Docket:	:	R.12-06-013
Exhibit Number	:	DRA-01
Commissioner	:	Michael R. Peevey
Admin. Law Judge	:	Jeanne McKinney
	:	Timothy Sullivan
DRA Project Mgr.	:	D. Khoury; L. Tan

DIVISION OF RATEPAYER ADVOCATES
CALIFORNIA PUBLIC UTILITIES COMMISSION

APPENDICES TO DRA'S RESPONSES TO THE RESIDENTIAL RATE DESIGN OIR QUESTIONS

San Francisco, California
May 29, 2013

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APPENDIX A: HOW DRA DESIGNED ITS END-STATE TOU RATE

DRA has performed bill impact studies using the illustrative end-state TOU rate shown in Table 5 of DRA's comments.[1] Time-of-use ("TOU") rates attempt to capture the predictable time-variations in marginal cost with a minimum of complexity. It is generally accepted that electricity marginal costs vary by season, day type (weekend/holiday vs. weekend) and time of day.[2] The time variation of marginal energy costs is accentuated during the summer, when peak hour late afternoon marginal energy costs exceed off-peak late night costs by a factor of 50% or more.[3] In addition, cost causation dictates that generation capacity costs be assigned primarily to peak-demand periods.

The Commission has a long history of using marginal costs to set rates. Reacting to the energy crises of the 1970s, the Commission began a sweeping transformation of California IOU electric rates, from its previous embedded-cost based declining block rates to a paradigm in which rates would be based on marginal costs, where declining block rates would be replaced by increasing block pricing. To provide the regulatory context of the use of marginal costs in ratemaking, the Commission often has stated the objectives of economic efficiency and fairness, in choosing marginal cost, rather than embedded cost, as the basis for setting rates since 1981:

[1] DRA would emphasize that these rates are only illustrative and that the actual rates would be litigated in future general rate cases ("GRC") and rate design window proceedings. DRA would not endorse these rates as the actual rates that should be offered to customers because (1) The end-state will not occur until the future, when the revenue requirements and billing determinants will be different, and (2) DRA has not been able to validate the accuracy of the utility bill impact models used to calculate these rates.

[2] Thus, rather than present 8,760 hourly marginal energy costs, utilities typically group similar hours together into two or three periods per season, when they present marginal energy cost results in GRC Phase 2 filings.

[3] PG&E, in its 2014 GRC filing (A.13-04-012), Exh. PG&E-2, at p. 2-5, projected a summer peak rate of 5.6 cents/kWh versus 3.65 cents/kWh summer off-peak rate for the marginal energy costs at the transmission service level.

> *We have chosen marginal costs as our foundation for [electric cost] allocation and rate design. We have used marginal costs to promote economic efficiency and to provide the greatest good for the greatest number. (D.93887 (1981), emphasis added.)*

Widespread use of TOU rates would reduce GHG emissions by discouraging inefficient peak-hour consumption, and by providing an appropriately reduced price for efficient off-peak electricity uses such as electric vehicle fueling.

1) <u>The Level of Time Differentiation in DRA's End-stage TOU Rate</u>

DRA's proposed end-state TOU rate is developed, conceptually, in the following steps:

1. Begin with the utilities' marginal energy costs, grouped by TOU period, as these costs are typically presented in their GRC Phase 2 filings.
2. Allocate marginal generation capacity costs primarily to the summer peak period, using allocation factors provided by the utilities. Ideally, such factors should represent the degree to which demand in each period causes the need for generation capacity. Historically, this allocation was done on the basis of loss-of-load probability, and resulted in the large majority of capacity costs allocated to summer peak season demands.
3. Allocate marginal distribution and customer costs uniformly (equal cents per kWh) to each TOU period.
4. Compute the generation and distribution marginal cost revenue for each TOU period.
5. Using the utility rate design models, scale the generation and distribution marginal cost revenue to the separate generation and distribution revenue requirements. This results in a revenue requirement by TOU period. The model then calculates TOU rates with the specified baseline credit.

In the actual process, the IOU's rate design models do not allow users to carry out the steps exactly as described. Instead, TOU rates are developed using ratios that are labeled as "user inputs." DRA calculated ratios based primarily on the outcome of Steps 1 and 2 as described above.

2) The Baseline Credit

The presence of a baseline credit in DRA's end-state TOU rate design primarily is to provide, to all Californians, access to an essential service at an affordable rate. This was the premise underlying the Warren-Alquist legislation that enacted to original lifeline allowance, which was the predecessor of the baseline allowance.[4] In theory, a TOU baseline credit should be set to the difference between the two tiers in a two-tier rate design. This is because the effective "Tier 2" price in a TOU rate design is the TOU rate without the credit.[5] DRA has set the baseline credit to five cents per kWh in its proposed rates. This would preserve a meaningful baseline credit that would give Californians who live in the hot inland areas continued protection.[6]

Though DRA employs a baseline credit primarily to keep electricity affordable, the baseline concept is not entirely divorced from cost causation. As noted above, it is generally accepted that electricity marginal costs vary by season, day type, and time of day. What drives these variations in marginal cost are the differences in customer loads. Generally, the higher the loads, the higher the marginal cost. This suggests that customers who use more should pay a higher marginal rate. However, because the baseline concept only has a loose connection to the utility's costs, DRA did not consider this factor in designing its baseline credit.

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[4] R.12-06-013, on page 3, states "The Warren-Miller Energy Lifeline Act of 1976 required the Commission to designate a baseline quantity of gas and electricity necessary to supply a significant portion of the reasonable energy needs of the average residential customer at rates below average cost."

[5] As described in DRA's response to Question #7, there is no arithmetic difference between a TOU rate with a baseline credit and a two-tiered TOU rate. If a TOU rate design with a baseline credit were structured as a two-tiered TOU rate, the Tier 2 rate in the tiered version of the TOU rate merely would be the TOU rate without the baseline credit. The Tier 1 rate would be that rate minus the baseline credit. For example, if the summer-on-peak rate in a TOU rate with a baseline credit were 34 cents/kWh and the baseline credit were 5 cents per kWh, the Tier 2 rate in the tiered version of this rate design would be 34 cents/kWh. The Tier 1 rate would be 29 cents/kWh.

[6] As explained in the previous footnote, the effective summer on-peak baseline rate is much higher, in either a simple TOU rate with a baseline credit or in a two-tiered TOU rate, than it is today. This makes it important to make the baseline credit high enough to provide a meaningful offset to the high summer on-peak rate, but not so high that it would cause the effective tier 2 rates to significantly exceed marginal costs.

3) **No Customer Charge**

DRA recognizes that a rate design composed entirely of volumetric rates can result in customers who self-generate not adequately compensating the utility for billing services that the utility provides. This is especially a problem for customers that consume zero net energy. To mitigate this problem, DRA proposes a $5 minimum bill in lieu of a customer charge. Though DRA makes this concession, it does not believe that either minimum bills or customer charges have any place in a rate design that allegedly is based on marginal costs pursuant to Rate Design Principle #2 in this OIR.

The problem with either type of charge is that the costs that they are intended to reflect are sunk from the viewpoint of existing ratepayers. Clearly the installation of the physical hookup was a past event for all existing customers that will respond to the price signals in retail rates. The billing services recently were automated as part of the statewide Advanced Metering Infrastructure ("AMI") upgrade at a cost of over $5 billion statewide.[7] The extent to which billing costs are marginal and impacted by existing customers' behavior remains to be investigated in future general rate cases.

Very few competitive industries see the need to recover sunk fixed costs using fixed monthly charges. The Regulatory Assistance Project has noted that many industries (e.g., airlines, groceries, automobiles, fuels, agricultural products, appliances, communications services, entertainment) do not recover sunk capital costs by using fixed charges. It provides some examples of industries that use fixed charges, but states that, in each case, competitive alternatives exist that do not employ fixed charges in pricing. Accordingly, it reaches the following general conclusion:

> *Competitive markets are by their very nature hostile to the imposition of unavoidable charges upon consumers; such charges are only sustainable, by themselves, when a firm can exercise some degree of market power. Competitive markets provide goods and services in all sorts of ways, with an*

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[7] Not only were human meter readers eliminated, but extensive upgrades to the utilities billing systems occurred.

almost infinite variety of product offerings and pricing structures: consumers are given meaningful choices and are thus able to avoid costs either by not consuming or by finding substitutes. And the availability of goods and services on a price per-unit-purchased basis is a feature common to them all.[8]

A fixed monthly charge is not sustainable in a competitive environment because customers do not like unavoidable charges. Indeed, the results of the RROIR Customer Survey show that the existence of a monthly service fee "had more influence on rate choices than any other attribute."[9] The survey results also indicate that customers are strongly averse to a monthly service fee.[10]

DRA estimates that not including a $5 customer charge would increase average residential volumetric rate by about one-cent per kWh. Though some would claim that this leads to a loss of efficiency in the rate, DRA would note that it helps to compensate for environmental externalities not already internalized in the utility's cost of doing business[11]. It also helps compensate for the market barriers to customer energy efficiency investments owing to split incentives[12] and lack of access to capital.[13]

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[8] *Charging For Distribution Utility Services: Issues In Rate Design*, December 2000, The Regulatory Assistance Project (Frederick Weston).

[9] Hiner & Partners, Inc., Residential Rate Design OIR Customer Survey Key Findings, Final Draft, April 16, 2013, Slide 18.

[10] *Id.* at Slide 19.

[11] The most commonly discussed environmental externalities are societal costs of power plant air emissions. While cap and trade should lead to internalizing some of these costs (for CO_2 emissions), there are other air emissions such as criteria pollutants (NO_X, SO_X, etc.) that are not covered by cap and trade. While there may be legal compliance and permitting costs associated with these emissions that are internalized in rates, legal compliance and permitting costs do not comprise the full spectrum of the cost to society of air emissions, even when such air emissions are within legally permitted limits. Thus, externalities remain.

[12] "Split incentives" refers to the market failure where a landlord takes ownership of any capital investments that a renter makes to upgrade the property to lower the renter's the utility bill. This reduces the renter's incentive to make such investments.

[13] Providing low-cost loans for energy upgrades has been addressed in several energy efficiency proceedings, but providing such a program has encountered many difficulties. (cf. A.12-07-001.)

For illustration DRA uses, in its end-state TOU rate, a minimum bill of $5, which is close to the current levels for PG&E and SDG&E. This is enough to cover the billing and payment services costs. As indicated previously, DRA has reservations about including the cost of the meter because it is a sunk cost. The level of $5 probably would mainly affect zero net energy customers with distributed generation. Their impact on distribution demand costs is still being debated. As currently configured, the minimum bills for PG&E and SCE do not incorporate generation services.[14]

[14] The SDG&E bill impact model allows the user to specify whether the minimum bill covers all functions or only the distribution function. In the tariffs, the minimum bill currently covers all functions.

APPENDIX B: BILL CALCULATOR MODEL RESULTS FOR DRA'S ILLUSTRATIVE PROPOSED RATES

DRA examined many rate design options using the bill calculator models developed by PG&E, SCE, and SDG&E. As explained in DRA's answers to Questions 1 and 2, many options, including a cost-based time-of-use ("TOU") rate design, would result in large bill increases. Therefore, DRA recommends starting with a transitional default Introductory TOU rate. This would be a three-tier rate structure with an on-peak surcharge and an off-peak credit. Customers would be able to opt out to a simple three-tier rate option without the TOU surcharge and credit. This appendix provides the bill impact results for the two transitional rates and the cost-based TOU rate that represents the end state.

The following is a brief summary of the bill impact results:

- The bill impact results for the three IOUs for the same rate structures (e.g. the Introductory TOU or the cost-based TOU) are comparable, though PG&E tends to have worse bill impacts in percentage and dollar terms.
- The bill impacts for the simple opt-in three tier rate option are very similar to those of the Introductory TOU rate option, suggesting that the bulk of the impact from the Introductory TOU rate comes from the reducing the number of tiers and not from the TOU surcharge and credit.
- The TOU surcharge and credit create larger summer bill impacts for customers who reside in the hotter climate zones than those of the general population.[15]
- The cost-based TOU rate option has the most severe bill impact to a substantial number of customers.

This Appendix contains DRA's rate structure bill impact studies for PG&E, SCE, and SDG&E, respectively.

DRA notes that the bill calculators are simplified versions of the comprehensive rate design models that IOUs traditionally develop for the GRCs. Therefore, the rates developed by the models are not as accurate as those produced by the GRC rate design

[15] As further explained below, DRA added functionality to the PG&E and SCE bill impact models to calculate summer monthly bills for the different climate zones.

models, which normally compute the rates through an iterative process. One obvious simplification in the Rate Design OIR ("RROIR") models is that, in the GRC models, when rates are changed, the CARE shortfall will be reallocated to other classes.[16] Consequently, the revenue allocated to the residential class would change. Whereas, in the SCE and SDG&E RROIR models, the residential revenue requirement is fixed at the current level and revenue neutrality is attained solely within the residential class by changing residential rates.

