

Company: San Diego Gas & Electric Company (U 902 E)
Proceeding: Rate Design – Residential Rate Structures
Rulemaking: R.12-06-013
Exhibit: _____

**PREPARED REBUTTAL TESTIMONY OF
LESLIE WILLOUGHBY
CHAPTER 5
ON BEHALF OF SAN DIEGO GAS & ELECTRIC COMPANY**

**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA**

OCTOBER 17, 2014



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PREPARED REBUTTAL TESTIMONY OF
LESLIE WILLOUGHBY
(CHAPTER 5)

I. OVERVIEW AND PURPOSE

SDG&E appreciates the opportunity to rebut and clarify claims made by intervener testimony regarding SDG&E's application of an -0.1 elasticity assumption. In this rebuttal testimony, I respond to testimony submitted on behalf of TASC and ORA that indicates a misunderstanding of the showing that SDG&E made in its July 23rd Additional Supplemental Testimony, Attachment A, response to question 5.d. I also update SDG&E's showing of conservation estimates that result from the use of the new baseline quantities and rates that are being filed in this proceeding. I also express agreement with testimony in which UCAN has proposed that SDG&E conduct a default TOU pilot in 2018 prior to more widespread implementation of TOU rates. A default pilot, implemented to supplement the information that will be gained in an opt-in pilot, will assist in SDG&E's transition to TOU rates by providing information on how best to provide customers with various rate options, and what to expect in terms of load reductions and load shifts. SDG&E will also be able to implement TOU rates in a manner that achieves the overall objective of SB1090 to avoid hardship to customers living in hot, inland areas and residential customers living in areas with hot summer weather..." as well as senior citizens and economically vulnerable customers in hot climate zones before transitioning residential customers to TOU rates. A default pilot could also provide an opportunity to test enabling technologies and differing TOU periods on a default basis.

II. SDG&E PRICE ELASTICITY ASSUMPTIONS

A. TASC misunderstand SDG&E's elasticity scenarios.

In its July 23rd Additional Supplemental Testimony, SDG&E submitted a preferred approach,

1 which utilized -0.1 elasticity for all four tiers of usage, as well as two other elasticity scenarios.
2 TASC states that, “SDG&E prefers -0.1, but then uses -0.2?”¹ While, it is true that SDG&E
3 provided three different elasticity scenarios, SDG&E also clearly stated that -0.1 was the appropriate
4 elasticity to use. The -0.1 elasticity corresponds to the residential elasticity estimates based on
5 residential sales models that were developed using historical residential billing information. The
6 elasticity information has been incorporated into the residential sales forecasts that are submitted to
7 the California Energy Commission’s (CEC) Integrated Energy Policy Report (IEPR) process. These
8 sales models did not separate residential usage into tiers, and SDG&E did not want to make
9 assumptions about elasticities being different in different tiers due to the absence of information
10 regarding tier specific elasticities. For this reason all tiered usage were treated similarly with respect
11 to elasticities. The Joint Rebuttal Testimony of Ahmad Faruqui includes a discussion regarding the
12 appropriate elasticities for tier usage.²

13 **B. ORA’s misstates SDG&E’s consumption percentage increases as being 4% to 5%**

14 ORA states that “SDG&E uses an elasticity of -0.1 which yielded an increase in load of 4 -
15 5%³.” SDG&E’s July 23rd 2014 Additional Supplemental Testimony (response to question 5.d in
16 Attachment A) actually said that, “results indicate that when applying an elasticity of (-.1) that
17 SDG&E would expect an overall load growth of about 0.4% to 0.5% (no overall conservation effect)
18 for all residential customers over the 2015-2017 timeframe – while holding everything else
19 constant.”⁴

¹ TASC Direct Testimony, p 11 lines 4-9.

² Ahmad Faruqui rebuttal testimony, p 8 (Dr. Ito found price elasticities of around -0.1 in his assessment of California’s inclining block rates).

³ ORA Opening testimony, Chapter 7-5, at 9-14.

⁴ SDG&E Supplemental testimony in Support of July 23, 2014 Additional Supplemental Testimony Rulemaking 12-06-013 Phase 1, top of 3rd page.

1 **C. SDG&E provides updated response to Elasticity and Conservation testimony**

2 SDG&E is providing an updated elasticity analysis to reflect the updated rates that are
3 presented in the Rebuttal Testimony of Cynthia Fang⁵. In addition, as is discussed in the testimony
4 of Ms. Fang, while previous elasticity analysis included an analysis of both current baseline
5 quantities and proposed baseline quantities, the updated analysis considers 2015 baseline quantities
6 to reflect SDG&E's updated proposal in this proceeding.

7 My prior elasticity analysis also did not incorporate SDG&E's proposed customer charge.
8 This updated analysis looks at two different approaches to account for the customer charge: (1)
9 accounting for the customer charge as part of lower tier consumption to create a levelized charge
10 (i.e., a cents per kWh charge), which is then added to the price of the lower tiers, creating an all-in
11 rate; and, (2) accounting for the customer charge as part of all tier consumption to create a levelized
12 charge (i.e., a cents per kWh charge), which is then added to the price of all the tiers, creating an all-
13 in rate, to reflect the fact that customers at all levels of tier usage will pay the customer charge.
14 (Please see, SDG&E Errata to Additional Supplemental Testimony, served on Oct 17th 2014.)

15 The inclusion of the MSF in the bottom tiers creates conservation of -0.36%, whereas
16 allocating the MSF across all tiers results in slightly lower conservation at -0.32%. Please see
17 Ahmad Faruqui's rebuttal testimony for more information regarding the different approaches to
18 modeling conservation and how SDG&E's results fit within the expected ranges of conservation.⁶
19

⁵ Prepared Rebuttal Testimony of Cynthia Fang, Chapter 4.

⁶ Ahmad Faruqui describes the different methodologies used for modeling conservation on pages 4-6 of his rebuttal testimony, and refer to pages 19-22 for his assessment on SDG&E's elasticity assumptions and results.

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Table LW-1

	2015-2017 kWh Change	2015-2017 kWh Total	Total Percent Change
Non-CARE MSF allocated to bottom tiers	(9,007,716)	5,566,762,291	-0.16%
CARE MSF allocated to bottom tiers	(16,292,014)	1,419,814,967	-1.15%
	(25,299,730)	6,986,577,259	-0.36%
Non-CARE MSF allocated across all tiers	(6,349,593)	5,566,762,291	-0.11%
CARE MSF allocated across all tiers	(15,717,206)	1,419,814,967	-1.11%
	(22,066,799)	6,986,577,259	-0.32%

III. EXPERIMENTAL TOU PILOT IN 2015

SDG&E continues to support its original proposal to conduct an Experimental Opt-in TOU pilot in 2015, but has also determined that it is appropriate to conduct a default pilot in 2018. This new default pilot proposal is explained in further detail in the next section. There is much to learn about TOU rates in SDG&E’s service territory, and an opt-in pilot will provide significant value as the research questions identified in opening testimony submitted on February 28th 2014 remain valid and will help inform SDG&E going forward with its TOU offerings⁷.

