updates test-year sales forecasts in its GRC or RDW proceedings. As presented in the testimony of Ms. Fang, SDG&E proposes that the Commission approve the use of an annual advice letter to update SDG&E's electric sales forecast, beyond the test-year. SDG&E needs to update test year sales more frequently to better capture the changes in electric sales. This would noticeably reduce the impact of under/over collections related to differences between actual sales and test-year sales. Updating the electric sales forecast on a more frequent basis will provide electric customers with a more appropriate set of billing determinants and would allow SDGE to collect revenues in a steadier manner. A comparison of test-year sales forecasts from past proceedings are shown in Table KS-5, highlighting the changes in projected sales and the amount of time it takes to implement these sales in the billing process.

TABLE KS-5:

COMPARISON OF TEST-YEAR ELECTRIC SALES OVER TIME (GWh)

Test-Year	File Date	Proceeding (Docket Number)	GWh	Effective Date
2012	12/15/2010 10/3/2011	2012 General Rate Case Phase 1 (A.10-12-005) 2012 General Rate Case Phase 2 (A.11-10-002)	20,809	5/1/2014 5/1/2014
2015	1/31/2015	2015 Rate Design Window (A.14-01-027)	20,123	11/1/2015
2016 2016	11/14/2014 12/1/2015	2016 General Rate Case Phase 1 (A.14-11-003) 2016 General Rate Case Phase 2 (A.15-04-12)	20,013 19,680	TBD TBD

As seen in Table KS-5 above, it can take a considerable amount of time to obtain approval of an updated sales forecast. More frequent updates will help soften the impacts to SDG&E customers.

SDG&E is proposing the use of updated electric sales forecasts beyond TY 2016. Table KS-6 presents forecast sales for 2017 and 2018 reflecting projected consumption, private supply and AAEE for those years. The electric sales forecasts presented in Table KS-6 are derived in a consistent manner with the proposed TY 2016 electric sales forecast detailed in Section IV of this testimony. In addition to its proposal to update authorized sales for the TY 2016 forecast, SDG&E requests approval to also update authorized sales in 2017 and 2018 via an advice letter to be implemented in January 1 rates that reflect the sales presented in Table KS-6. SDG&E will continue to request approval of updated electric sales forecast in future RDW or GRC applications.

TABLE KS-6:

FORECAST OF ELECTRIC SALES (GWh)

	2016	**2017**	**2018**
Consumption	21,691	21,998	22,276
Less: Private Supply	1,513	1,647	1,795
Less: AAEE	498	735	922
Equals: Sales	**19,680**	**19,616**	**19,559**

VII. CONCLUSION

SDG&E requests that the Commission find the electric sales forecast presented in this testimony to be reasonable and seeks approval of its use in the rate design process as well as in

determining the change in SDG&E's time-of-use periods. For the reasons outlined herein, the Commission should also find it reasonable to approve updates to SDG&E's electric sales forecast on an annual basis beyond the approved test-year.

This concludes my prepared direct testimony.

VIII. WITNESS QUALIFICATIONS

My name is Kenneth E. Schiermeyer. My business address is 8306 Century Park Court, San Diego, California, 92123. I am employed by SDG&E as the Electric Demand Forecasting Manager in the Customer Pricing Department. My primary responsibilities include developing and coordinating forecasts of customer growth and electric energy usage.

I have held my current position since December 2013. Since 1999, I have been employed by SDG&E in various forecasting and analysis positions of increasing responsibility. From 1996 to 1999, I worked as a Computer Programmer and Project Manager for Directions in Research, Inc.

I received a Bachelor of Science degree in Economics from Truman State University in 1994 and obtained a Master of Arts degree in Economics from Western Illinois University in 1996.

I have previously testified before this Commission.