The IOUs have revised their models to accommodate the parties' requests to the extent possible, and time constraints prevented them from revising the models to incorporate all the options that parties desire to test in this proceeding. However, partly because of all these modifications, the models do not have all the same functionalities. For example, the Introductory TOU rate feature is not available in PG&E's model,[17] while it is available in SCE's and SDG&E's models. But PG&E's model can show a hybrid rate design where the Tier 1 rate is not time-differentiated, but the higher tier rates are. The SCE and SDG&E models cannot show a hybrid rate design. Moreover, they can only model the mixing of TOU periods and rate tiers using a baseline credit which generally limits the number of tiers to two. The three models also present the CARE discount and the total CARE subsidy differently. For example, in the SCE and SDG&E models, the user needs to review multiple output tables to derive a total CARE discount that includes the CARE rate discount as well as other CARE exemptions.

The bill impact results from the models generally are adequate for comparing the

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[16] Both SCE and SDG&E's models have all scenarios recover the same revenues resulting from the current rates, or apply revenue neutrality. PG&E's model does the same when the CARE discount is the same across the scenarios. However, when the CARE discount changes, that change is allocated between the non-residential and non-CARE residential customers based on the sales volume. Typically, it is a 70% and 30% allocation.

[17] As explained further below, DRA created this functionality outside of the PG&E model.

various scenarios.[18] The models are useful for obtaining a general idea of the bill impacts, and the rates produced by the models can be regarded as illustrative. But, to calculate accurate and implementable rates, the Commission needs to use the GRC cost allocation and rate design models that take into account the latest load data, revenue requirements, and cost information. The GRC revenue allocation and rate design models also would perform the iterative steps needed in the revenue allocation process.

Appendix B1: PG&E Illustrative Rates and Bill Impact

B1.(a) Current and Illustrative Transitional Rate Summary:

This section provides DRA's proposed rate structure during the transitional period for PG&E. DRA recommends an Introductory TOU rate design as the default with customers being able to opt out to a simple three-tier rate. The following table summarizes the Introductory TOU and the three-tier rate designs and compares them to the current rates.

As explained previously, the Introductory TOU and opt-in three-tier rate designs would collapse Tier 2 and Tier 3 in the current rate design. However, to facilitate comparison of the new rate designs with the current rates, the tiers in the table below are presented based on current tier usage definition. Current tier structure is as follows:

- Tier 1 is for usage up to 100% baseline,
- Tier 2 covers usage above 100% up to 130%,
- Tier 3 includes usage above 130% up to 200%,
- Tier 4 is for usage above 200% up to 300%, and,
- Tier 5 is for usage greater than 300%.

As shown, the Introductory TOU and the opt-in 3-Tier rate designs have identical Tier 2 and Tier 3 rates and identical Tier 4 and Tier 5 rates. This is because the usage for the current Tier 2 and Tier 3 (between 100% to 200%) has been combined to form the new

[18] By "bill impact", DRA means the change in the customer's bill relative to the current residential default non-TOU four-tiered inclining block rate design. Bill impacts can be measured in either percentages or dollars per month. High percentage impacts do not necessarily correspond to high dollar impacts, and vice versa, but both should be considered when making policy choices about future rate design, as these are important factors in customer acceptance and affordability.

Tier 2 usage, and Tier 5 has been removed so that usage above 300%, previously part of Tier 4 for PG&E, is now part of Tier 3.

PG&E Transitional Rate Designs

		Jan 2013 Rates	Introductory TOU	3-Tiers
Tier (¢/kWh)				
Non-CARE				
	1	13.2	14.3	14.3
	2	15.0	22.9	22.9
	3	30.0	22.9	22.9
	4	34.0	29.1	29.1
	5	34.0	29.1	29.1
Min. Charge $/Mo.		4.5	5.0	5.0
TOU On-Peak Surcharge			4.0	
TOU Off-Peak Credit			0.6	
CARE				
	1	8.3	9.0	9.0
	2	9.6	11.0	11.0
	3	14.0	11.0	11.0
	4	14.0	21.6	21.6
	5	14.0	21.6	21.6
Min. Charge $/Mo.		3.6	3.2	3.2
TOU On-Peak Surcharge			4.0	
TOU Off-Peak Credit			0.6	

B1.(b) Transitional Rate Input Description

Goals:

DRA designed the default transitional Introductory TOU rates, and the optional three-tier rates, with the following goals:

- Minimize the bill impacts associated with transitioning customers from the current 4-tiered structure to a TOU rate.
- Reduce the Non-CARE Tier 3 rate to a level below 30¢/kWh.
- Gradually decrease the overall effective CARE discount and do so at a pace that does not create excessive bill impacts.
- Create a three-tiered rate design in which the difference between tiers 1 and 2 is similar to that between tiers 2 and 3.

- Introduce the concept of time-varying rates to customers by implementing a TOU overlay.
- Allowing customers, who find it too difficult to adjust to the TOU overlay, to opt-out to a three-tiered rate structure, which would be equivalent to the mid-peak rates from the Introductory TOU design applied during all time periods.[19]

Inputs:

DRA used the PG&E model to first design the opt-out three-tiered design, using the inputs shown below from the model's "Summary" tab, by doing the following:

- Update the current rate date to 1/1/2013 by entering information from PG&E's advice letter 4096-E into the "Detailed Inputs" tab.
- Collapse the current Tiers 2 and 3 such that the new Tier 2 is for usage between 100% and 200% of baseline and Tier 3 is for usage above 200% by typing "2" in cell C:126 of the "Detailed Inputs" tab.
- Increase the Tier 1 and Tier 2 rates by 8% and 52% respectively over the current 1/1/2013 levels. Doing so increased the rate for usage from 100% to 130% of baseline but reduced the rate for usage from 130% to 200% of baseline.
- Maintain the minimum bill at the model's default level of $5 for Non-CARE customers.
- Adjust the CARE discounts to meet above goals, which resulted in a 43% effective discount.

In order to determine the value of the on-peak surcharge and off-peak credit used in the Introductory TOU rate, DRA equated the amount of revenue collected by the surcharge with that in the credit such that the surcharge and credit are revenue neutral with respect to each other. Thus, after choosing a surcharge level of 4¢/kWh, the ratio of the total number of off-peak hours year-round to the number of summer on-peak hours roughly equates to the ratio of the surcharge to the credit (4 cent surcharge:0.6 cent credit).[20] DRA created a spreadsheet using the PG&E model's customer data to calculate

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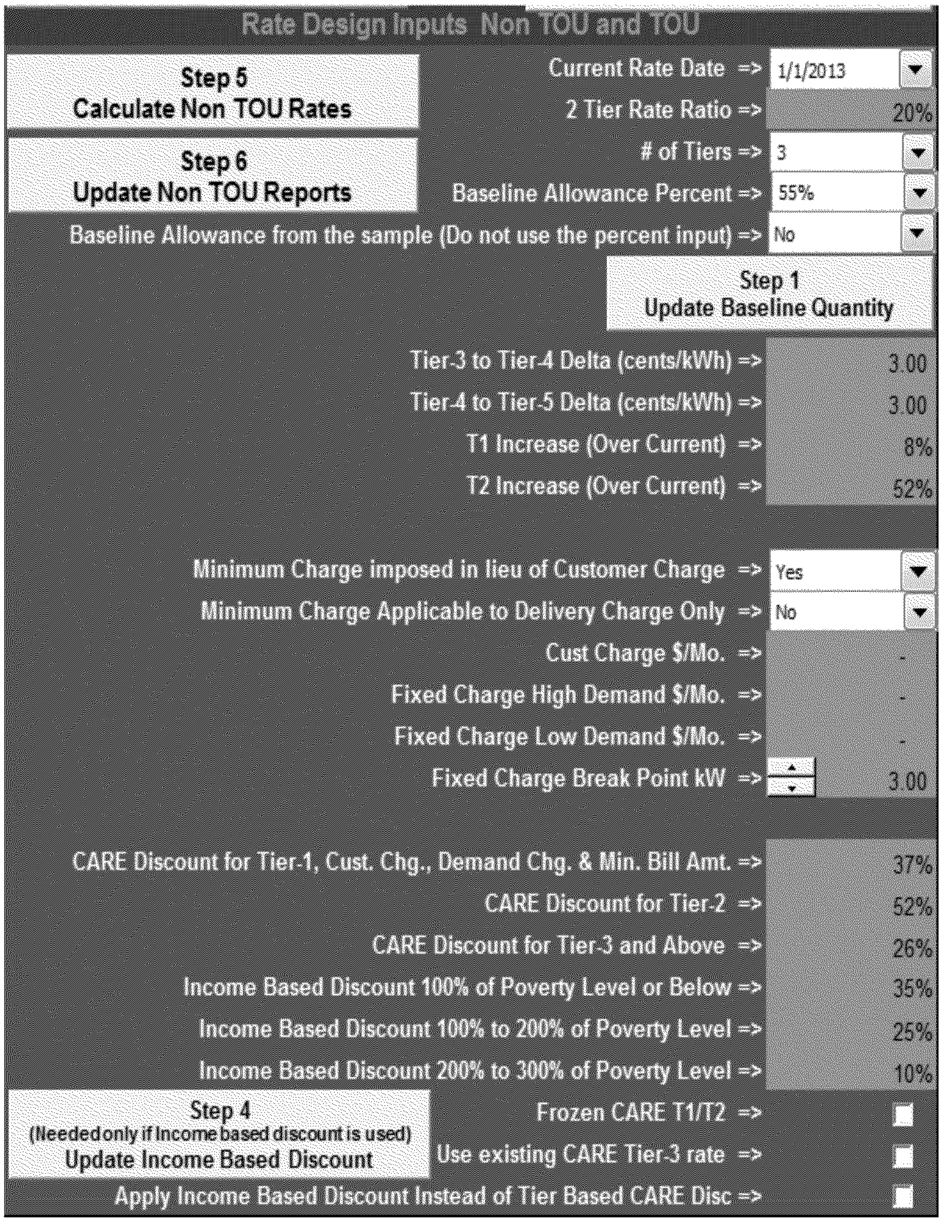
[19] As the transition is made to a cost-based TOU rate, the optional non-TOU rate would be allowed to diverge from the default TOU rate so that the TOU differentiation in a cost-based structure can be more accurately represented in the default rate. A more detailed transition plan is explained in DRA's answer to question 7 above.

[20] The on-peak surcharge is much larger than the off-peak credit because of the small number of hours in the summer on-peak period relative to that in the summer and winter off-peak periods. The TOU surcharge and credit were designed to offset each other for a customer with an average hourly load profile. That is, such a customer would be indifferent (would receive the same bill) whether on the Introductory TOU rate or the opt-out three-tier non-TOU rate.

customer bills under the Introductory TOU scenario and mirrored the output calculations from the model.

DRA also added functionality to the PG&E model to examine the bill impacts in the summer months. It did so by using the rates generated by the model and the information in the "Customer Data" tab to calculate bills during each month for PG&E's sample of customers under current rates as well as under each of DRA's illustrative scenarios. Bills in the summer were averaged to generate the impact tables shown below in figures B1.9 – B1.12.

PG&E Model Inputs: Tiered



Rate Design Inputs Non TOU and TOU	
Step 5 Calculate Non TOU Rates	
Current Rate Date =>	1/1/2013
2 Tier Rate Ratio =>	20%
Step 6 Update Non TOU Reports	
# of Tiers =>	3
Baseline Allowance Percent =>	55%
Baseline Allowance from the sample (Do not use the percent input) =>	No
Step 1 Update Baseline Quantity	
Tier-3 to Tier-4 Delta (cents/kWh) =>	3.00
Tier-4 to Tier-5 Delta (cents/kWh) =>	3.00
T1 Increase (Over Current) =>	8%
T2 Increase (Over Current) =>	52%
Minimum Charge imposed in lieu of Customer Charge =>	Yes
Minimum Charge Applicable to Delivery Charge Only =>	No
Cust Charge $/Mo. =>	-
Fixed Charge High Demand $/Mo. =>	-
Fixed Charge Low Demand $/Mo. =>	-
Fixed Charge Break Point kW =>	3.00
CARE Discount for Tier-1, Cust. Chg., Demand Chg. & Min. Bill Amt. =>	37%
CARE Discount for Tier-2 =>	52%
CARE Discount for Tier-3 and Above =>	26%
Income Based Discount 100% of Poverty Level or Below =>	35%
Income Based Discount 100% to 200% of Poverty Level =>	25%
Income Based Discount 200% to 300% of Poverty Level =>	10%
Step 4 (Needed only if Income based discount is used) Update Income Based Discount	
Frozen CARE T1/T2 =>	
Use existing CARE Tier-3 rate =>	
Apply Income Based Discount Instead of Tier Based CARE Disc =>	

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B1.(c) Transitional Rate Input Bill Impacts from Current Rates (1/1/2013)

1. PG&E Introductory TOU: All Non-CARE Average Monthly Bill Impacts

Figures B1.1 - B1.4 show Non-CARE customer monthly bill impact in percent and dollar based on annual bills generated by the model. About 29% could see bill reduction, 54% could see an increase between 0 and 10% and the remaining 17% could see bills increase between 10 and 20%. About 69% may see increases of 0 to $10 and 2% may see an increase of $10 to $30.