The opt in pilot is to assess the load shifts/impacts associated with the response to differing lengths of on-peak periods and whether the combination of two shorter on-peak periods would yield the same, less or more load reduction. This information will assist SDG&E in determining if shorter periods and/or more than one TOU rate is appropriate. This information will be helpful in designing the rates for SDG&E’s default pilot in 2018. SDG&E will also gain information regarding customer preferences and, once the default pilot has been completed, SDG&E will have information on whether customers that opt-into a TOU pilot respond differently than customers who are defaulted onto a TOU pilot.

IV. DEFAULT TOU PILOT PROPOSED FOR 2018

A. SDG&E cannot conduct a default pilot prior to 2018

⁷ SDG&E Chapter 3 Direct Testimony of Leslie Willoughby February 28, 2014, p LW8-LW-9.

1 SDG&E recently filed a briefing at the CPUC on the interpretation of AB327 in compliance
2 with an ALJ Ruling. SDG&E, similar to other parties to this proceeding, submitted a brief generally
3 concluding that AB327 prohibits implementing default TOU rates for any residential customer prior
4 to 2018, including as part of a default TOU pilot. As a result, SDG&E proposes to conduct a default
5 TOU pilot in 2018 that can test, among other things, the effects of default TOU rates for all of its
6 residential customers.

7 While there are differing opinions on how to achieve default TOU for all residential
8 customers, several parties including ORA, Sierra Club, EDF, and UCAN, generally support the
9 concept of default TOU for all residential customers⁸. UCAN believes that a default TOU pilot
10 should be conducted prior to defaulting all residential customers⁹. UCAN states that not enough
11 information is known on how SDG&E customers might react to a default TOU. As stated in my
12 previous testimony, SDG&E currently has less than 1% of its residential customers on any type of
13 TOU rate.¹⁰ Recent legislation, SB1090, demonstrates the importance of understanding the potential
14 impacts of default TOU rates on customers located in hot inland climates.¹¹ For these reasons,
15 SDG&E proposes to conduct a second pilot, implemented on a default basis that will provide
16 valuable information that will inform population level default TOU implementation.

⁸ UCAN Opening Testimony, p4, 7, 13, 18
Sierra Club Opening Testimony, p42-43.
ORA Opening Testimony, p2.
EDF Opening Testimony, p7, 31.

⁹ UCAN states that a default TOU pilot should take place prior to the implementation of default TOU rates for all residential customers, UCAN Opening Testimony, p7.

¹⁰ Direct Testimony of Leslie Willoughby Chapter 3 Feb 28, 2014 p LW-1 at 20.

¹¹ Senate Bill (SB) 1090.

1 **B. SDG&E recommends that a default pilot be conducted in 2018**

2 SDG&E agrees that a default TOU pilot should precede implementation of a full scale
3 default TOU rate. SDG&E proposes to conduct a large scale default TOU pilot that emulates the
4 SMUD experimental design used for its default TOU track. SDG&E will ensure representation from
5 its entire residential class: low income, net energy metered; electric vehicles, multifamily and
6 customers with central air-conditioning will be included in this study. SDG&E expects that the pilot
7 will run over a two year timeframe, and will be able to provide insights to the type of load impacts
8 and customer response that it will get from implementing a population level default TOU rate.
9 SDG&E plans on offering bill protection for the first year of its default TOU pilot. Bill protection
10 will shield those customers who are unable to shift or reduce summer on peak loads.

11 SDG&E expects that the first year analysis of its default TOU pilot will provide information
12 that aids in future implementation of TOU rates in a way that is consistent with the objectives of
13 SB1090. SDG&E's default TOU pilot evaluation will enable SDG&E to gather information on
14 customer acceptance, and awareness of the TOU rates, the effectiveness of various outreach efforts,
15 load impacts, and potential customer hardships. Information gained from this pilot will supplement
16 the information gained from the Experimental Opt-in TOU pilot SDG&E proposes to implement
17 prior to the default pilot. Additionally, SDG&E could also test acceptance of enabling technologies,
18 by adding an enabling technology research track that could look at different types of technology.
19 Enabling technologies could range from programmable communicating thermostats (PCTs), and in
20 home displays (IHDs) to weekly emails.

21 TOU workshops were held at the CPUC on July 30th and 31st, where SMUD and other
22 industry experts provided insights into various TOU studies that have been conducted in recent
23 years. Much of the discussion was centered on recent TOU pilots and the differences in customer
24 response that was seen in default, as compared to opt-in pilots. SDG&E plans to incorporate best
25 practices and learnings from those pilots into its TOU pilots.

1 For example, recent experimental designs were discussed as well as the application of
2 differing methodologies used for estimating load impacts. SDG&E plans to incorporate a random
3 encouragement design (RED) for its default pilot, similar to what SMUD's pilot did for its default
4 tracts. The RED is considered to be one of the best possible experimental designs.¹² In a RED
5 customers are randomly assigned to a treatment group or to a control group. The treatment groups
6 are then defaulted onto TOU rates whereas the control group is not defaulted. Both customers who
7 remain on the TOU rate and those who opt off the TOU rate will be included in the treatment group
8 for the purpose of analysis. Since customers who would have opted off the rate cannot be identified
9 in the control group, including these customers in the treatment group for analysis purposes ensures
10 that the treatment and control group are comparable. Thus, RED design minimizes bias¹³ and
11 maintains internal and external validity when producing pilot results.

12 Internal validity is valuable as typically the researcher wants to be able to compare the results
13 from one treatment group to another treatment group or control group within the study. An example
14 of this is to be able to compare a TOU rate option with a different TOU rate option without there
15 being any bias. External validity refers to the ability to extrapolate results to the population from
16 which a sample is drawn. This is a key aspect since one of the overall goals of the default pilot is to
17 accurately forecast what the load impact effect would be for an entire population. A default pilot is
18 the best possible method for estimating the load impact for an entire population because when
19 customers are defaulted there is no selection bias.

20 The CPUC recently issued a ruling that asks utilities to provide details on their proposed pilot
21 designs early in the Evidentiary Hearings.

¹² Several energy experts agree that RCT and RED are the best experimental designs.

¹³ From the perspective of internal validity, an opt-in RCT and an RED are equivalent—both control equally well for selection bias and both allow both allow one to estimate effects for those who accept the treatment, not just those that are offered the treatment. Smart Pricing Options Final Evaluation, SMUD, September 5th 2014 p22.

1 “Several parties described pilot designs that would simulate default TOU. In light of this,
2 and the issues regarding pilot design that were raised at the July 31 workshop, utilities must
3 be prepared to provide details on their proposed pilot programs early in the Evidentiary
4 Hearings. This includes explaining how the pilots would be designed to simulate default
5 time-of-use and how the pilots would be designed to take into account potential bias issues
6 (such as, differentiating between demand changes resulting from time-of-use rates and
7 demand changes resulting from energy efficiency programs).”