APPENDIX – GLOSSARY OF ACRONYMS

AAEE	Additional Achievable Energy Efficiency
CEC	California Energy Commission
CED	California Energy Demand
Commission	California Public Utilities Commission
GRC	General Rate Case
IEPR	Integrated Energy Policy Report
PV	Photovoltaic Generation
R1	Revenue Reporting System
RDW	Rate Design Window
SDG&E	San Diego Gas & Electric Company
TOU	Time of Use
TY	

ATTACHMENT A-1 (CEC 2013 CED CONSUMPTION TABLE)

Form 1.1 - SDGE Planning Area
California Energy Demand 2014-2024 Baseline Final Forecast - Mid Demand Case
Electricity Consumption by Sector (GWh)

Year	Residential	Residential Electric Vehicles*	Commercial	Commercial Electric Vehicles*	Manufacturing	Mining	Agricultural	TCU	Street Lighting	Total Consumption
1990	5,421	0	5,834	0	1,627	292	240	1,370	73	14,857
1991	5,333	0	5,694	0	1,623	316	207	1,463	76	14,710
1992	5,609	0	6,258	0	1,669	332	195	1,481	76	15,622
1993	5,549	0	6,256	0	1,662	272	211	1,488	77	15,515
1994	5,729	0	6,347	0	1,631	229	232	1,506	79	15,752
1995	5,734	0	6,502	0	1,606	246	228	1,505	81	15,901
1996	5,935	0	6,853	0	1,580	248	251	1,469	82	16,417
1997	6,123	0	7,384	0	1,702	77	84	1,609	83	17,062
1998	6,319	0	7,354	0	1,829	217	216	1,586	93	17,614
1999	6,453	0	7,707	0	1,931	207	239	1,611	93	18,241
2000	6,513	0	8,289	0	1,895	138	146	1,711	92	18,784
2001	6,116	0	7,588	0	1,851	200	233	1,725	98	17,812
2002	6,327	0	7,974	0	1,749	225	233	1,659	96	18,264
2003	6,748	0	8,343	0	1,698	207	228	1,675	105	19,004
2004	7,077	0	8,953	0	1,745	176	252	1,688	102	19,995
2005	7,110	0	9,012	0	1,719	172	257	1,711	106	20,086
2006	7,533	0	9,322	0	1,678	189	313	1,813	108	20,955
2007	7,553	0	9,308	0	1,649	203	336	1,880	176	21,105
2008	7,735	0	9,564	0	1,675	196	322	1,787	174	21,455
2009	7,579	0	9,221	0	1,543	174	320	1,901	179	20,917
2010	7,368	1	8,845	2	1,490	167	311	1,938	178	20,297
2011	7,462	1	8,916	2	1,473	161	366	1,778	171	20,326
2012	7,705	11	9,190	2	1,475	173	380	1,850	165	20,939
2013	7,680	21	9,258	2	1,475	174	351	1,869	165	20,972
2014	7,869	27	9,298	2	1,481	176	353	1,885	165	21,227
2015	7,996	50	9,466	3	1,492	178	356	1,902	165	21,556
2016	8,098	85	9,636	4	1,497	180	359	1,918	165	21,855
2017	8,210	124	9,848	6	1,500	180	362	1,931	165	22,198
2018	8,327	159	10,028	7	1,500	180	365	1,941	165	22,507
2019	8,520	203	10,183	10	1,501	179	367	1,950	165	22,866
2020	8,719	250	10,310	15	1,503	179	370	1,957	165	23,204
2021	8,926	297	10,437	21	1,505	179	372	1,967	165	23,552
2022	9,140	348	10,562	29	1,507	179	374	1,976	165	23,905
2023	9,348	399	10,671	39	1,508	179	377	1,983	165	24,232
2024	9,554	447	10,786	49	1,510	178	379	1,992	165	24,564
Annual Growth Rates (%)										
1990-2000										
2000-2012	1.41%	--	0.86%	--	-2.07%	1.94%	8.27%	0.65%	5.01%	0.91%
2012-2015	1.24%	67.43%	0.99%	17.15%	0.40%	0.93%	-2.14%	0.93%	--	0.97%
2012-2024	1.81%	36.49%	1.34%	32.22%	0.19%	0.24%	-0.03%	0.62%	--	1.34%

* Residential and commercial electric vehicle consumption included in residential and commercial totals.
Last historic year is 2012. Consumption includes self-generation.