Figure B1.1

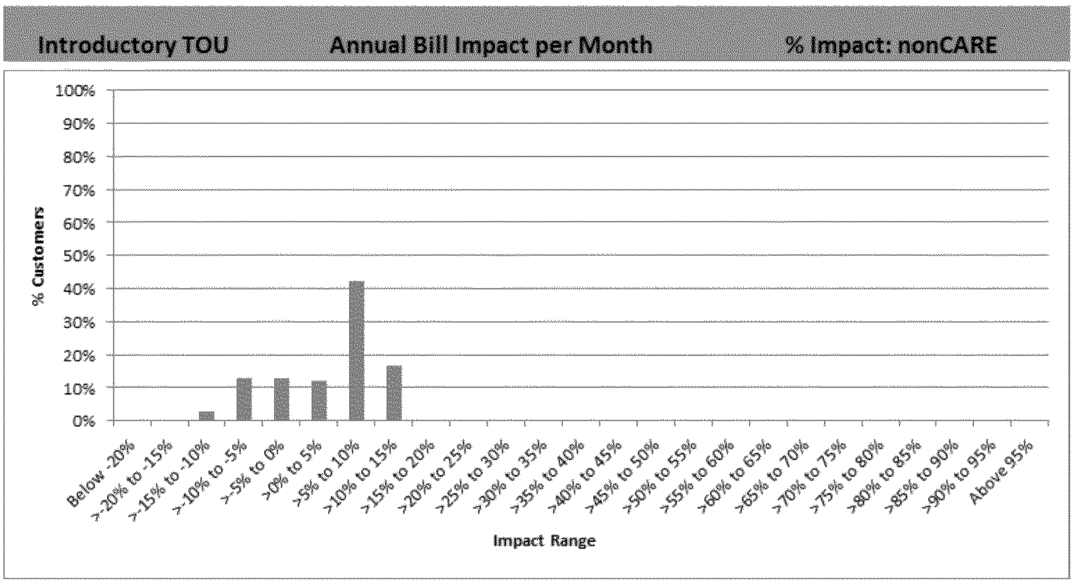

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Figure B1.2

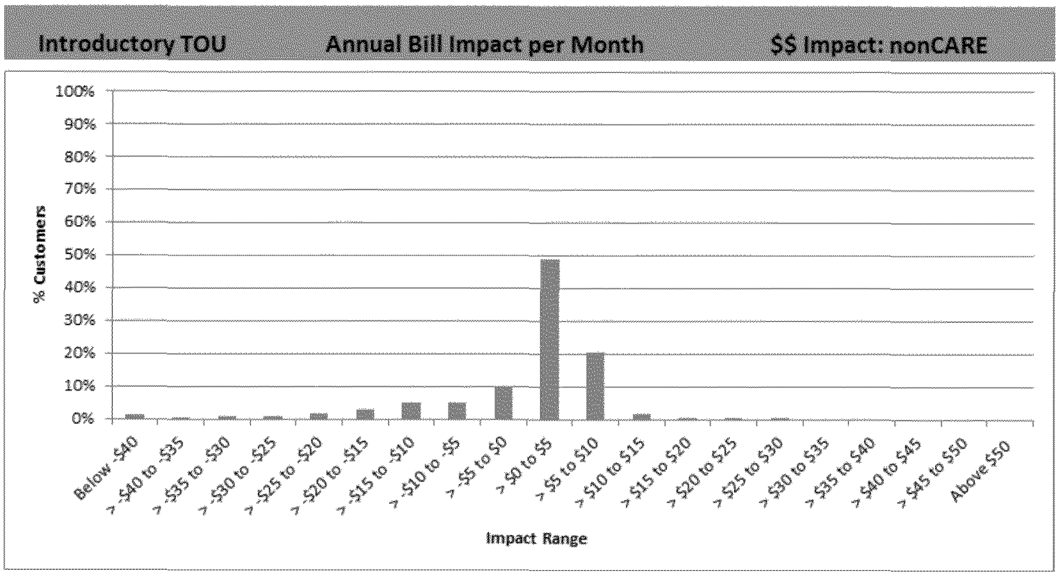

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Figure B1.3

Introductory TOU	Annual Bill Impact per Month		
% Impact: nonCARE	% Cust	# Cust	Ave $ Impact
Below -20%	0.00%	-	n/a
>-20% to -15%	0.00%	-	n/a
>-15% to -10%	2.85%	95,578	$ (50.30)
>-10% to -5%	12.94%	433,847	$ (16.16)
>-5% to 0%	12.82%	429,816	$ (3.39)
>0% to 5%	12.24%	410,602	$ 2.45
>5% to 10%	42.17%	1,414,278	$ 3.66
>10% to 15%	16.62%	557,219	$ 6.24
>15% to 20%	0.36%	12,209	$ 8.49
>20% to 25%	0.00%	-	n/a
>25% to 30%	0.00%	-	n/a
>30% to 35%	0.00%	-	n/a
>35% to 40%	0.00%	-	n/a
>40% to 45%	0.00%	-	n/a
>45% to 50%	0.00%	-	n/a
>50% to 55%	0.00%	-	n/a
>55% to 60%	0.00%	-	n/a
>60% to 65%	0.00%	-	n/a
>65% to 70%	0.00%	-	n/a
>70% to 75%	0.00%	-	n/a
>75% to 80%	0.00%	-	n/a
>80% to 85%	0.00%	-	n/a
>85% to 90%	0.00%	-	n/a
>90% to 95%	0.00%	-	n/a
Above 95%	0.00%	-	n/a
Total	100.00%	3,353,549	

Figure B1.4

Introductory TOU	Annual Bill Impact per Month	
$$ Impact: nonCARE	% Cust	# Cust
Below -$40	1.43%	48,084
> -$40 to -$35	0.64%	21,606
> -$35 to -$30	0.84%	28,016
> -$30 to -$25	1.03%	34,450
> -$25 to -$20	1.84%	61,791
> -$20 to -$15	3.00%	100,752
> -$15 to -$10	5.07%	169,886
> -$10 to -$5	4.97%	166,695
> -$5 to $0	9.78%	327,961
> $0 to $5	48.87%	1,639,006
> $5 to $10	20.54%	688,817
> $10 to $15	1.65%	55,393
> $15 to $20	0.29%	9,623
> $20 to $25	0.04%	1,243
> $25 to $30	0.01%	226
> $30 to $35	0.00%	-
> $35 to $40	0.00%	-
> $40 to $45	0.00%	-
> $45 to $50	0.00%	-
Above $50	0.00%	-
Total	100.000%	3,353,549

2. PG&E Introductory TOU: All CARE Average Monthly Bill Impacts

Figures B1.5 – B1.8 show CARE customer impacts in percent and in dollar terms. About 5% of customers may see bills decrease, while 90% see increases below 15% and the remaining 5% see increases between 15% and 45%. As for dollar impacts, about 87% may see increases between 0 and $10 while 8% may see larger increases.

Figure B1.5

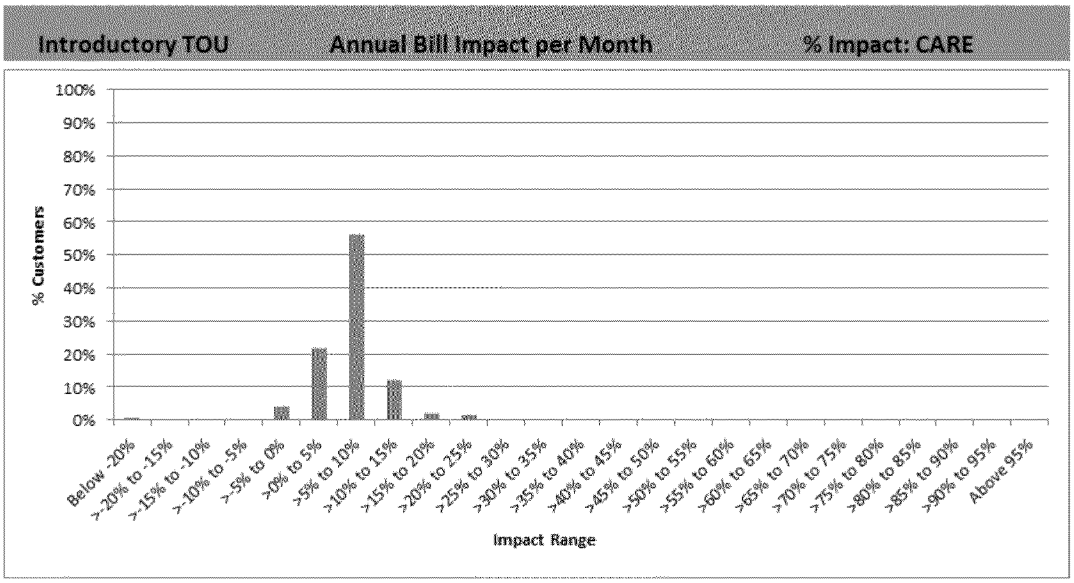

Figure B1.6

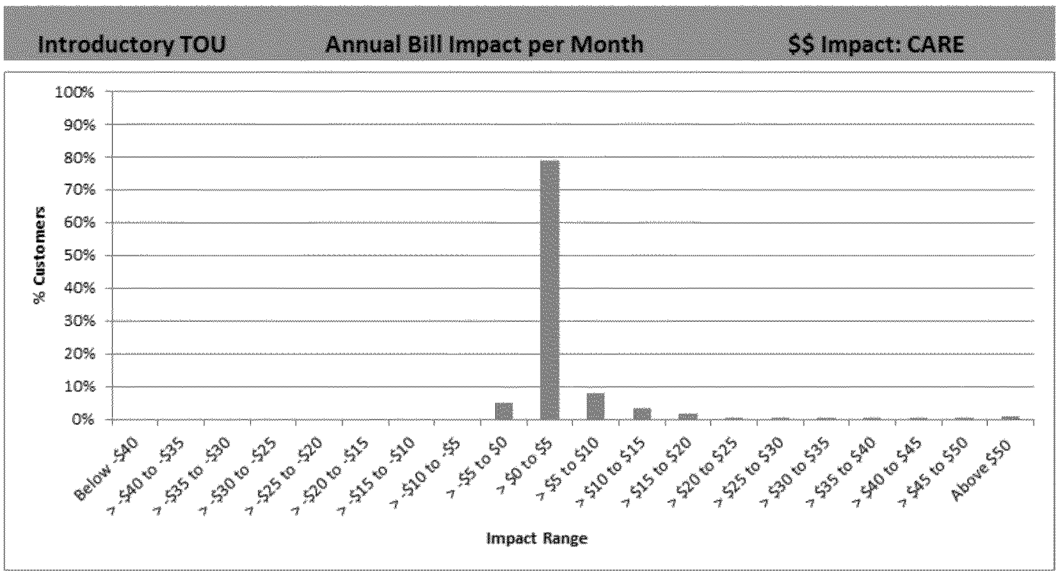

Figure B1.7

Introductory TOU	Annual Bill Impact per Month		
% Impact: CARE	% Cust	# Cust	Ave $ Impact
Below -20%	0.57%	7,272	$ (1.32)
>-20% to -15%	0.03%	399	$ (0.78)
>-15% to -10%	0.00%	-	n/a
>-10% to -5%	0.42%	5,296	$ (0.98)
>-5% to 0%	4.19%	53,122	$ (0.63)
>0% to 5%	21.90%	277,724	$ 1.53
>5% to 10%	56.38%	714,932	$ 2.77
>10% to 15%	12.18%	154,435	$ 7.34
>15% to 20%	1.83%	23,246	$ 17.62
>20% to 25%	1.57%	19,902	$ 38.35
>25% to 30%	0.21%	2,715	$ 50.32
>30% to 35%	0.22%	2,808	$ 71.97
>35% to 40%	0.45%	5,697	$ 122.80
>40% to 45%	0.04%	483	$ 136.70
>45% to 50%	0.00%	-	n/a
>50% to 55%	0.00%	-	n/a
>55% to 60%	0.00%	-	n/a
>60% to 65%	0.00%	-	n/a
>65% to 70%	0.00%	-	n/a
>70% to 75%	0.00%	-	n/a
>75% to 80%	0.00%	-	n/a
>80% to 85%	0.00%	-	n/a
>85% to 90%	0.00%	-	n/a
>90% to 95%	0.00%	-	n/a
Above 95%	0.00%	-	n/a
Total	100.00%	1,268,031	

Figure B1.8

Introductory TOU	Annual Bill Impact per Month	
$$ Impact: CARE	% Cust	# Cust
Below -$40	0.00%	-
> -$40 to -$35	0.00%	-
> -$35 to -$30	0.00%	-
> -$30 to -$25	0.00%	-
> -$25 to -$20	0.00%	-
> -$20 to -$15	0.00%	-
> -$15 to -$10	0.00%	-
> -$10 to -$5	0.00%	-
> -$5 to $0	5.21%	66,089
> $0 to $5	78.86%	999,925
> $5 to $10	7.99%	101,369
> $10 to $15	3.37%	42,717
> $15 to $20	1.60%	20,345
> $20 to $25	0.27%	3,417
> $25 to $30	0.29%	3,634
> $30 to $35	0.45%	5,681
> $35 to $40	0.61%	7,710
> $40 to $45	0.13%	1,703
> $45 to $50	0.11%	1,375
Above $50	1.11%	14,066
Total	100.000%	1,268,031

3. PG&E Introductory TOU: Bakersfield Summer Non-CARE Average Monthly Bill Impacts

Figures B1.9 – B1.12 show potential impacts in Zone W (Kings and Kern County, including Bakersfield) for Non-CARE customers in the summer on a monthly basis. This territory has PG&E's largest baseline allowance in the summer. About 20% of these customers can expect a bill decrease while about 42% may see between 0 and 10% increases and 38% may see an increase between 10% and 20%. Around 77% may see increases of $0 to $15 and 3% may see a $15 to $30 increase.