8 I previously submitted SDG&E’s proposal to conduct an experimental Opt-in TOU pilot.¹⁴

9 As I previously testified, the opt in pilot is to assess the load shifts/impacts associated with the
10 response to differing lengths of on-peak periods and whether the combination of two shorter on-peak
11 periods would yield the same, less or more load reduction. This information will assist SDG&E in
12 determining if shorter periods and/or more than one TOU rate is appropriate. This information, in
13 turn, will be helpful in designing the rates for SDG&E’s default pilot in 2018.

14 While it will generate valuable information that better informs future TOU rate
15 implementation, the opt-in pilot will suffer from self-selection bias in that the customers must be
16 solicited to participate on the experimental TOU rates. In order to address this problem, SDG&E is
17 also proposing to conduct a default TOU pilot. The goal of this pilot is to assess the load impacts
18 that will be directly applicable to the general population. SDG&E proposes to use a RED
19 experimental design with the potential to include technology treatments. The default pilot will be
20 considerably larger in scale and, based on the recent ACR, may need to incorporate additional
21 research treatments so that it can address what the commission is calling “potential bias issues.”
22 SDG&E considers those issues to be more about the “how” the load impacts /shifts are achieved.
23 Load impacts can be a result of one single action or measure, or a combination of actions and
24 measures. A careful and thoughtful approach in conducting a default pilot is required so that it can
25 answer a variety of questions about load reductions.

¹⁴ See Chapter 4 Leslie Willoughby’s Direct Testimony submitted on February 28th 2014 and Chapter 2 of Leslie Willoughby’s supplemental testimony submitted on March 21st, 2014.

1 **V. CONCLUSION AND SUMMARY**

2 SDG&E proposes to conduct both an opt-in and a default TOU pilot in the coming years.
3 SDG&E believes that both pilots will provide useful information as to how customers respond to
4 varying summer on-peak period lengths, as well as differences in load reduction /shifting. The
5 results from the first pilot will be utilized in SDG&E's proposed default pilot. SDG&E will utilize
6 best practices for customer outreach, recruiting and enrollment.

7 This concludes my prepared rebuttal testimony.

Scenario 1 (SDG&E preferred assumption) Elasticity Assumption of -0.1			
	2015-2017 kWh Change	2015-2017 kWh Total	Total Percent Change
SDG&E total non-CARE annual kWh change with MSF in bottom tiers:	(9,007,716)	5,566,762,291	-0.16%
SDG&E total CARE annual kWh change with MSF in bottom tiers:	(16,292,014)	1,419,814,967	-1.15%
	(25,299,730)	6,986,577,259	-0.36%
SDG&E total non-CARE annual kWh change with MSF in all tiers:	(6,349,593)	5,566,762,291	-0.11%
SDG&E total CARE annual kWh change with MSF in all tiers:	(15,717,206)	1,419,814,967	-1.11%
	(22,066,799)	6,986,577,259	-0.32%
Scenario 2 - (for comparison purposes)Elasticity Assumption of -.2			
	2015-2017 kWh Change	2015-2017 kWh Total	Total Percent Change
SDG&E total non-CARE annual kWh change with MSF in bottom tiers:	(44,639,052)	5,566,762,291	-0.80%
SDG&E total CARE annual kWh change with MSF in bottom tiers:	(53,649,481)	1,419,814,967	-3.78%
	(98,288,533)	6,986,577,259	-1.41%
SDG&E total non-CARE annual kWh change with MSF in all tiers:	(14,133,255)	5,566,762,291	-0.25%
SDG&E total CARE annual kWh change with MSF in all tiers:	(49,519,429)	1,419,814,967	-3.49%
	(63,652,685)	6,986,577,259	-0.91%
Scenario 3 - (NEM example) Elasticity Assumption of -.1 with NEM Cap reached			
	2015-2017 kWh Change	2015-2017 kWh Total	Total Percent Change
SDG&E total non-CARE annual kWh change with MSF in bottom tiers:	(28,068,640)	5,195,259,618	-0.54%
SDG&E total CARE annual kWh change with MSF in bottom tiers:	(26,625,447)	1,326,939,299	-2.01%
	(54,694,087)	6,522,198,917	-0.84%
SDG&E total non-CARE annual kWh change with MSF in all tiers:	(12,249,607)	5,195,259,618	-0.24%
SDG&E total CARE annual kWh change with MSF in all tiers:	(24,254,817)	1,326,939,299	-1.83%
	(36,504,424)	6,522,198,917	-0.56%
Scenario 4 TOU Elasticity Assumption of -0.2 for non-CARE and -0.1 for CARE			
	2015-2017 kWh Change	2015-2017 kWh Total	Total Percent Change
Total non-CARE annual kWh change for TOU example with BL credit and MSF	60,373,093	5,566,762,291	1.08%
Total CARE annual kWh change for TOU example with BL credit and MSF:	(30,618,999)	1,419,814,967	-2.16%
	29,754,095	6,986,577,259	0.43%

Total non-CARE summer on-peak reduction	-3.89%
Total CARE summer on-peak reduction	-5.39%

Note: In general Non-CARE Semi and Off peak hours see increases in usage

Note: CARE results show decreases in usage in all TOU periods

	2015-2017 kWh Change	2015-2017 kWh Total	Total Percent Change
SDG&E total non-CARE annual kWh change with MSF in bottom tiers:	(9,007,716)	5,566,762,291	-0.16%
SDG&E total CARE annual kWh change with MSF in bottom tiers:	(16,292,014)	1,419,814,967	-1.15%
	(25,299,730)	6,986,577,259	-0.36%
SDG&E total non-CARE annual kWh change MSF in all tiers:	(6,349,593)	5,566,762,291	-0.11%
SDG&E total CARE annual kWh change with MSF in all tiers:	(15,717,206)	1,419,814,967	-1.11%
	(22,066,799)	6,986,577,259	-0.32%

SDG&E Price Elasticity of Energy - non CARE with MSF in bottom tiers

Energy (Tiers)	Non-CARE (Schedule DR) Determinants	2015 Rate	2017 Rate	Change in Price	Price Elasticity of Demand (E _d)	Estimated Change in quantity %	Estimated Change in annual kWh	Estimated New kWh Quantity
	(kWh)	(\$/kWh)	(\$/kWh)	%	$\frac{(dQ/Q)}{(dP/P)}$		(dP/P) x E _d x Q	
Summer								
Tier 1	1,372,073,944	0.20537	0.23020	12%	(0.10)	-1.21%	(16,588,886)	1,355,485,057
Tier 2	291,070,049	0.20537	0.23020	12%	(0.10)	-1.21%	(3,519,146)	287,550,903
Tier 3	467,556,308	0.29383	0.25488	-13%	(0.10)	1.33%	6,197,910	473,754,218
Tier 4	742,322,224	0.29383	0.25488	-13%	(0.10)	1.33%	9,840,197	752,162,421
Winter								
Tier 1	1,455,845,641	0.18275	0.20309	11%	(0.10)	-1.11%	(16,203,502)	1,439,642,138
Tier 2	281,782,680	0.18275	0.20309	11%	(0.10)	-1.11%	(3,136,230)	278,646,451
Tier 3	429,498,490	0.25858	0.21963	-15%	(0.10)	1.51%	6,469,551	435,968,042
Tier 4	526,612,956	0.25858	0.21963	-15%	(0.10)	1.51%	7,932,390	534,545,346
	5,566,762,291					Total	(9,007,716)	-0.16%