ATTACHMENT A-2 (CEC 2014 CED CONSUMPTION TABLE)

Form 1.1 - SDGE Planning Area
California Energy Demand Updated Forecast, 2015-2025 - Mid Demand Case
Electricity Consumption by Sector (GWh)

Year	Residential	Residential Electric Vehicles*	Commercial	Commercial Electric Vehicles*	Manufacturing	Mining	Agricultural	TCU	Street Lighting	Total Consumption
1990	5,421	0	5,834	0	1,627	292	240	1,370	73	14,857
1991	5,333	0	5,694	0	1,623	316	207	1,463	76	14,710
1992	5,609	0	6,258	0	1,669	332	195	1,481	76	15,622
1993	5,549	0	6,256	0	1,662	272	211	1,488	77	15,515
1994	5,729	0	6,347	0	1,631	229	232	1,506	79	15,752
1995	5,734	0	6,502	0	1,606	246	228	1,505	81	15,901
1996	5,935	0	6,853	0	1,580	248	251	1,469	82	16,417
1997	6,123	0	7,384	0	1,702	77	84	1,609	83	17,062
1998	6,319	0	7,354	0	1,829	217	216	1,586	93	17,614
1999	6,453	0	7,707	0	1,931	207	239	1,611	93	18,241
2000	6,513	0	8,289	0	1,895	138	146	1,711	92	18,784
2001	6,116	0	7,588	0	1,851	200	233	1,725	98	17,812
2002	6,327	0	7,974	0	1,749	225	233	1,659	96	18,264
2003	6,748	0	8,343	0	1,698	207	228	1,675	105	19,004
2004	7,077	0	8,952	0	1,745	176	252	1,688	102	19,993
2005	7,110	0	9,010	0	1,719	172	257	1,711	106	20,084
2006	7,532	0	9,320	0	1,678	189	313	1,813	108	20,952
2007	7,552	0	9,307	0	1,648	203	336	1,880	176	21,102
2008	7,734	0	9,563	0	1,675	196	322	1,787	174	21,451
2009	7,577	0	9,220	0	1,543	174	320	1,901	179	20,913
2010	7,366	1	8,844	2	1,489	167	311	1,938	178	20,293
2011	7,460	1	8,915	2	1,472	161	366	1,778	171	20,323
2012	7,704	11	9,196	2	1,474	173	390	1,856	165	20,958
2013	7,573	21	9,322	2	1,431	167	358	1,840	127	20,817
2014	7,806	27	9,401	2	1,451	163	365	1,851	126	21,163
2015	7,895	50	9,543	3	1,464	169	368	1,867	126	21,432
2016	7,981	85	9,691	4	1,468	173	371	1,881	126	21,691
2017	8,088	124	9,868	6	1,472	177	374	1,893	126	21,998
2018	8,204	159	10,017	7	1,473	177	377	1,903	126	22,276
2019	8,388	203	10,153	10	1,475	177	380	1,911	125	22,609
2020	8,577	250	10,261	15	1,476	177	382	1,916	125	22,914
2021	8,768	297	10,370	21	1,477	177	384	1,925	125	23,226
2022	8,968	348	10,488	29	1,478	178	387	1,933	125	23,556
2023	9,168	399	10,594	39	1,478	179	389	1,939	125	23,870
2024	9,367	447	10,706	49	1,478	179	391	1,947	125	24,192
2025	9,572	501	10,822	61	1,478	180	393	1,955	124	24,523
Annual Growth Rates (%)										
1990-2000	1.85%	--	3.57%	--	1.54%	-7.26%	-4.81%	2.25%	2.29%	2.37%
2000-2013	1.17%	--	0.91%	--	-2.14%	1.50%	7.11%	0.56%	2.49%	0.79%
2013-2015	2.10%	53.26%	1.18%	5.84%	1.16%	0.49%	1.48%	0.74%	-0.38%	1.47%
2013-2025	1.97%	30.06%	1.25%	30.68%	0.27%	0.63%	0.79%	0.51%	-0.16%	1.37%

* Residential and commercial electric vehicle consumption included in residential and commercial totals.