Figure B1.9

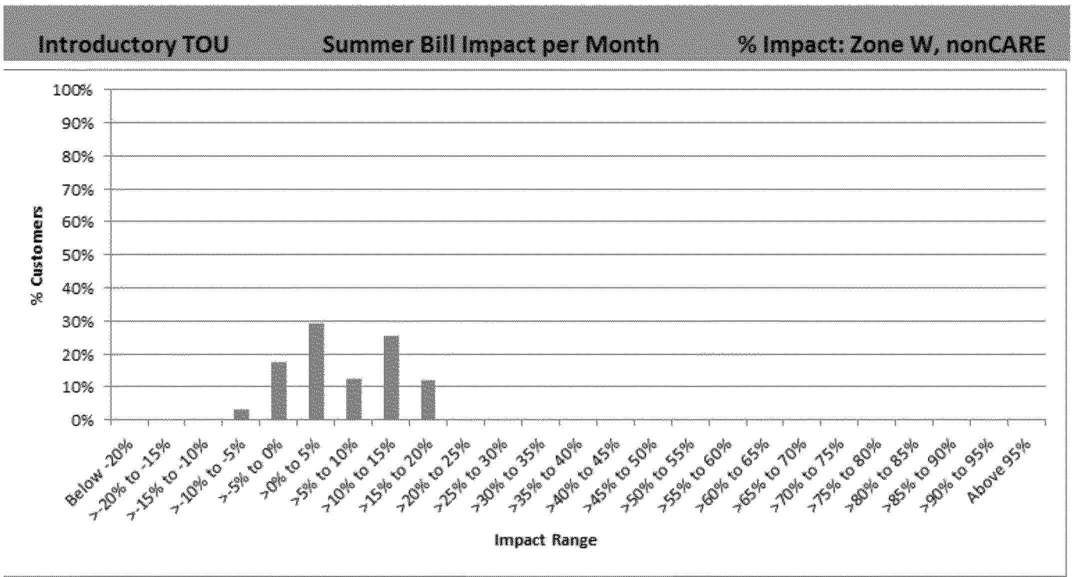

Figure B1.10

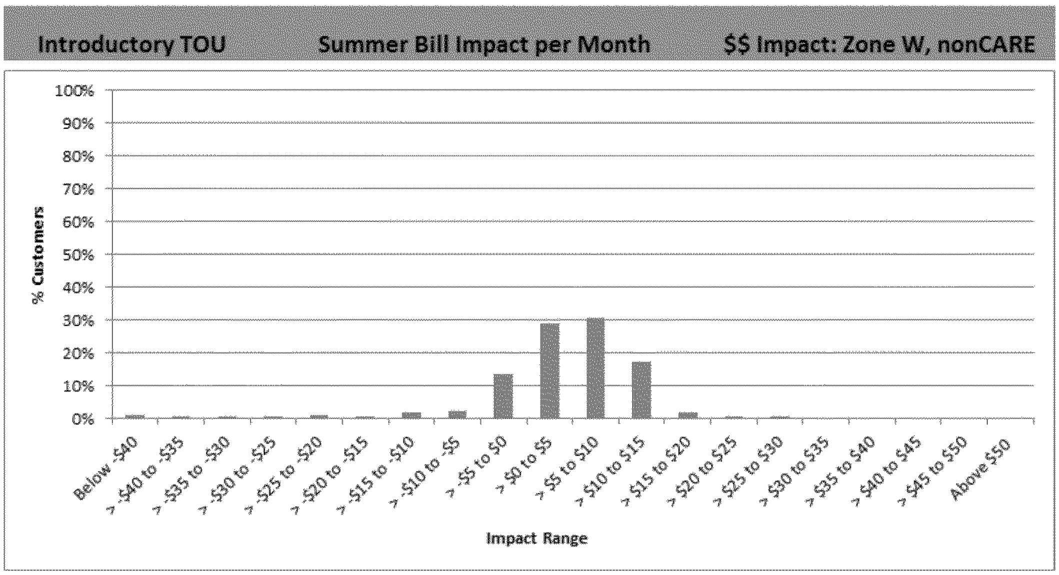

Figure B1.11

Introductory TOU	Summer Bill Impact per Month		
% Impact: Zone W, nonCARE	% Cust	# Cust	Ave $ Impact
Below -20%	0.00%	-	n/a
>-20% to -15%	0.00%	-	n/a
>-15% to -10%	0.00%	-	n/a
>-10% to -5%	3.08%	3,760	(36)
>-5% to 0%	17.47%	21,359	(5)
>0% to 5%	29.10%	35,578	5
>5% to 10%	12.46%	15,230	10
>10% to 15%	25.53%	31,211	7
>15% to 20%	12.19%	14,907	11
>20% to 25%	0.18%	223	14
>25% to 30%	0.00%	-	n/a
>30% to 35%	0.00%	-	n/a
>35% to 40%	0.00%	-	n/a
>40% to 45%	0.00%	-	n/a
>45% to 50%	0.00%	-	n/a
>50% to 55%	0.00%	-	n/a
>55% to 60%	0.00%	-	n/a
>60% to 65%	0.00%	-	n/a
>65% to 70%	0.00%	-	n/a
>70% to 75%	0.00%	-	n/a
>75% to 80%	0.00%	-	n/a
>80% to 85%	0.00%	-	n/a
>85% to 90%	0.00%	-	n/a
>90% to 95%	0.00%	-	n/a
Above 95%	0.00%	-	n/a
Total	100.00%	122,266	

Figure B1.12

Introductory TOU	Summer Bill Impact per Month	
$$ Impact: Zone W, nonCARE	% Cust	# Cust
Below -$40	0.75%	915
> -$40 to -$35	0.35%	434
> -$35 to -$30	0.40%	491
> -$30 to -$25	0.64%	780
> -$25 to -$20	0.93%	1,140
> -$20 to -$15	0.33%	405
> -$15 to -$10	1.58%	1,927
> -$10 to -$5	2.14%	2,612
> -$5 to $0	13.43%	16,415
> $0 to $5	28.77%	35,174
> $5 to $10	30.69%	37,528
> $10 to $15	17.38%	21,253
> $15 to $20	1.81%	2,211
> $20 to $25	0.37%	448
> $25 to $30	0.44%	534
> $30 to $35	0.00%	-
> $35 to $40	0.00%	-
> $40 to $45	0.00%	-
> $45 to $50	0.00%	-
Above $50	0.00%	-
Total	100.000%	122,266

4. PG&E Introductory TOU Rate: Bakersfield Summer CARE Average Monthly Bill Impacts

Figures B1.13 – B1.16 show potential impacts in Zone W for CARE customers in the summer on a monthly basis. About 95% see increases under 20% and 4% see increases between 20% and 45%. Around 60% may see increases of 0 to $10 while 32% see increases between $10 and $20 and about 8% see increases above $20 per month.

Figure B1.13

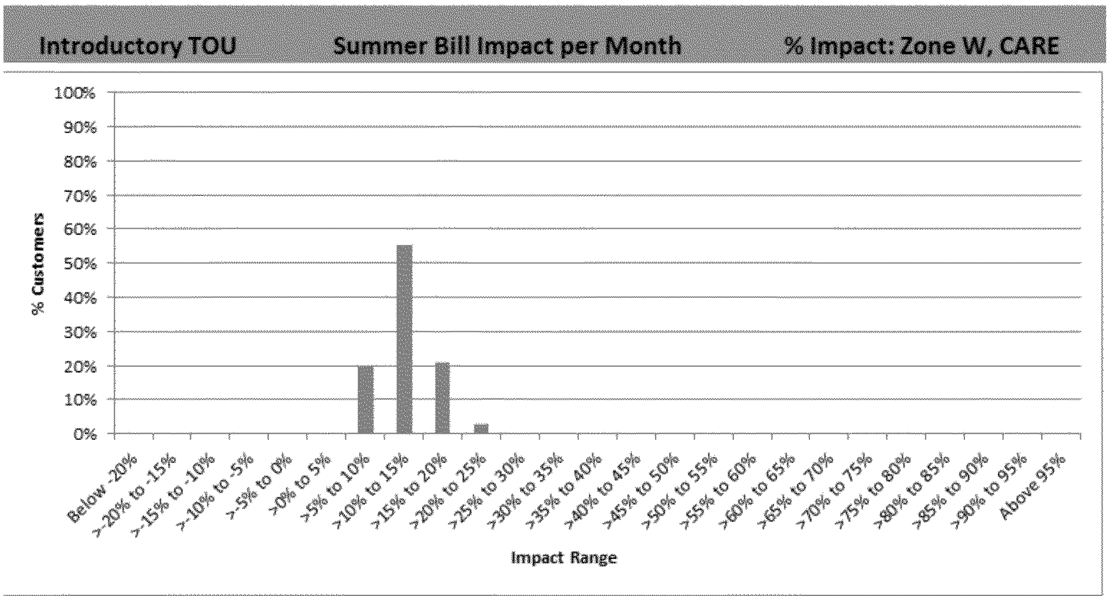

Figure B1.14

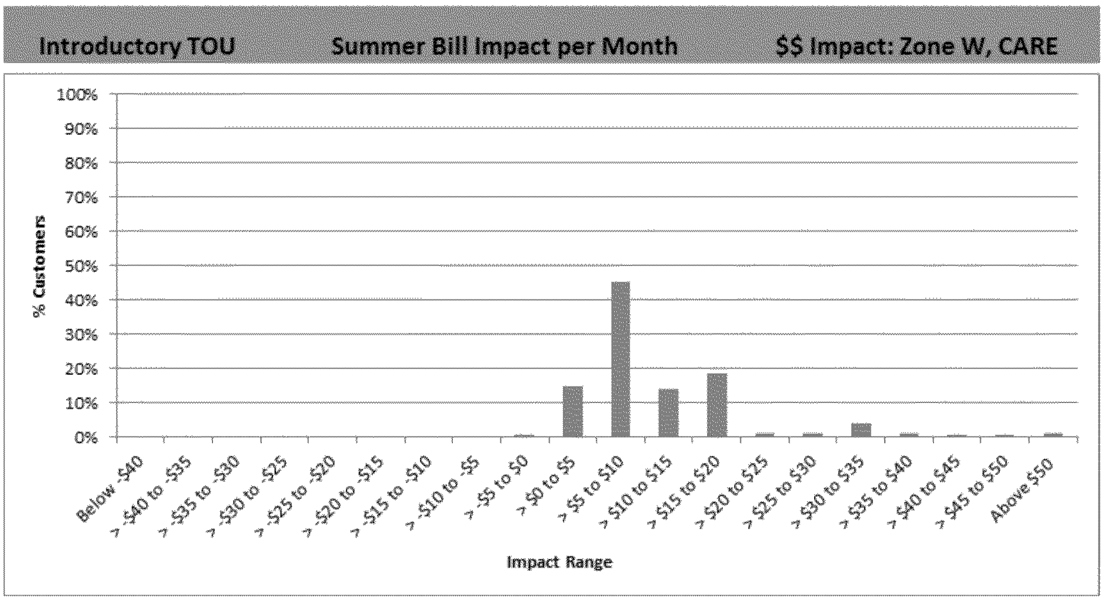

Figure B1.15

Introductory TOU	Summer Bill Impact per Month		
% Impact: Zone W, CARE	% Cust	# Cust	Ave $ Impact
Below -20%	0.24%	302	(1)
>-20% to -15%	0.00%	-	n/a
>-15% to -10%	0.00%	-	n/a
>-10% to -5%	0.00%	-	n/a
>-5% to 0%	0.13%	159	(0)
>0% to 5%	0.00%	-	n/a
>5% to 10%	19.53%	24,456	9
>10% to 15%	55.45%	69,437	10
>15% to 20%	20.90%	26,171	14
>20% to 25%	2.78%	3,484	29
>25% to 30%	0.20%	245	44
>30% to 35%	0.38%	479	69
>35% to 40%	0.20%	245	115
>40% to 45%	0.20%	245	95
>45% to 50%	0.00%	-	n/a
>50% to 55%	0.00%	-	n/a
>55% to 60%	0.00%	-	n/a
>60% to 65%	0.00%	-	n/a
>65% to 70%	0.00%	-	n/a
>70% to 75%	0.00%	-	n/a
>75% to 80%	0.00%	-	n/a
>80% to 85%	0.00%	-	n/a
>85% to 90%	0.00%	-	n/a
>90% to 95%	0.00%	-	n/a
Above 95%	0.00%	-	n/a
Total	100.00%	125,225	