Note: Using SDG&E's 2015 Baseline

SDG&E Price Elasticity of Energy CARE with MSF in bottom tiers

Energy (Tiers)	CARE (Schedule DRLI) Determinants	2015 Rate	2017 Rate	Change in Price %	Price Elasticity of Demand (E _d)	Estimated Change in quantity %	Estimated Change in annual kWh	Estimated New kWh Quantity
	(kWh)	(\$/kWh)	(\$/kWh)		$\frac{(dQ/Q)}{(dP/P)}$		(dP/P) x E _d x Q	
Summer								
Tier 1	414,428,805	0.12517	0.14933	19%	(0.10)	-1.93%	(7,999,387)	406,429,418
Tier 2	75,238,453	0.12517	0.14933	19%	(0.10)	-1.93%	(1,452,267)	73,786,185
Tier 3	103,696,563	0.18719	0.17521	-6%	(0.10)	0.64%	663,857	104,360,420
Tier 4	107,218,576	0.18719	0.17521	-6%	(0.10)	0.64%	686,404	107,904,981
Winter								
Tier 1	472,180,058	0.11007	0.12966	18%	(0.10)	-1.78%	(8,401,243)	463,778,816
Tier 2	72,342,159	0.11007	0.12966	18%	(0.10)	-1.78%	(1,287,145)	71,055,015
Tier 3	94,903,183	0.16367	0.14964	-9%	(0.10)	0.86%	813,591	95,716,774
Tier 4	79,807,169	0.16367	0.14964	-9%	(0.10)	0.86%	684,175	80,491,344
	1,419,814,967					Total	(16,292,014)	-1.15%

Note: Using SDG&E's 2015 Baseline

SDG&E Price Elasticity of Energy - non CARE with MSF in all tiers

Energy (Tiers)	Non-CARE (Schedule DR) Determinants	2015 Rate	2017 Rate	Change in Price	Price Elasticity of Demand (E _d)	Estimated Change in quantity %	Estimated Change in annual kWh	Estimated New kWh Quantity
	(kWh)	(\$/kWh)	(\$/kWh)	%	$\frac{(dQ/Q)}{(dP/P)}$		$(dP/P) \times E_d \times Q$	
Summer								
Tier 1	1,372,073,944	0.19883	0.21660	9%	(0.10)	-0.89%	(12,262,613)	1,359,811,331
Tier 2	291,070,049	0.19883	0.21660	9%	(0.10)	-0.89%	(2,601,375)	288,468,673
Tier 3	467,556,308	0.30410	0.27542	-9%	(0.10)	0.94%	4,409,574	471,965,882
Tier 4	742,322,224	0.30410	0.27542	-9%	(0.10)	0.94%	7,000,921	749,323,145
Winter								
Tier 1	1,455,845,641	0.17621	0.18949	8%	(0.10)	-0.75%	(10,971,926)	1,444,873,715
Tier 2	281,782,680	0.17621	0.18949	8%	(0.10)	-0.75%	(2,123,645)	279,659,036
Tier 3	429,498,490	0.26885	0.24017	-11%	(0.10)	1.07%	4,581,743	434,080,233
Tier 4	526,612,956	0.26885	0.24017	-11%	(0.10)	1.07%	5,617,727	532,230,683
	5,566,762,291					Total	(6,349,593)	-0.11%

Note: Using SDG&E's 2015 Baseline

SDG&E Price Elasticity of Energy CARE with MSF in all tiers

Energy (Tiers)	CARE (Schedule DRLI) Determinants	2015 Rate	2017 Rate	Change in Price %	Price Elasticity of Demand (E _d)	Estimated Change in quantity %	Estimated Change in annual kWh	Estimated New kWh Quantity
	(kWh)	(\$/kWh)	(\$/kWh)		$\frac{(dQ/Q)}{(dP/P)}$		$(dP/P) \times E_d \times Q$	
Summer								
Tier 1	414,428,805	0.12294	0.14454	18%	(0.10)	-1.76%	(7,281,512)	407,147,293
Tier 2	75,238,453	0.12294	0.14454	18%	(0.10)	-1.76%	(1,321,939)	73,916,513
Tier 3	103,696,563	0.19319	0.18720	-3%	(0.10)	0.31%	321,727	104,018,291
Tier 4	107,218,576	0.19319	0.18720	-3%	(0.10)	0.31%	332,654	107,551,231
Winter								
Tier 1	472,180,058	0.10784	0.12487	16%	(0.10)	-1.58%	(7,454,111)	464,725,947
Tier 2	72,342,159	0.10784	0.12487	16%	(0.10)	-1.58%	(1,142,036)	71,200,124
Tier 3	94,903,183	0.16967	0.16163	-5%	(0.10)	0.47%	449,778	95,352,962
Tier 4	79,807,169	0.16967	0.16163	-5%	(0.10)	0.47%	378,233	80,185,402
	1,419,814,967					Total	(15,717,206)	-1.11%

Note: Using SDG&E's 2015 Baseline

	2015-2017 kWh Change	2015-2017 kWh Total	Total Percent Change
SDG&E total non-CARE annual kWh change with MSF in bottom tiers:	(44,639,052)	5,566,762,291	-0.80%
SDG&E total CARE annual kWh change with MSF in bottom tiers:	(53,649,481)	1,419,814,967	-3.78%
	(98,288,533)	6,986,577,259	-1.41%
SDG&E total non-CARE annual kWh change MSF in all tiers:	(14,133,255)	5,566,762,291	-0.25%
SDG&E total CARE annual kWh change with MSF in all tiers:	(49,519,429)	1,419,814,967	-3.49%
	(63,652,685)	6,986,577,259	-0.91%