Last historic year is 2013. Consumption includes self-generation.

ATTACHMENT B-1 (CEC 2013 CED PRIVATE SUPPLY TABLE)

Form 1.7a - SDGE Planning Area
California Energy Demand 2014-2024 Baseline Final Forecast - Mid Demand Case
Private Supply by Sector (GWh)

Year	Residential	Commercial	Manufacturing	Mining	Agricultural	TCU	Total Consumption
1990	0	171	203	0	0	86	460
1991	0	157	217	0	0	90	465
1992	0	146	213	0	0	77	437
1993	0	149	199	0	0	54	403
1994	0	146	190	0	0	56	392
1995	0	148	192	0	0	52	392
1996	0	152	180	0	0	57	389
1997	0	150	181	0	0	54	384
1998	0	142	171	0	0	53	366
1999	0	137	124	0	0	68	328
2000	0	141	126	0	0	92	359
2001	0	98	153	0	0	97	349
2002	2	272	156	0	1	85	515
2003	3	359	183	0	0	93	638
2004	5	423	202	0	0	111	742
2005	8	447	203	0	0	124	782
2006	11	456	193	0	0	149	809
2007	14	491	170	0	1	152	829
2008	20	515	183	0	1	91	810
2009	29	512	164	0	4	95	804
2010	52	502	159	0	5	93	812
2011	76	522	144	0	5	63	811
2012	108	559	142	0	5	100	913
2013	181	601	142	0	6	104	1,033
2014	210	660	143	0	7	104	1,124
2015	255	695	144	0	7	104	1,206
2016	314	730	144	0	8	104	1,301
2017	318	760	144	0	9	104	1,334
2018	322	792	144	0	9	104	1,371
2019	327	826	144	0	10	104	1,410
2020	361	860	144	0	10	104	1,480
2021	417	895	143	0	11	104	1,570
2022	485	928	143	0	11	104	1,672
2023	562	960	143	0	12	104	1,783
2024	648	991	143	0	12	104	1,900
Annual Growth Rates (%)							
1990-2000							
2000-2012	94.34%	12.17%	0.99%	--	--	0.64%	8.08%
2012-2015	33.44%	7.56%	0.46%	11.59%	11.20%	1.47%	9.72%
2012-2024	16.15%	4.89%	0.09%	7.49%	7.29%	0.40%	6.30%

ATTACHMENT B-2 (CEC 2014 CED PRIVATE SUPPLY TABLE)

Form 1.7a - SDGE Planning Area
California Energy Demand Updated Forecast, 2015-2025 - Mid Demand Case
Private Supply by Sector (GWh)

Year	Residential	Commercial	Manufacturing	Mining	Agricultural	TCU	Total Consumption
1990		171	203		0	86	460
1991		157	217		0	90	465
1992		146	213		0	77	437
1993		149	199		0	54	403
1994		146	190			56	392
1995		148	192			52	392
1996		152	180			57	389
1997		150	181			54	384
1998	0	142	171			53	366
1999	0	137	124			68	328
2000	0	141	126			92	359
2001	0	98	153		0	97	349
2002	2	272	156		1	85	515
2003	3	359	183		0	93	638
2004	5	422	202		0	111	740
2005	7	445	203		0	124	780
2006	10	455	193		0	149	806
2007	13	490	170	0	1	152	826
2008	18	514	183	0	1	91	807
2009	28	511	163	0	4	95	800
2010	50	501	159	0	5	93	808
2011	75	521	144	0	6	63	808
2012	106	564	141	0	15	106	932
2013	145	575	154	0	15	71	959
2014	191	629	156	0	15	71	1,062
2015	267	709	167	0	16	71	1,229
2016	328	768	167	0	17	71	1,351
2017	331	796	166	0	17	71	1,382
2018	335	828	166	0	17	71	1,418
2019	340	861	166	0	18	71	1,455
2020	373	895	166	0	18	70	1,523
2021	428	928	166	0	19	70	1,612
2022	496	961	166	0	19	70	1,713
2023	573	993	166	0	20	70	1,822
2024	658	1,023	165	0	20	70	1,938
2025	744	1,053	165	0	21	70	2,054
Annual Growth Rates (%)							
1990-2000	--	-1.90%	-4.66%	--	--	0.69%	-2.45%
2000-2013	88.96%	11.42%	1.54%	--	--	-2.02%	7.85%
2013-2015	35.61%	11.03%	4.12%	61.54%	4.04%	-0.02%	13.19%
2013-2025	14.59%	5.18%	0.60%	11.28%	2.90%	-0.05%	6.55%