Figure B1.16

Introductory TOU	Summer Bill Impact per Month	
$$ Impact: Zone W, CARE	% Cust	# Cust
Below -$40	0.00%	-
> -$40 to -$35	0.00%	-
> -$35 to -$30	0.00%	-
> -$30 to -$25	0.00%	-
> -$25 to -$20	0.00%	-
> -$20 to -$15	0.00%	-
> -$15 to -$10	0.00%	-
> -$10 to -$5	0.00%	-
> -$5 to $0	0.37%	461
> $0 to $5	14.82%	18,552
> $5 to $10	45.05%	56,409
> $10 to $15	13.79%	17,267
> $15 to $20	18.32%	22,937
> $20 to $25	0.79%	990
> $25 to $30	0.81%	1,009
> $30 to $35	3.91%	4,893
> $35 to $40	0.83%	1,034
> $40 to $45	0.20%	245
> $45 to $50	0.13%	159
Above $50	1.01%	1,268
Total	100.000%	125,225

5. PG&E 3 Tiers: All Non-CARE Average Monthly Bill Impacts

Figures B1.17 and B1.18 show Non-CARE customer monthly bill impacts in percent and dollar terms using the annual bills generated by the model. On an annual basis, impacts are very similar to those of DRA's Introductory TOU rate, as 29% may see a decrease in monthly bills, 53% a 0-10% increase, and 18% see an increase between 10% and 20%. From this, one can conclude that the addition of the TOU surcharges and credits to the three-tier rate, to generate the Introductory TOU rate, has a much smaller impact than collapsing the number of tiers from four to three.

Figure B1.17

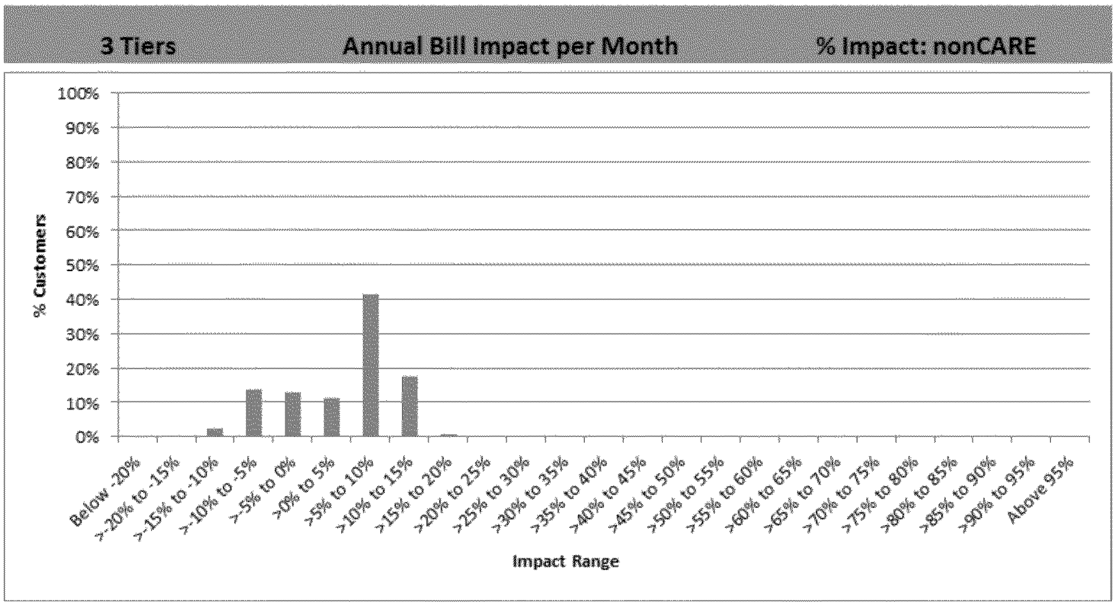

Figure B1.18

3 Tiers	Annual Bill Impact per Month		
% Impact: nonCARE	% Cust	# Cust	Ave $ Impact
Below -20%	0.00%	-	n/a
>-20% to -15%	0.00%	-	n/a
>-15% to -10%	2.25%	75,520	$ (55.33)
>-10% to -5%	13.69%	459,237	$ (16.49)
>-5% to 0%	13.01%	436,143	$ (3.34)
>0% to 5%	11.42%	383,120	$ 2.46
>5% to 10%	41.46%	1,390,241	$ 3.72
>10% to 15%	17.62%	590,763	$ 6.27
>15% to 20%	0.55%	18,524	$ 8.28
>20% to 25%	0.00%	-	n/a
>25% to 30%	0.00%	-	n/a
>30% to 35%	0.00%	-	n/a
>35% to 40%	0.00%	-	n/a
>40% to 45%	0.00%	-	n/a
>45% to 50%	0.00%	-	n/a
>50% to 55%	0.00%	-	n/a
>55% to 60%	0.00%	-	n/a
>60% to 65%	0.00%	-	n/a
>65% to 70%	0.00%	-	n/a
>70% to 75%	0.00%	-	n/a
>75% to 80%	0.00%	-	n/a
>80% to 85%	0.00%	-	n/a
>85% to 90%	0.00%	-	n/a
>90% to 95%	0.00%	-	n/a
Above 95%	0.00%	-	n/a
Total	100.00%	3,353,549	

6. PG&E 3 Tiers: All CARE Average Monthly Bill Impacts

Figures B1.19 and B1.20 show CARE customer monthly bill impacts on a percent and dollar basis using the annual bills generated by the model. On an annual basis, impacts are very similar to those of DRA's Introductory TOU rate, as 5% may see a decrease in monthly bills, 87% a 0-10% increase, and 8% see an increase between 10% and 45%.

Figure B1.19

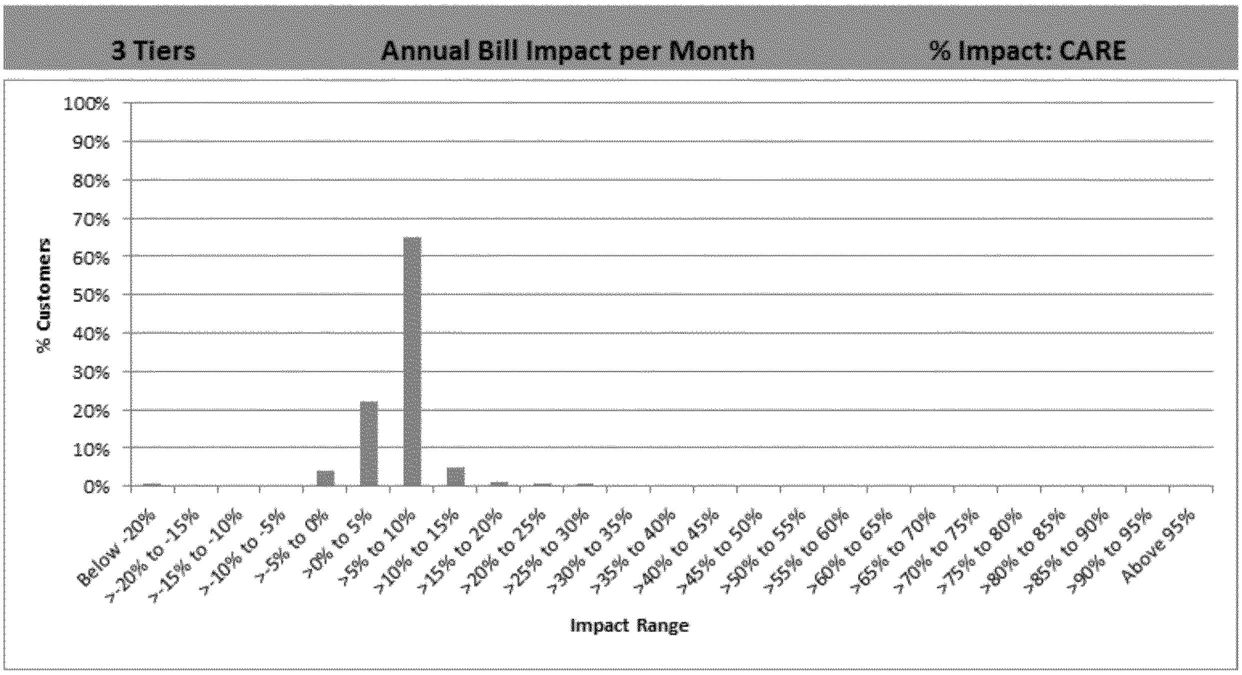

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Figure B1.20

3 Tiers	Annual Bill Impact per Month		
% Impact: CARE	% Cust	# Cust	Ave $ Impact
Below -20%	0.55%	6,970	$ (1.32)
>-20% to -15%	0.04%	503	$ (0.90)
>-15% to -10%	0.02%	198	$ (0.67)
>-10% to -5%	0.02%	241	$ (0.49)
>-5% to 0%	4.00%	50,708	$ (0.43)
>0% to 5%	22.21%	281,569	$ 1.69
>5% to 10%	64.82%	821,971	$ 2.69
>10% to 15%	5.11%	64,808	$ 11.72
>15% to 20%	1.10%	13,941	$ 31.94
>20% to 25%	0.78%	9,859	$ 33.03
>25% to 30%	0.64%	8,135	$ 40.68
>30% to 35%	0.22%	2,744	$ 64.61
>35% to 40%	0.45%	5,760	$ 122.25
>40% to 45%	0.05%	624	$ 151.55
>45% to 50%	0.00%	-	n/a
>50% to 55%	0.00%	-	n/a
>55% to 60%	0.00%	-	n/a
>60% to 65%	0.00%	-	n/a
>65% to 70%	0.00%	-	n/a
>70% to 75%	0.00%	-	n/a
>75% to 80%	0.00%	-	n/a
>80% to 85%	0.00%	-	n/a
>85% to 90%	0.00%	-	n/a
>90% to 95%	0.00%	-	n/a
Above 95%	0.00%	-	n/a
Total	100.00%	1,268,031	

B1.(d) Illustrative PG&E Cost-Based TOU Rate Summary

PG&E Cost-Based TOU Rate Design

TOU Period (¢/kWh)	Non-CARE	CARE
Summer On-Peak	40.20	26.13
Summer Shoulder	28.71	18.66
Summer Off-Peak	16.89	10.98
Winter Shoulder	28.71	18.66
Winter Off-Peak	16.89	10.98
BL Credit (¢/kWh)	5.00	3.25
Min. Charge $/Mo.	5.00	3.25

B1.(e) Illustrative PG&E Cost-Based TOU Rate Input Description Goals:

DRA's illustrative cost-based TOU rate was designed to meet the following goals:

- Maintain the on-peak to part-peak and part-peak to off-peak TOU rate ratios as close to 1.5 as possible.
- Hold the summer on-peak rate at or below 40¢/kWh.
- Keep the off-peak rates as close to 15¢/kWh as possible.
- Include a 35% CARE discount and 5¢/kWh baseline credit for affordability.

Inputs:

DRA used the PG&E model to design the cost-based TOU rate design that would meet the above goals as closely as possible by using the following inputs shown from the model's "Summary" and "Detailed Inputs" tabs:

- Set current rate date to 1/1/2013.
- Fix the ratio of summer part-peak to winter part-peak and summer off-peak to winter off-peak both set at 1:1 in detailed inputs tab.
- Use a 35% CARE discount for Tiers 1-3
- Specify three TOU periods with a 40% summer on-peak to part-peak differential and a 70% summer part-peak to off-peak differential.
- Assume a 5¢/kWh baseline credit.
- Maintain the minimum bill at the model's default level of $5 for Non-CARE customers.