SDG&E Price Elasticity of Energy - non CARE with MSF in bottom tiers

Energy (Tiers)	Non-CARE (Schedule DR) Determinants	2015 Rate	2017 Rate	Change in Price	Price Elasticity of Demand (E _d)	Estimated Change in quantity %	Estimated Change in annual kWh	Estimated New kWh Quantity
	(kWh)	(\$/kWh)	(\$/kWh)	%	$\frac{(dQ/Q)}{(dP/P)}$		(dP/P) x E _d x Q	
Summer								
Tier 1	1,372,073,944	0.16474	0.23020	40%	(0.20)	-7.95%	(109,039,651)	1,263,034,293
Tier 2	291,070,049	0.18856	0.23020	22%	(0.20)	-4.42%	(12,855,491)	278,214,558
Tier 3	467,556,308	0.36896	0.25488	-31%	(0.20)	6.18%	28,913,066	496,469,374
Tier 4	742,322,224	0.38896	0.25488	-34%	(0.20)	6.89%	51,177,789	793,500,013
Winter								
Tier 1	1,455,845,641	0.16474	0.20309	23%	(0.20)	-4.66%	(67,781,571)	1,388,064,069
Tier 2	281,782,680	0.18856	0.20309	8%	(0.20)	-1.54%	(4,342,705)	277,439,975
Tier 3	429,498,490	0.33371	0.21963	-34%	(0.20)	6.84%	29,365,130	458,863,620
Tier 4	526,612,956	0.35371	0.21963	-38%	(0.20)	7.58%	39,924,382	566,537,337
	5,566,762,291					Total	(44,639,052)	-0.80%

Note: Using SDG&E's 2015 Baseline

SDG&E Price Elasticity of Energy CARE with MSF in bottom tiers

Energy (Tiers)	CARE (Schedule DRLI) Determinants	2015 Rate	2017 Rate	Change in Price %	Price Elasticity of Demand (E _d)	Estimated Change in quantity %	Estimated Change in annual kWh	Estimated New kWh Quantity
	(kWh)	(\$/kWh)	(\$/kWh)		$\frac{(dQ/Q)}{(dP/P)}$		(dP/P) x E _d x Q	
Summer								
Tier 1	414,428,805	0.10499	0.14933	42%	(0.20)	-8.45%	(35,004,807)	379,423,998
Tier 2	75,238,453	0.12292	0.14933	21%	(0.20)	-4.30%	(3,233,074)	72,005,378
Tier 3	103,696,563	0.18673	0.17521	-6%	(0.20)	1.23%	1,279,478	104,976,041
Tier 4	107,218,576	0.18673	0.17521	-6%	(0.20)	1.23%	1,322,935	108,541,511
Winter								
Tier 1	472,180,058	0.10499	0.12966	23%	(0.20)	-4.70%	(22,190,079)	449,989,979
Tier 2	72,342,159	0.12292	0.12966	5%	(0.20)	-1.10%	(793,339)	71,548,820
Tier 3	94,903,183	0.17445	0.14964	-14%	(0.20)	2.84%	2,699,396	97,602,579
Tier 4	79,807,169	0.17445	0.14964	-14%	(0.20)	2.84%	2,270,010	82,077,179
	1,419,814,967					Total	(53,649,481)	-3.78%

Note: Using SDG&E's 2015 Baseline

SDG&E Price Elasticity of Energy - non CARE with MSF in all tiers

Energy (Tiers)	Non-CARE (Schedule DR) Determinants	2015 Rate	2017 Rate	Change in Price	Price Elasticity of Demand (E _d)	Estimated Change in quantity %	Estimated Change in annual kWh	Estimated New kWh Quantity
	(kWh)	(\$/kWh)	(\$/kWh)	%	$\frac{(dQ/Q)}{(dP/P)}$		(dP/P) x E _d x Q	
Summer								
Tier 1	1,372,073,944	0.16474	0.21660	31%	(0.20)	-6.30%	(86,385,522)	1,285,688,422
Tier 2	291,070,049	0.18856	0.21660	15%	(0.20)	-2.97%	(8,656,771)	282,413,277
Tier 3	467,556,308	0.36896	0.27542	-25%	(0.20)	5.07%	23,707,295	491,263,603
Tier 4	742,322,224	0.38896	0.27542	-29%	(0.20)	5.84%	43,337,755	785,659,979
Winter								
Tier 1	1,455,845,641	0.16474	0.18949	15%	(0.20)	-3.00%	(43,744,300)	1,412,101,341
Tier 2	281,782,680	0.18856	0.18949	0%	(0.20)	-0.10%	(277,957)	281,504,723
Tier 3	429,498,490	0.33371	0.24017	-28%	(0.20)	5.61%	24,077,965	453,576,455
Tier 4	526,612,956	0.35371	0.24017	-32%	(0.20)	6.42%	33,808,281	560,421,236
	5,566,762,291					Total	(14,133,255)	-0.25%

Note: Using SDG&E's 2015 Baseline

SDG&E Price Elasticity of Energy CARE with MSF in all tiers

Energy (Tiers)	CARE (Schedule DRLI) Determinants	2015 Rate	2017 Rate	Change in Price %	Price Elasticity of Demand (E _d)	Estimated Change in quantity %	Estimated Change in annual kWh	Estimated New kWh Quantity
	(kWh)	(\$/kWh)	(\$/kWh)		$\frac{(dQ/Q)}{(dP/P)}$		(dP/P) x E _d x Q	
Summer								
Tier 1	414,428,805	0.10499	0.14454	38%	(0.20)	-7.53%	(31,223,277)	383,205,528
Tier 2	75,238,453	0.12292	0.14454	18%	(0.20)	-3.52%	(2,646,689)	72,591,763
Tier 3	103,696,563	0.18673	0.18720	0%	(0.20)	-0.05%	(52,201)	103,644,363
Tier 4	107,218,576	0.18673	0.18720	0%	(0.20)	-0.05%	(53,974)	107,164,602
Winter								
Tier 1	472,180,058	0.10499	0.12487	19%	(0.20)	-3.79%	(17,881,588)	454,298,470
Tier 2	72,342,159	0.12292	0.12487	2%	(0.20)	-0.32%	(229,527)	72,112,632
Tier 3	94,903,183	0.17445	0.16163	-7%	(0.20)	1.47%	1,394,851	96,298,034
Tier 4	79,807,169	0.17445	0.16163	-7%	(0.20)	1.47%	1,172,976	80,980,145
	1,419,814,967					Total	(49,519,429)	-3.49%

Note: Using SDG&E's 2015 Baseline

	2015-2017 kWh Change	2015-2017 kWh Total	Total Percent Change
SDG&E total non-CARE annual kWh change with MSF in bottom tiers:	(28,068,640)	5,195,259,618	-0.54%
SDG&E total CARE annual kWh change with MSF in bottom tiers:	(26,625,447)	1,326,939,299	-2.01%
	(54,694,087)	6,522,198,917	-0.84%
SDG&E total non-CARE annual kWh change MSF in all tiers:	(12,249,607)	5,195,259,618	-0.24%
SDG&E total CARE annual kWh change with MSF in all tiers:	(24,254,817)	1,326,939,299	-1.83%
	(36,504,424)	6,522,198,917	-0.56%