ATTACHMENT B-3 (CEC 2015 CED PRIVATE SUPPLY TABLE)

Form 1.7a - SDG&E Planning Area
California Energy Demand 2016-2026 Preliminary Forecast - Mid Demand Case
Private Supply by Sector (GWh)
Prepared for California Energy Commission July 7, 2015 Workshop

Year	Residential	Commercial	Manufacturing	Mining	Agricultural	TCU	Total Consumption
1990	0	171	203	0	0	86	460
1991	0	157	217	0	0	90	465
1992	0	146	213	0	0	77	437
1993	0	149	199	0	0	54	403
1994	0	146	190	0	0	56	392
1995	0	148	192	0	0	52	392
1996	0	152	180	0	0	57	389
1997	0	150	181	0	0	54	384
1998	0	142	171	0	0	53	366
1999	0	137	124	0	0	68	328
2000	0	141	126	0	0	92	359
2001	0	98	153	0	0	97	349
2002	2	272	156	0	1	85	515
2003	3	359	183	0	0	93	638
2004	5	422	202	0	0	111	740
2005	7	445	203	0	0	124	780
2006	10	455	193	0	0	149	806
2007	13	490	170	0	1	152	826
2008	18	514	183	0	1	91	807
2009	28	511	163	0	4	95	800
2010	50	501	159	0	5	93	808
2011	75	521	144	0	6	63	808
2012	106	564	141	0	15	106	932
2013	145	575	154	0	15	71	959
2014	217	622	156	0	15	71	1,081
2015	355	700	167	0	14	70	1,306
2016	502	759	167	0	14	70	1,513
2017	602	794	166	0	14	70	1,647
2018	713	832	166	0	14	70	1,795
2019	832	874	166	0	14	69	1,955
2020	959	916	166	0	14	69	2,123
2021	1,092	957	166	0	14	69	2,297
2022	1,231	996	166	0	14	69	2,475
2023	1,374	1,032	165	0	13	68	2,653
2024	1,520	1,064	165	0	13	68	2,831
2025	1,667	1,092	165	0	13	68	3,006
2026	1,814	1,116	165	0	13	68	3,176

ATTACHMENT C (CEC AAEE TABLE)