PG&E Model Inputs: Cost-Based TOU

Rate Design Inputs Non TOU and TOU

Step 5 Calculate Non TOU Rates	
Current Rate Date =>	1/1/2013
2 Tier Rate Ratio =>	20%
Step 6 Update Non TOU Reports	
# of Tiers =>	1
Baseline Allowance Percent =>	55%
Baseline Allowance from the sample (Do not use the percent input) =>	No
Step 1 Update Baseline Quantity	
Tier-3 to Tier-4 Delta (cents/kWh) =>	3.00
Tier-4 to Tier-5 Delta (cents/kWh) =>	3.00
T1 Increase (Over Current) =>	0%
T2 Increase (Over Current) =>	0%
Minimum Charge imposed in lieu of Customer Charge =>	Yes
Minimum Charge Applicable to Delivery Charge Only =>	No
Cust Charge $/Mo. =>	-
Fixed Charge High Demand $/Mo. =>	-
Fixed Charge Low Demand $/Mo. =>	-
Fixed Charge Break Point kW =>	3.00
CARE Discount for Tier-1, Cust. Chg., Demand Chg. & Min. Bill Amt. =>	35%
CARE Discount for Tier-2 =>	35%
CARE Discount for Tier-3 and Above =>	35%
Income Based Discount 100% of Poverty Level or Below =>	30%
Income Based Discount 100% to 200% of Poverty Level =>	30%
Income Based Discount 200% to 300% of Poverty Level =>	30%
Step 4 (Needed only if Income based discount is used) Update Income Based Discount	
Frozen CARE T1/T2 =>	☐
Use existing CARE Tier-3 rate =>	☐
Apply Income Based Discount Instead of Tier Based CARE Disc =>	☐

Additional TOU Rate Design Specific Inputs

Number of TOU Periods =>	3
TOU Rate Percent Differential: On-peak to Part-peak =>	40%
TOU Rate Pct. Differential: Part-peak to Offpeak (N/A if 2 TOU periods) =>	70%
TOU Base Line Credit in cents per kWh =>	5.00
Flat Non-TOU Tier-1 =>	No

B1.(f) Cost-Based TOU Rate Bill Impact from Current Rates (1/1/2013)

1. PG&E Cost-Based TOU: All Non-CARE Average Monthly Bill Impacts

Figures B1.21 - B1.24 show Non-CARE customer monthly bill impacts in percent and dollars terms based on annual bills generated by the model. About 26% could see bills decrease, 29% could see an increase of less that 15%, 41% could see an increase of 15% to 30% and the remaining 4% might see increases between 30% and 55%. Almost half (47%) could see bill increases between 0 and $10, 22% could see a $10 to $20 increase, 4% could see bills increase by $20 to $30 and less than 1% could see an increase of greater than $30 per month.

Figure B1.21

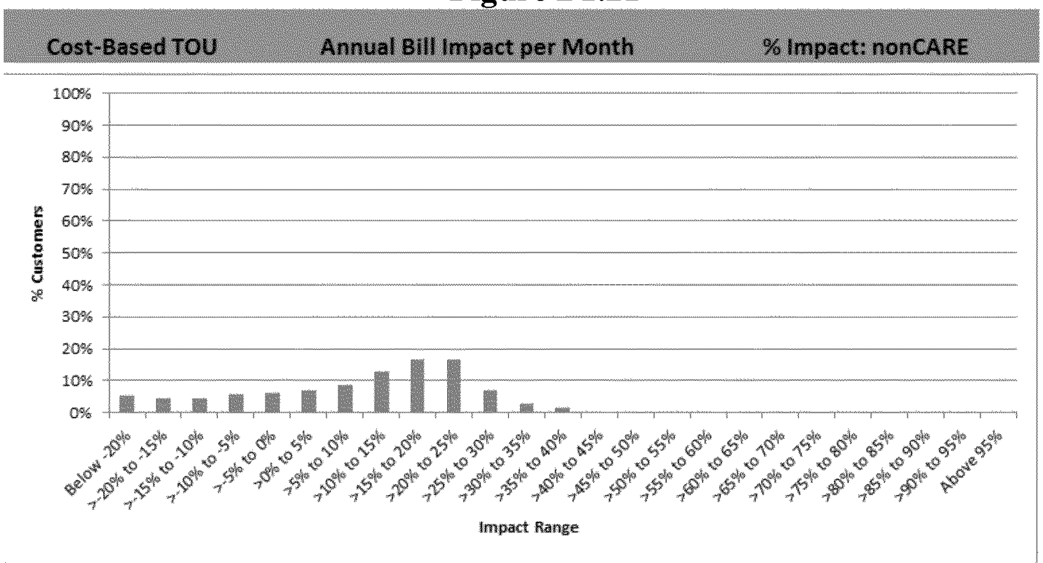

Figure B1.22

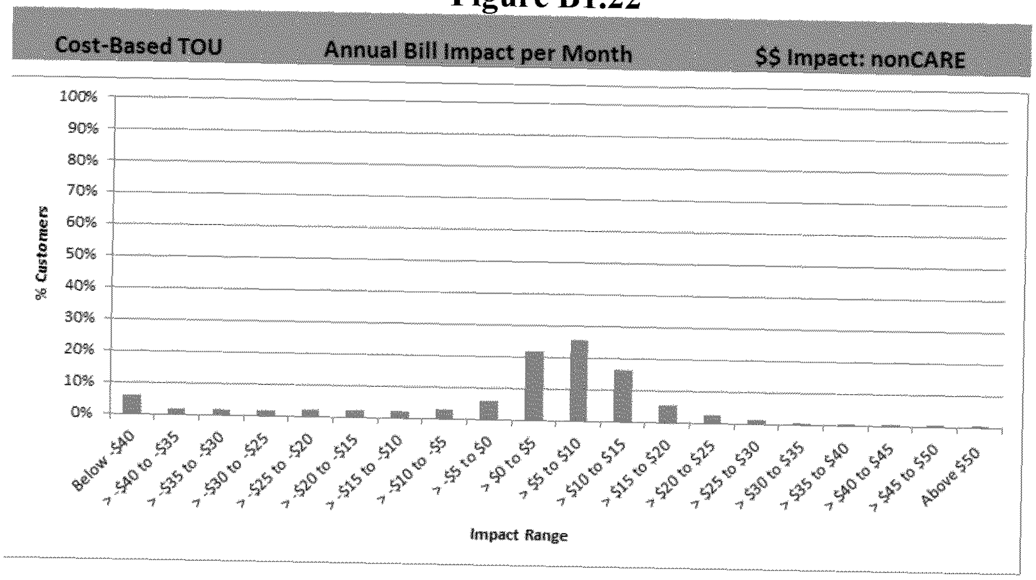

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Figure B1.23

Cost-Based TOU	Annual Bill Impact per Month		
% Impact: nonCARE	% Cust	# Cust	Ave $ Impact
Below -20%	5.30%	177,724	$ (90.89)
>-20% to -15%	4.36%	146,141	$ (35.25)
>-15% to -10%	4.41%	147,834	$ (25.60)
>-10% to -5%	5.91%	198,122	$ (11.83)
>-5% to 0%	6.32%	211,989	$ (3.09)
>0% to 5%	7.09%	237,792	$ 2.79
>5% to 10%	8.90%	298,322	$ 6.54
>10% to 15%	12.83%	430,271	$ 7.97
>15% to 20%	16.64%	557,938	$ 8.77
>20% to 25%	16.58%	555,945	$ 10.58
>25% to 30%	7.14%	239,425	$ 13.79
>30% to 35%	2.70%	90,540	$ 15.03
>35% to 40%	1.42%	47,728	$ 11.60
>40% to 45%	0.18%	5,962	$ 19.69
>45% to 50%	0.22%	7,318	$ 17.72
>50% to 55%	0.01%	499	$ 9.29
>55% to 60%	0.00%	-	n/a
>60% to 65%	0.00%	-	n/a
>65% to 70%	0.00%	-	n/a
>70% to 75%	0.00%	-	n/a
>75% to 80%	0.00%	-	n/a
>80% to 85%	0.00%	-	n/a
>85% to 90%	0.00%	-	n/a
>90% to 95%	0.00%	-	n/a
Above 95%	0.00%	-	n/a
Total	100.00%	3,353,549	

Figure B1.24

Cost-Based TOU	Annual Bill Impact per Month	
$$ Impact: nonCARE	% Cust	# Cust
Below -$40	5.89%	197,481
> -$40 to -$35	1.72%	57,836
> -$35 to -$30	1.56%	52,396
> -$30 to -$25	1.59%	53,482
> -$25 to -$20	2.21%	74,223
> -$20 to -$15	2.20%	73,686
> -$15 to -$10	2.04%	68,508
> -$10 to -$5	3.20%	107,201
> -$5 to $0	5.87%	196,996
> $0 to $5	21.77%	730,199
> $5 to $10	25.37%	850,670
> $10 to $15	16.41%	550,451
> $15 to $20	5.57%	186,740
> $20 to $25	2.80%	93,798
> $25 to $30	1.32%	44,267
> $30 to $35	0.15%	4,909
> $35 to $40	0.09%	2,853
> $40 to $45	0.20%	6,852
> $45 to $50	0.01%	448
Above $50	0.02%	553
Total	100.000%	3,353,549

2. PG&E Cost-Based TOU: All CARE Average Monthly Bill Impacts

Figures B1.25 - B1.28 show the CARE customer monthly bill impacts in percent and dollars terms based on annual bills generated by the model. Only 1% of CARE customers might experience bill savings. Whereas, about 26% could see an increase below 20%, 67% could see an increase between 20% and 40% and 6% could see an increase of 40% to 65%. About half (52%) could see a monthly increase of less than $10, a third (33%) an increase between $10 and $20, and the rest (13%) an increase above $20 per month.