SDG&E Price Elasticity of Energy - non CARE with MSF in bottom tiers

Energy (Tiers)	Non-CARE (Schedule DR) Determinants	2015 Rate	2017 Rate	Change in Price	Price Elasticity of Demand (E _d)	Estimated Change in quantity %	Estimated Change in annual kWh	Estimated New kWh Quantity
	(kWh)	(\$/kWh)	(\$/kWh)	%	$\frac{(dQ/Q)}{(dP/P)}$		(dP/P) x E _d x Q	
Summer								
Tier 1	1,327,127,480	0.16474	0.23020	40%	(0.10)	-3.97%	(52,733,862)	1,274,393,618
Tier 2	281,945,148	0.18856	0.23020	22%	(0.10)	-2.21%	(6,226,239)	275,718,909
Tier 3	407,574,023	0.36896	0.25488	-31%	(0.10)	3.09%	12,601,920	420,175,943
Tier 4	653,552,087	0.38896	0.25488	-34%	(0.10)	3.45%	22,528,863	676,080,950
Winter								
Tier 1	1,407,247,230	0.16474	0.20309	23%	(0.10)	-2.33%	(32,759,458)	1,374,487,772
Tier 2	273,001,653	0.18856	0.20309	8%	(0.10)	-0.77%	(2,103,688)	270,897,965
Tier 3	376,273,596	0.33371	0.21963	-34%	(0.10)	3.42%	12,863,052	389,136,649
Tier 4	468,538,400	0.35371	0.21963	-38%	(0.10)	3.79%	17,760,773	486,299,173
	5,195,259,618					Total	(28,068,640)	-0.54%

Note: Using SDG&E's 2015 Baseline

SDG&E Price Elasticity of Energy CARE with MSF in bottom tiers

Energy (Tiers)	CARE (Schedule DRLI) Determinants	2015 Rate	2017 Rate	Change in Price %	Price Elasticity of Demand (E _d)	Estimated Change in quantity %	Estimated Change in annual kWh	Estimated New kWh Quantity
	(kWh)	(\$/kWh)	(\$/kWh)		$\frac{(dQ/Q)}{(dP/P)}$		(dP/P) x E _d x Q	
Summer								
Tier 1	403,217,444	0.10499	0.14933	42%	(0.10)	-4.22%	(17,028,918)	386,188,526
Tier 2	73,328,715	0.12292	0.14933	21%	(0.10)	-2.15%	(1,575,506)	71,753,210
Tier 3	85,028,156	0.18673	0.17521	-6%	(0.10)	0.62%	524,567	85,552,723
Tier 4	89,201,808	0.18673	0.17521	-6%	(0.10)	0.62%	550,316	89,752,124
Winter								
Tier 1	459,237,961	0.10499	0.12966	23%	(0.10)	-2.35%	(10,790,933)	448,447,028
Tier 2	70,542,654	0.12292	0.12966	5%	(0.10)	-0.55%	(386,802)	70,155,852
Tier 3	78,642,287	0.17445	0.14964	-14%	(0.10)	1.42%	1,118,438	79,760,725
Tier 4	67,740,273	0.17445	0.14964	-14%	(0.10)	1.42%	963,391	68,703,664
	1,326,939,299					Total	(26,625,447)	-2.01%

Note: Using SDG&E's 2015 Baseline

SDG&E Price Elasticity of Energy - non CARE with MSF in all tiers

Energy (Tiers)	Non-CARE (Schedule DR)	2015 Rate	2017 Rate	Change in Price	Price Elasticity of Demand (E _d)	Estimated Change in	Estimated Change	Estimated New kWh Quantity
	Determinants (kWh)	(\$/kWh)	(\$/kWh)	%	$\frac{(dQ/Q)}{(dP/P)}$	quantity %	in annual kWh (dP/P) x E _d x Q	
Summer								
Tier 1	1,327,127,480	0.16474	0.21660	31%	(0.10)	-3.15%	(41,777,851)	1,285,349,629
Tier 2	281,945,148	0.18856	0.21660	15%	(0.10)	-1.49%	(4,192,693)	277,752,455
Tier 3	407,574,023	0.36896	0.27542	-25%	(0.10)	2.54%	10,332,956	417,906,979
Tier 4	653,552,087	0.38896	0.27542	-29%	(0.10)	2.92%	19,077,618	672,629,705
Winter								
Tier 1	1,407,247,230	0.16474	0.18949	15%	(0.10)	-1.50%	(21,142,023)	1,386,105,207
Tier 2	273,001,653	0.18856	0.18949	0%	(0.10)	-0.05%	(134,648)	272,867,005
Tier 3	376,273,596	0.33371	0.24017	-28%	(0.10)	2.80%	10,547,071	386,820,668
Tier 4	468,538,400	0.35371	0.24017	-32%	(0.10)	3.21%	15,039,962	483,578,362
	5,195,259,618					Total	(12,249,607)	-0.24%

Note: Using SDG&E's 2015 Baseline

SDG&E Price Elasticity of Energy CARE with MSF in all tiers

Energy (Tiers)	CARE (Schedule DRLI)	2015 Rate	2017 Rate	Change in Price %	Price Elasticity of Demand (E _d)	Estimated Change in	Estimated Change	Estimated New kWh Quantity
	Determinants (kWh)	(\$/kWh)	(\$/kWh)		$\frac{(dQ/Q)}{(dP/P)}$	quantity %	in annual kWh (dP/P) x E _d x Q	
Summer								
Tier 1	403,217,444	0.10499	0.14454	38%	(0.10)	-3.77%	(15,189,304)	388,028,140
Tier 2	73,328,715	0.12292	0.14454	18%	(0.10)	-1.76%	(1,289,755)	72,038,960
Tier 3	85,028,156	0.18673	0.18720	0%	(0.10)	-0.03%	(21,402)	85,006,755
Tier 4	89,201,808	0.18673	0.18720	0%	(0.10)	-0.03%	(22,452)	89,179,356
Winter								
Tier 1	459,237,961	0.10499	0.12487	19%	(0.10)	-1.89%	(8,695,734)	450,542,228
Tier 2	70,542,654	0.12292	0.12487	2%	(0.10)	-0.16%	(111,909)	70,430,745
Tier 3	78,642,287	0.17445	0.16163	-7%	(0.10)	0.73%	577,927	79,220,214
Tier 4	67,740,273	0.17445	0.16163	-7%	(0.10)	0.73%	497,810	68,238,083
	1,326,939,299					Total	(24,254,817)	-1.83%

Note: Using SDG&E's 2015 Baseline

	2015-2017 kWh Change	2015-2017 kWh Total	Total Percent Change
Total non-CARE annual kWh change for TOU example with BL credit and MSF	60,373,093	5,566,762,291	1.08%
Total CARE annual kWh change for TOU example with BL credit and MSF:	(30,618,999)	1,419,814,967	-2.16%
	29,754,095	6,986,577,259	0.43%

Total non-CARE summer on-peak reduction	-3.89%
Total CARE summer on-peak reduction	-5.39%

Note: In general Non-CARE Semi and Off peak hours see increases in usage
 Note: CARE results show decreases in usage in all TOU periods

SDG&E Price Elasticity of Energy - non CARE with BL credit and MSF (TOU example)