Additional Achievable Energy Efficiency Savings For SDG&E Service Territory

CED 2013 Final Forecast, Mid Savings Scenario, Revised April 2014

Sector	Savings Category	Type	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Residential	Emerging Technologies	Energy (GWh, Customer Side)	0.00	0.00	0.17	0.40	0.89	1.64	2.70	5.43	31.45	41.75	53.70	67.30
Residential	Other Program Measures	Energy (GWh, Customer Side)	2.00	4.04	27.09	48.79	73.10	98.32	127.62	154.89	178.39	221.40	258.02	293.95
Residential	Appliance Standards	Energy (GWh, Customer Side)	0.00	2.95	20.94	53.43	82.64	124.29	163.78	201.25	236.85	269.20	296.30	321.27
Residential	Building Standards	Energy (GWh, Customer Side)	0.00	0.00	0.00	0.00	0.69	2.36	4.17	6.63	9.77	12.83	15.85	18.79
Residential	Total	Energy (GWh, Customer Side)	2.00	7.00	48.20	102.62	157.32	226.61	298.27	368.20	456.45	545.18	623.87	701.31
Commercial	Emerging Technologies	Energy (GWh, Customer Side)	0.00	0.00	8.17	17.99	30.20	45.43	65.09	90.23	120.49	157.95	201.89	251.65
Commercial	Other Program Measures	Energy (GWh, Customer Side)	0.13	0.19	115.31	229.50	329.99	393.19	461.66	493.73	547.81	608.35	687.93	764.26
Commercial	Appliance Standards	Energy (GWh, Customer Side)	38.63	59.78	105.60	168.53	227.60	254.39	295.08	344.69	367.57	389.20	406.83	421.94
Commercial	Building Standards	Energy (GWh, Customer Side)	0.00	0.00	0.00	0.00	0.48	2.56	4.62	7.22	11.35	15.35	19.81	25.79
Commercial	Total	Energy (GWh, Customer Side)	38.76	59.97	229.08	416.01	588.27	695.57	826.45	935.87	1047.22	1170.84	1316.46	1463.64
Industrial-Manufacturing	Emerging Technologies	Energy (GWh, Customer Side)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industrial-Manufacturing	Other Program Measures	Energy (GWh, Customer Side)	0.00	0.00	5.18	10.32	15.42	20.50	25.54	30.56	35.55	40.52	45.46	50.38
Industrial-Manufacturing	Appliance Standards	Energy (GWh, Customer Side)	1.50	2.99	4.48	6.21	7.90	9.82	11.68	13.50	15.27	16.99	18.66	20.29
Industrial-Manufacturing	Building Standards	Energy (GWh, Customer Side)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industrial-Manufacturing	Total	Energy (GWh, Customer Side)	1.50	2.99	9.66	16.52	23.33	30.31	37.22	44.06	50.82	57.50	64.12	70.67
Industrial-Mining	Emerging Technologies	Energy (GWh, Customer Side)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industrial-Mining	Other Program Measures	Energy (GWh, Customer Side)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industrial-Mining	Appliance Standards	Energy (GWh, Customer Side)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industrial-Mining	Building Standards	Energy (GWh, Customer Side)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industrial-Mining	Total	Energy (GWh, Customer Side)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Agricultural	Emerging Technologies	Energy (GWh, Customer Side)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Agricultural	Other Program Measures	Energy (GWh, Customer Side)	0.00	0.00	1.62	3.27	4.92	6.60	8.28	9.97	11.67	13.37	15.07	16.76
Agricultural	Appliance Standards	Energy (GWh, Customer Side)	0.00	0.00	0.00	0.10	0.20	0.40	0.59	0.76	0.91	1.03	1.13	1.21
Agricultural	Building Standards	Energy (GWh, Customer Side)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Agricultural	Total	Energy (GWh, Customer Side)	0.00	0.00	1.62	3.37	5.13	7.00	8.87	10.73	12.58	14.41	16.20	17.97
Steetlighting	Emerging Technologies	Energy (GWh, Customer Side)	0.00	0.00	1.00	2.06	3.17	4.29	5.42	6.56	7.66	8.74	9.79	10.81
Steetlighting	Other Program Measures	Energy (GWh, Customer Side)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Steetlighting	Appliance Standards	Energy (GWh, Customer Side)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Steetlighting	Building Standards	Energy (GWh, Customer Side)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Steetlighting	Total	Energy (GWh, Customer Side)	0.00	0.00	1.00	2.06	3.17	4.29	5.42	6.56	7.66	8.74	9.79	10.81
All Sectors	**Total**	**Energy (GWh, Customer Side)**	**42.25**	**69.96**	**289.56**	**540.59**	**777.21**	**963.78**	**1176.23**	**1365.42**	**1574.73**	**1796.68**	**2030.45**	**2264.39**