Figure B1.25

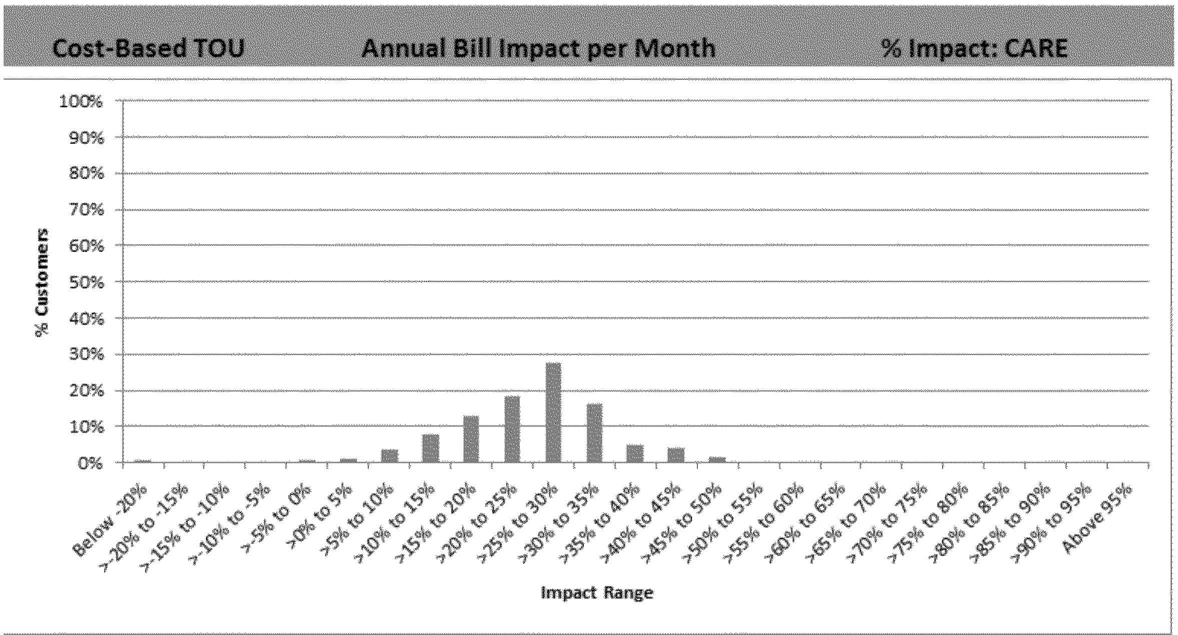

Figure B1.26

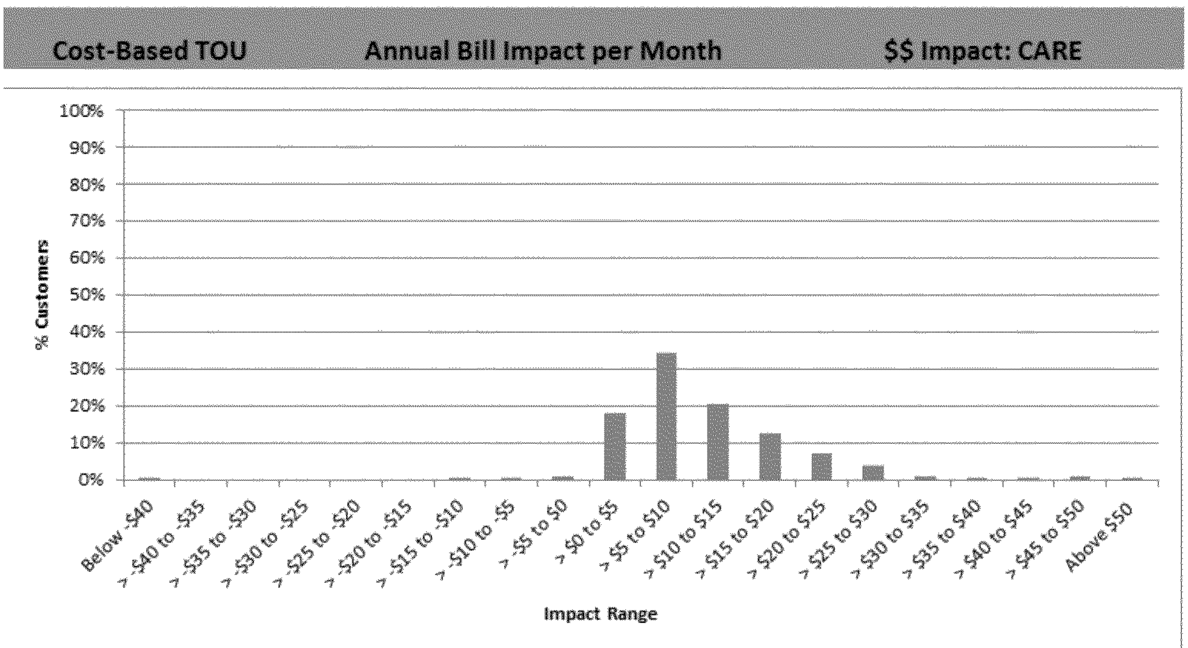

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Figure B1.27

Cost-Based TOU	Annual Bill Impact per Month		
% Impact: CARE	% Cust	# Cust	Ave $ Impact
Below -20%	0.55%	6,970	$ (1.25)
>-20% to -15%	0.00%	-	n/a
>-15% to -10%	0.02%	302	$ (0.45)
>-10% to -5%	0.11%	1,439	$ (25.63)
>-5% to 0%	0.52%	6,563	$ (1.40)
>0% to 5%	1.01%	12,798	$ 3.52
>5% to 10%	3.53%	44,740	$ 8.80
>10% to 15%	8.05%	102,087	$ 9.51
>15% to 20%	12.86%	163,020	$ 10.50
>20% to 25%	18.49%	234,501	$ 10.24
>25% to 30%	27.42%	347,635	$ 10.24
>30% to 35%	16.25%	206,060	$ 13.41
>35% to 40%	5.09%	64,556	$ 17.50
>40% to 45%	3.91%	49,555	$ 16.48
>45% to 50%	1.70%	21,558	$ 22.98
>50% to 55%	0.32%	4,023	$ 16.76
>55% to 60%	0.14%	1,725	$ 19.92
>60% to 65%	0.04%	499	$ 21.82
>65% to 70%	0.00%	-	n/a
>70% to 75%	0.00%	-	n/a
>75% to 80%	0.00%	-	n/a
>80% to 85%	0.00%	-	n/a
>85% to 90%	0.00%	-	n/a
>90% to 95%	0.00%	-	n/a
Above 95%	0.00%	-	n/a
Total	100.00%	1,268,031	

Figure B1.28

Cost-Based TOU	Annual Bill Impact per Month	
$$ Impact: CARE	% Cust	# Cust
Below -$40	0.03%	421
> -$40 to -$35	0.00%	-
> -$35 to -$30	0.00%	-
> -$30 to -$25	0.00%	-
> -$25 to -$20	0.00%	-
> -$20 to -$15	0.00%	-
> -$15 to -$10	0.05%	615
> -$10 to -$5	0.07%	835
> -$5 to $0	1.06%	13,403
> $0 to $5	18.17%	230,429
> $5 to $10	34.23%	434,045
> $10 to $15	20.55%	260,561
> $15 to $20	12.57%	159,370
> $20 to $25	7.31%	92,674
> $25 to $30	3.66%	46,361
> $30 to $35	1.03%	13,075
> $35 to $40	0.36%	4,622
> $40 to $45	0.11%	1,398
> $45 to $50	0.77%	9,773
Above $50	0.04%	450
Total	100.000%	1,268,031

B2: SCE Illustrative Rates and Bill Impact

B2.(a) Current and Illustrative Transitional Rate Summary:

This section provides DRA's proposed rate structure during the transitional period for SCE. As with the other two utilities, DRA recommends an Introductory TOU rate design as the default, and customers can opt out to a simple three-tier rate. The following table summarizes the Introductory TOU and the three-tier rate designs and compares them to the current rates.

As explained previously, the Introductory TOU and opt-in three-tier rate designs would collapse Tier 2 and Tier 3 in the current rate design. However, to facilitate comparison of the new rate designs with the current rates, the tiers in the table below are presented based on current tier usage definition. Current tier structure is as follows:

- Tier 1 is for usage up to 100% baseline,
- Tier 2 covers usage above 100% up to 130%,
- Tier 3 includes usage above 130% up to 200%,
- Tier 4 is for usage above 200% up to 300%, and,
- Tier 5 is for usage greater than 300%.

As shown, the Introductory TOU and the opt-in 3-Tier rate designs have identical Tier 2 and Tier 3 rates and identical Tier 4 and Tier 5 rates. This is because the usages for the current Tier 2 and Tier 3 (between 100% to 200%) have been combined to form the new Tier 2 usage, and Tier 5 has been effectively removed so that usage above 300% is part of Tier 3.

SCE Transitional Rate Designs

		Jan 2013 Rates	Introductory TOU	3-Tiers
Tier (¢/kWh)				
Non-CARE				
	1	13.0	14.0	14.0
	2	16.0	22.4	22.4
	3	27.1	22.4	22.4
	4	31.1	28.0	28.0
	5	31.1	28.0	28.0
Cust. Charge $/Mo.		0.88	0.88	0.88
TOU On-Peak Surcharge			4.0	
TOU Off-Peak Credit			0.6	
CARE				
	1	8.5	9.0	9.0
	2	10.7	17.0	17.0
	3	20.7	17.0	17.0
	4	20.7	21.4	21.4
	5	20.7	21.4	21.4
Cust. Charge $/Mo.		0.70	0.62	0.62
TOU On-Peak Surcharge			4.0	
TOU Off-Peak Credit			0.6	

B2.(b) Transitional Rate Input Description

This section explains the criteria and objectives that DRA followed to develop its desired rates, as well as what data it put into the bill impact model.

Goals:

DRA designed its transition rate to fulfill the following goals:

- Mitigate bill impacts to the extent possible
- Create a three-tier structure by collapsing the current Tiers 2 and 3 such that the new Tier 2 would cover usage from 100% to 200% of baseline and the new Tier 3 would cover usage above 200% of baseline
- Keep the new Tier 1 rate close to current rate level
- Strive for a similar rate differential between the tiers
- Maintain the total effective CARE discount at 30%

Input description:

To achieve these goals, DRA set the model inputs as follows:

- Select a four tier structure, but set the Tier 2 to Tier 1 rate ratio the same as the Tier 3 to Tier 1 ratio so that Tier 2 and Tier 3 rates will be identical. This effectively results in a three-tier structure with equal usage for both Tiers 1 and 2.[21]
- Set the ratio of the Tier 4 to Tier 1 rates to approximately double the ratio of the Tier 2 to Tier 1 rates to make the rate differentials between the three tiers almost the same.
- Input CARE discount at 30% for Tier 1 and customer charge, 20% for other tiers. After taking into account of DWR bond charge, CSI, SGIP exemption, CARE customers would have a total effective discount of 30%. This can be verified by comparing the product of the final CARE rates and the CARE billing determinants with the product of the final non-CARE rates and the same CARE determinants.

[21] The model presents this as a four tier rate structure. But, in reality, it is a three-tier structure since the Tier 2 and Tier 3 rates are identical.

SCE Model Inputs: Introductory TOU

# of Tiers =>	Ratio
Enter T4 or T5 Delta (cents/kWh) =>	3.50
Include SB695 90% Cap?	☐
T1 Increase (Over Current)	0.00%
T2 Increase (Over Current)	0.00%

Select Ratio Here
4-Tiers
1.6
1.6
2

Sum/Basic	Win/Basic	Sum/All-Ele	Win/All-Elec
53	53	60	70

Apply New Baseline % here =>		
	Tier-1	100.0%
	Tier-2 =>	130.0%
	Tier 3 =>	200.0%
	Tier 4 =>	300.0%

Min Charge Non-CARE ($/Mo.)	$ -
Min Charge CARE ($/Mo.)	$ -
Customer Charge Type	Flat Customer Charge
Demand Differential Break Point (kW)	6
Flat customer Charge $ / Month	$ 0.88

CARE Section CARE

	CARE	CARE-Lite
T1 Energy Care Discount	30%	10%
T2 Energy Care Discount	20%	10%
T3 Energy Care Discount	20%	10%
T4 Energy Care Discount	20%	10%
T5 Energy Care Discount	20%	10%
Fixed Charge Care Discount	30%	10%
CARE Fixed Credit - $ /Month	$0.0	$0.0

CARE-Lite Break Point by Income: >=$25K, >=$35K, >=$50K, >=$75K

TOU Summer On-Peak Surcharge - ($/kWh) 0.04000

B2.(c) Transitional Rate Bill Impact

1. SCE Introductory TOU All Non-CARE Average Monthly Bill Impact

Figures B2.1 and B2.2 show Non-CARE customer monthly bill impact in percentage and dollar terms based on the annual average of the monthly bills. About 33% of customers see bill reductions, almost 60% could see bill increases between 0 to 10%, and about 9% could face 10 to 20% bill increases. Around 33% customers may see their monthly bill decrease, while 67% may see monthly bill increases between $0 to $10.

Figure B2.1 All Non-CARE Customers – Introductory TOU Rate

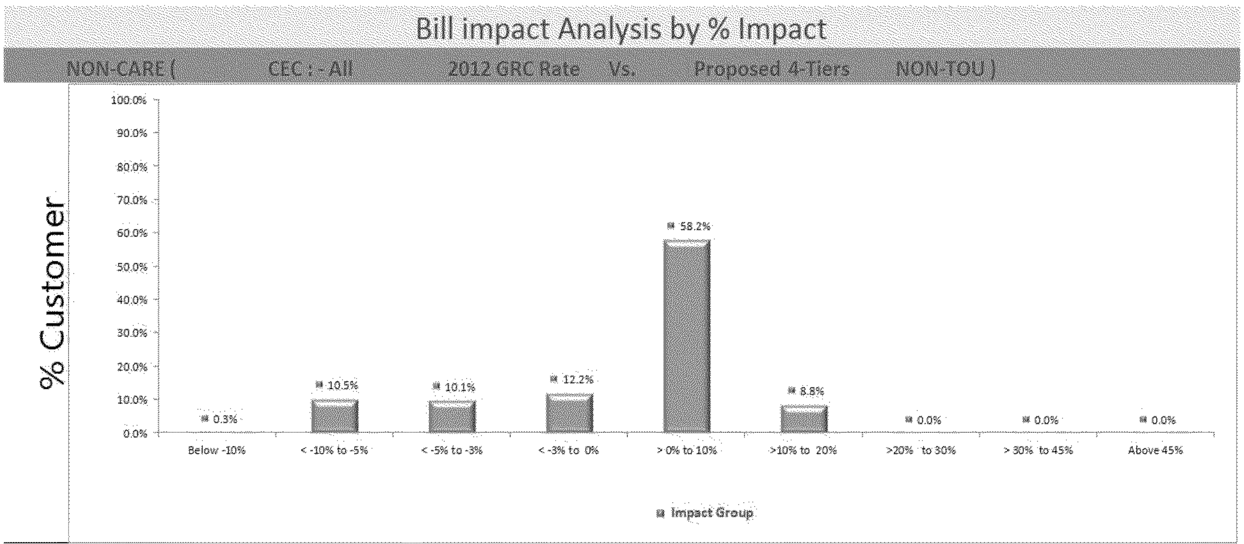

Figure B2.2 All Non-CARE Customers – Introductory TOU Rate

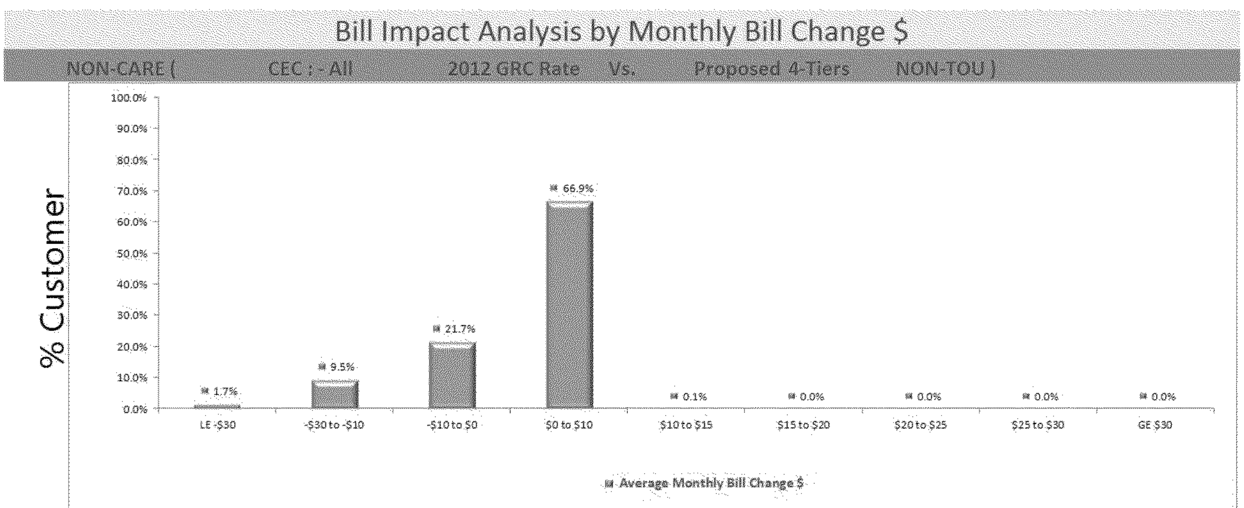

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Figure B2.3[22] All Non-CARE Customers – Introductory TOU Rate