Energy (Tiers)	Non-CARE (Schedule DR) Determinants (kWh)	Average Rate (\$/kWh)	Proposed TOU Rate BL and MSF (\$/kWh)	Change in Price %	Price Elasticity of Demand (E _d) (dQ/Q) / (dP/P)	Estimated Change in quantity %	Estimated Change in annual kWh (dP/P) x E _d x Q	Estimated New kWh Quantity
Summer								
On-peak	637,811,000	0.25253	0.30159	19%	(0.20)	-3.89%	(24,784,178)	613,026,823
Semi-peak	821,684,442	0.25253	0.24186	-4%	(0.20)	0.84%	6,941,157	828,625,599
Off-peak	1,413,527,082	0.25253	0.19700	-22%	(0.20)	4.40%	62,161,571	1,475,688,653
Winter								
On-peak	315,214,581	0.22377	0.24262	8%	(0.20)	-1.68%	(5,310,377)	309,904,204
Semi-peak	991,848,451	0.22377	0.22664	1%	(0.20)	-0.26%	(2,543,512)	989,304,939
Off-peak	1,386,676,735	0.22377	0.20448	-9%	(0.20)	1.72%	23,908,432	1,410,585,167
	5,566,762,291					Total	60,373,093	1.08%

SDG&E Price Elasticity of Energy CARE with BL credit and MSF (TOU example)

Energy (Tiers)	CARE (Schedule DRLI) Determinants (kWh)	Average Rate (\$/kWh)	Proposed TOU Rate BL and MSF (\$/kWh)	Change in Price %	Price Elasticity of Demand (E _d) (dQ/Q) / (dP/P)	Estimated Change in quantity %	Estimated Change in annual kWh (dP/P) x E _d x Q	Estimated New kWh Quantity
Summer								
On-peak	161,206,115	0.12942	0.19914	54%	(0.10)	-5.39%	(8,683,670)	152,522,445
Semi-peak	196,024,389	0.12942	0.16613	28%	(0.10)	-2.84%	(5,560,473)	190,463,916
Off-peak	343,351,893	0.12942	0.14368	11%	(0.10)	-1.10%	(3,782,395)	339,569,498
Winter								
On-peak	81,770,935	0.12113	0.15586	29%	(0.10)	-2.87%	(2,344,458)	79,426,477
Semi-peak	265,445,466	0.12113	0.14743	22%	(0.10)	-2.17%	(5,762,947)	259,682,519
Off-peak	372,016,169	0.12113	0.13574	12%	(0.10)	-1.21%	(4,485,056)	367,531,113
	1,419,814,967					Total	(30,618,999)	-2.16%

TIERED RATES

No Revenue Changes	"Current Year" Sales	2015 Sales	2015 Sales	Current Rates	Proposed 2015 Rates	2015 Rates w/ MSF in Lower Tier ¹	2015 Rates w/ MSF in All Tiers ²	Proposed 2017 Rates	2017 Rates w/ MSF in Lower Tier ¹	2017 Rates w/ MSF in All Tiers ²
Schedule DR										
Monthly Service Fee	11,436,171	11,436,171	11,436,171	0.00	5.00	0.00	0.00	10.00	0.00	0.00
Summer Energy										
Baseline Energy	1,445,135,097	1,372,073,944	1,347,467,983	0.16474	0.18856	0.20537	0.19883	0.19606	0.23020	0.21660
101% to 130% of Baseline	293,387,123	291,070,049	291,658,167	0.18856	0.18856	0.20537	0.19883	0.19606	0.23020	0.21660
131% to 200% of Baseline	457,471,011	467,556,308	472,779,104	0.36896	0.29383	0.29383	0.30410	0.25488	0.25488	0.27542
Above 200% of Baseline	677,029,294	742,322,224	761,117,270	0.38896	0.29383	0.29383	0.30410	0.25488	0.25488	0.27542
Winter Energy										
Baseline Energy	1,562,553,827	1,455,845,641	1,423,520,381	0.16474	0.16594	0.18275	0.17621	0.16895	0.20309	0.18949
101% to 130% of Baseline	282,330,795	281,782,680	286,888,685	0.18856	0.16594	0.18275	0.17621	0.16895	0.20309	0.18949
131% to 200% of Baseline	405,933,950	429,498,490	439,665,577	0.33371	0.25858	0.25858	0.26885	0.21963	0.21963	0.24017
Above 200% of Baseline	442,921,195	526,612,956	543,665,123	0.35371	0.25858	0.25858	0.26885	0.21963	0.21963	0.24017
MSF \$/kWh Adder				NA	NA	0.01681	0.01027	NA	0.03414	0.02054

TOU rates

No Revenue Changes
Schedule DR
Monthly Service Fee
Summer Energy
Baseline Energy
101% to 130% of Baseline
131% to 200% of Baseline
Above 200% of Baseline
Winter Energy
Baseline Energy
101% to 130% of Baseline
131% to 200% of Baseline
Above 200% of Baseline
MSF \$/kWh Adder

No Revenue Changes
Schedule DRLI (After Discount and Exemption)
Monthly Service Fee
Summer Energy
Baseline Energy
101% to 130% of Baseline
131% to 200% of Baseline
Above 200% of Baseline
Winter Energy
Baseline Energy
101% to 130% of Baseline
131% to 200% of Baseline
Above 200% of Baseline
MSF \$/kWh Adder

No Revenue Changes	"Current Year" Sales	2015 Sales	2017 Sales	Current Rates	Proposed 2015 Rates	2015 Rates w/ MSF in Lower Tier ¹	2015 Rates w/ MSF in All Tiers ²	Proposed 2017 Rates	2017 Rates w/ MSF in Lower Tier ¹	2017 Rates w/ MSF in All Tiers ²
Schedule DRLI (After Discount and Exemption)										
Monthly Service Fee	3,405,984	3,405,984	3,405,984	0.00	2.50	0.00	0.00	5.00	0.00	0.00
Summer Energy										
Baseline Energy	433,534,801	414,428,805	404,086,567	0.10499	0.11694	0.12517	0.12294	0.13255	0.14933	0.14454
101% to 130% of Baseline	73,848,096	75,238,453	76,168,465	0.12292	0.11694	0.12517	0.12294	0.13255	0.14933	0.14454
131% to 200% of Baseline	98,315,652	103,696,563	106,695,274	0.18673	0.18719	0.18719	0.19319	0.17521	0.17521	0.18720
Above 200% of Baseline	94,883,848	107,218,576	113,632,092	0.18673	0.18719	0.18719	0.19319	0.17521	0.17521	0.18720
Winter Energy										
Baseline Energy	500,461,047	472,180,058	459,131,571	0.10499	0.10184	0.11007	0.10784	0.11288	0.12966	0.12487
101% to 130% of Baseline	69,585,502	72,342,159	75,267,740	0.12292	0.10184	0.11007	0.10784	0.11288	0.12966	0.12487
131% to 200% of Baseline	85,636,691	94,903,183	99,773,518	0.17445	0.16367	0.16367	0.16967	0.14964	0.14964	0.16163
Above 200% of Baseline	63,549,330	79,807,169	85,059,740	0.17445	0.16367	0.16367	0.16967	0.14964	0.14964	0.16163
MSF \$/kWh Adder				NA	NA	0.00823	0.00600	NA	0.01678	0.01199

¹ MSF \$/kWh Adder in lower tiers only

² MSF \$/kWh Adder in all tiers

Attachment A - Current proposed rates

"Current Year" Sales	Current Rates	Current Rates Flat
11,436,171	0.00	0.00
1,445,135,097	0.16474	0.25253
293,387,123	0.18856	0.25253
457,471,011	0.36896	0.25253
677,029,294	0.38896	0.25253
1,562,553,827	0.16474	0.22377
282,330,795	0.18856	0.22377
405,933,950	0.33371	0.22377
442,921,195	0.35371	0.22377
	NA	NA

No Revenue Changes	2015 Sales	2017 Sales	Proposed 2015 Rates	Proposed 2017 Rates	Proposed 2015 Rates BL Credit all TOU	Proposed 2017 Rates BL Credit all TOU	Proposed 2015 Rates + MSF Adder	Proposed 2017 Rates + MSF Adder
Schedule DR w/ TOU								
Monthly Service Fee	11,436,171	11,436,171	5.00	10.00	5.00	10.00	0.00	0.00
Summer Energy								
On-Peak	646,229,008	646,229,008	0.35356	0.31461	0.29262	0.28105	0.30289	0.30159
Semi-Peak	818,712,652	818,712,652	0.29383	0.25488	0.23289	0.22132	0.24316	0.24186
Off-Peak	1,408,080,865	1,408,080,865	0.24897	0.21002	0.18803	0.17646	0.19830	0.19700
130% BL Credit	1,663,143,992	1,639,126,151	-0.10527	-0.05882	NA	NA	NA	NA
Winter Energy								
On-Peak	315,214,581	315,214,581	0.29321	0.25426	0.23345	0.22208	0.24372	0.24262
Semi-Peak	991,848,451	991,848,451	0.27723	0.23828	0.21747	0.20610	0.22774	0.22664
Off-Peak	1,386,676,735	1,386,676,735	0.25507	0.21612	0.19531	0.18394	0.20558	0.20448
130% BL Credit	1,737,628,321	1,710,409,067	-0.09264	-0.05068	NA	NA	NA	NA
MSF \$/kWh Adder			NA	NA	NA	NA	0.01027	0.02054

"Current Year" Sales	Current Rates	Current Rates Flat
3,405,984	0.00	0.00
433,534,801	0.10499	0.12942
73,848,096	0.12292	0.12942
98,315,652	0.18673	0.12942
94,883,848	0.18673	0.12942
500,461,047	0.10499	0.12113
69,585,502	0.12292	0.12113
85,636,691	0.17445	0.12113
63,549,330	0.17445	0.12113
	NA	NA

No Revenue Changes	2015 Sales	2017 Sales	Proposed 2015 Rates	Proposed 2017 Rates	Proposed 2015 Rates BL Credit all TOU	Proposed 2017 Rates BL Credit all TOU	Proposed 2015 Rates + MSF Adder	Proposed 2017 Rates + MSF Adder
Schedule DR w/TOU (After Discount and Exemption)								
Monthly Service Fee	3,405,984	3,405,984	2.50	5.00	2.50	5.00	0.00	0.00
Summer Energy								
On-Peak	161,206,115	161,206,115	0.22705	0.21854	0.17795	0.18930	0.18395	0.20129
Semi-Peak	196,024,389	196,024,389	0.18719	0.17521	0.13809	0.14597	0.14409	0.15796
Off-Peak	343,351,893	343,351,893	0.15726	0.14267	0.10816	0.11343	0.11416	0.12542
130% BL Credit	489,667,258	480,255,032	-0.07025	-0.04266	NA	NA	NA	NA
Winter Energy								
On-Peak	81,770,935	81,770,935	0.18678	0.17476	0.13997	0.14745	0.14597	0.15944
Semi-Peak	265,445,466	265,445,466	0.17612	0.16317	0.12931	0.13586	0.13531	0.14785
Off-Peak	372,016,169	372,016,169	0.16133	0.14710	0.11452	0.11979	0.12052	0.13178
130% BL Credit	544,522,218	534,399,311	-0.06183	-0.03676	NA	NA	NA	NA
MSF \$/kWh Adder			NA	NA	NA	NA	0.0060	0.01199

Attachment A - NEM assumptions

	Current NEM	2017 NEM	NEM Cap	NEM distribution	
Res MW	178	270	449	Res	80%
Non-Res MW	90	68	158	Non-Res	20%
Total MW	269	338	607		
Capacity Factor:	19.6%	19.6%			
PV Tier Offset:					
Lower Tier %	30%	30%			
Upper Tier %	70%	70%			
Lower Tier kWh	91,902,362	139,313,503	231,215,864		
Upper Tier kWh	214,438,844	325,064,839	539,503,683		

Schedule DR	111,450,802	assume 80% of lower Tier NEM is in Schedule DR		
	260,051,871	assume 80% of Upper Tier NEM is in Schedule DR		
		reduction from NEM	NEM adjusted sales	
Summer				Summer total
Tier 1	1,372,073,944	44,946,464	1,327,127,480.12	3% 2,873,022,525
Tier 2	291,070,049	9,124,900	281,945,148.25	3%
Tier 3	467,556,308	59,982,285	407,574,022.77	13%
Tier 4	742,322,224	88,770,137	653,552,087.21	12%
Winter				Winter Total
Tier 1	1,455,845,641	48,598,411	1,407,247,230.01	3% 2,693,739,767
Tier 2	281,782,680	8,781,027	273,001,652.94	3%
Tier 3	429,498,490	53,224,894	376,273,596.27	12%
Tier 4	526,612,956	58,074,555	468,538,400.39	11%
	5,566,762,291			
Schedule DRLI	27,862,701	assume 20% of lower Tier NEM is in Schedule DR		
	65,012,968	assume 20% of Upper Tier NEM is in Schedule DR		

Attachment A - NEM assumptions

Summer				Summer total	
Tier 1	414,428,805	11,211,361	403,217,444.10	3%	700,582,397
Tier 2	75,238,453	1,909,737	73,328,715.28	3%	
Tier 3	103,696,563	18,668,407	85,028,156.20	18%	
Tier 4	107,218,576	18,016,768	89,201,808.13	17%	
Winter				Winter Total	
Tier 1	472,180,058	12,942,097	459,237,961.33	3%	719,232,570
Tier 2	72,342,159	1,799,505	70,542,654.02	2%	
Tier 3	94,903,183	16,260,896	78,642,287.00	17%	
Tier 4	79,807,169	12,066,896	67,740,272.99	15%	
	1,419,814,967				

Assumption that NEM Cap is reached , effect is that total consumption is reduced by 7%				
Bottom Tiers	4,434,961,789	139,313,503	4,295,648,286	3%
Upper Tiers	2,551,615,470	325,064,839	2,226,550,631	13%
Total	6,986,577,259	464,378,342	6,522,198,917	7%