NON-CARE (		CEC : - All			2012 GRC Rate		Vs.	Proposed 4-Tiers			NON-TOU)		
Impact Group	Customer				Average			Elasticity	Cents/kWh		%	Monthly $		Average
%	Number	% Customer	% Single	%Multi	Monthly - kWh	Annual Load Factor	% On Peak	Average Monthly Δ kWh	2012 GRC Rate	Proposed	Change	2012 GRC Rate	Proposed	Monthly $ Change
Below -10%	7,435	0.3%	0.0%	1.1%	20	9.7%	0.0%	8	32.8	28.8	-12.2%	$6.66	$5.85	-$0.81
< -10% to -5%	300,414	10.5%	13.1%	1.5%	1,393	19.5%	6.6%	19	24.9	23.2	-6.8%	$347.58	$323.83	-$23.7537
< -5% to -3%	288,498	10.1%	12.5%	1.7%	897	17.1%	7.5%	8	21.7	20.8	-4.0%	$194.35	$186.57	-$7.78
< -3% to 0%	349,428	12.2%	14.7%	3.6%	745	15.3%	7.5%	3	19.7	19.4	-1.6%	$146.64	$144.24	-$2.40
> 0% to 10%	1,668,284	58.2%	50.6%	84.0%	397	11.7%	6.6%	(4)	15.8	16.6	4.8%	$62.77	$65.77	$3.00
>10% to 20%	252,010	8.8%	9.0%	8.1%	382	12.3%	7.6%	(9)	14.1	15.7	11.3%	$54.02	$60.11	$6.09
>20% to 30%	0	0.0%	0.0%	0.0%	0	0.0%	0.0%	0	0.0	0.0	0.0%	$0.00	$0.00	$0.00
> 30% to 45%	0	0.0%	0.0%	0.0%	0	0.0%	0.0%	0	0.0	0.0	0.0%	$0.00	$0.00	$0.00
Above 45%	0	0.0%	0.0%	0.0%	0	0.0%	0.0%	0	0.0	0.0	0.0%	$0.00	$0.00	$0.00
Group Total	2,866,068	100.0%	100.0%	100.0%	589	13.6%	6.9%	0.2	19.4	19.2	-1.0%	$114.38	$113.18	-$1.20

Figure B2.4[23] All Non-CARE Customers – Introductory TOU Rate

NON-CARE (		CEC : - All			2012 GRC Rate		Vs.	Proposed 4-Tiers			NON-TOU)			
Average Monthly Bill Change $	Customer				Average			Elasticity	Cents/kWh		%	Monthly $		Average
%	Number	% Customer	% Single	%Multi	Monthly - kWh	Annual Load Factor	% On Peak	Average Monthly Δ kWh	2012 GRC Rate	Proposed	Change	2012 GRC Rate	Proposed	Monthly $ Change
LE -$30	49,674	1.7%	2.2%	0.0%	2,460	21.1%	7.1%	40	27.2	25.0	-8.1%	$668.51	$614.20	-$54.31
-$30 to -$10	273,210	9.5%	11.8%	1.7%	1,204	19.3%	7.1%	14	23.8	22.4	-5.9%	$286.67	$269.76	-$16.9073
-$10 to $0	622,889	21.7%	26.3%	6.1%	773	15.6%	7.1%	4	20.5	19.9	-2.8%	$158.34	$153.98	-$4.36
$0 to $10	1,917,034	66.9%	59.5%	92.0%	395	11.7%	6.7%	(5)	15.6	16.5	5.5%	$61.52	$64.92	$3.39
$10 to $15	3,260	0.1%	0.1%	0.2%	737	15.4%	14.1%	(15)	15.4	17.0	10.0%	$113.76	$125.07	$11.32
$15 to $20	0	0.0%	0.0%	0.0%	0	0.0%	0.0%	0	0.0	0.0	0.0%	$0.00	$0.00	$0.00
$20 to $25	0	0.0%	0.0%	0.0%	0	0.0%	0.0%	0	0.0	0.0	0.0%	$0.00	$0.00	$0.00
$25 to $30	0	0.0%	0.0%	0.0%	0	0.0%	0.0%	0	0.0	0.0	0.0%	$0.00	$0.00	$0.00
GE $30	0	0.0%	0.0%	0.0%	0	0.0%	0.0%	0	0.0	0.0	0.0%	$0.00	$0.00	$0.00
Group Total	2,866,068	100.0%	100.0%	100.0%	589	13.6%	6.9%	0.2	19.4	19.2	-1.0%	$114.38	$113.18	-$1.20

[22] SCE's model presents this data set when a user selects to identify bill impact based on customer's bill change by percent.

[23] SCE's model presents this data set when a user selects to identify bill impact based on the dollar change of the customer's bill.

2. SCE Introductory TOU All CARE Average Monthly Bill Impact

Figures B2.5 - B2.8 show the CARE customer monthly bill impact in percentage and dollar terms based on the annual average of the monthly bills. About 9% of customers could see bill reductions, 79% could see bill increases between 0 to 10%, and about 12% could face 10% to 20% bill increases. Around 9% of customers may see their monthly bills go down, while 91% may see monthly bill increases between $0 and $10.

Figure B2.5 All CARE Customers – Introductory TOU Rate

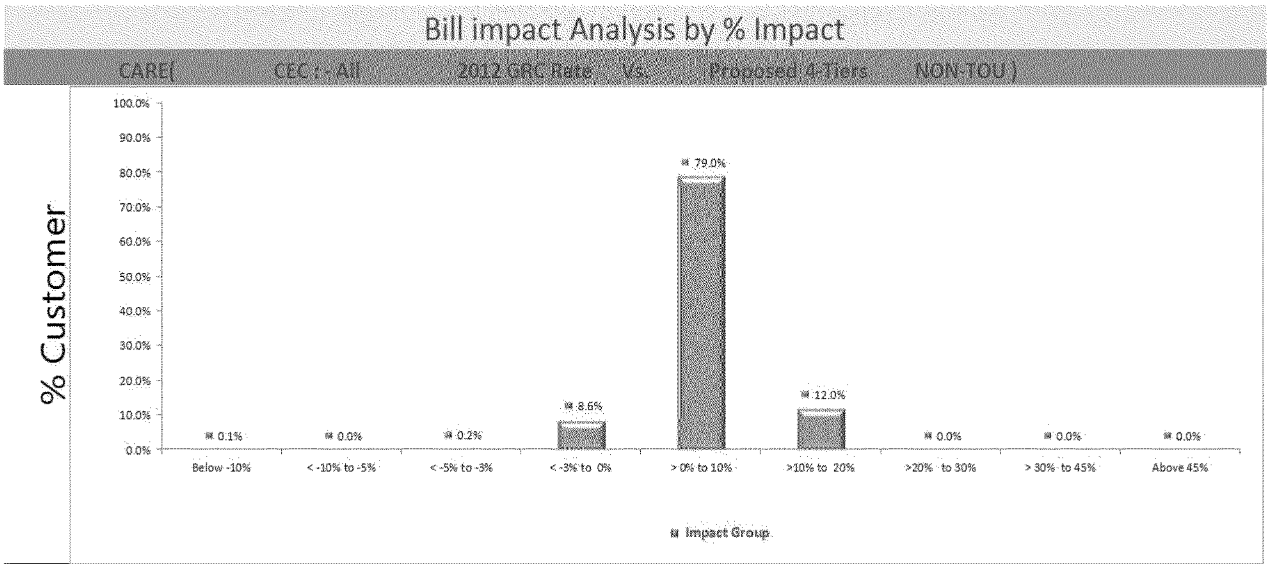

Figure B2.6 All CARE Customers – Introductory TOU Rate

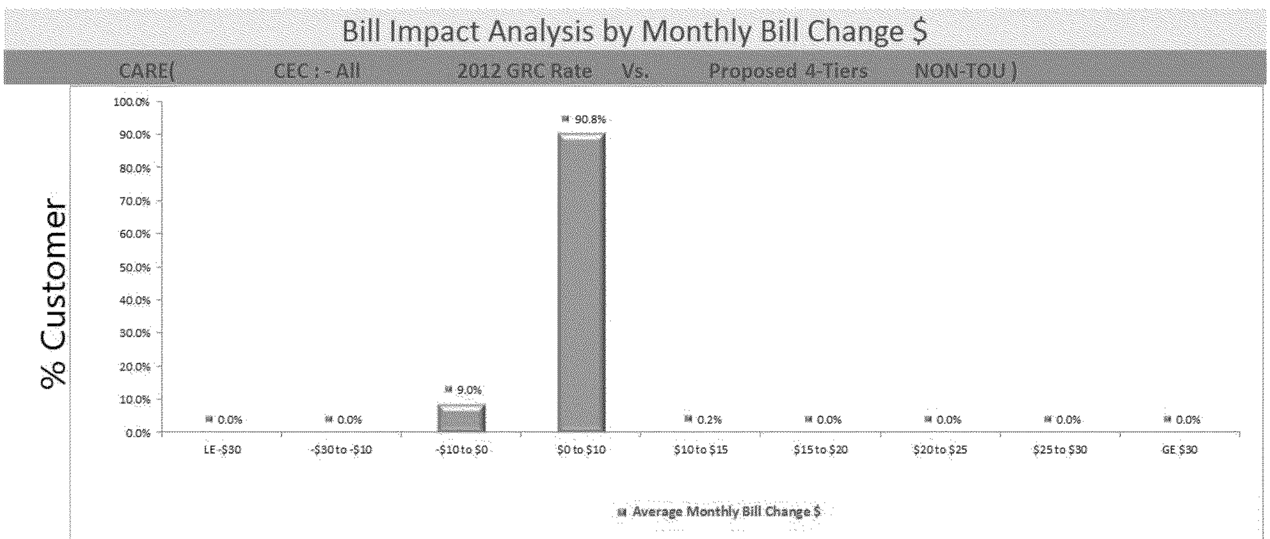

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Figure B2.7 All CARE Customers – Introductory TOU Rate

CARE(	CEC : - All				2012 GRC Rate			Vs.	Proposed 4-Tiers			NON-TOU)		
Impact Group	Customer				Average			Elasticity	Cents/kWh		%	Monthly $		Average
%	Number	% Customer	% Single	%Multi	Monthly - kWh	Annual Load Factor	% On Peak	Average Monthly Δ kWh	2012 GRC Rate	Proposed	Change	2012 GRC Rate	Proposed	Monthly $ Change
Below -10%	1,622	0.1%	0.0%	0.3%	11	2.5%	2.5%	0	15.2	13.1	-13.5%	$1.71	$1.48	-$0.23
< -10% to -5%	267	0.0%	0.0%	0.1%	40	7.1%	0.0%	1	11.1	10.3	-6.9%	$4.45	$4.15	-$0.3071
< -5% to -3%	3,163	0.2%	0.3%	0.0%	664	21.4%	0.0%	5	13.3	12.8	-4.2%	$88.57	$84.85	-$3.72
< -3% to 0%	119,313	8.6%	10.7%	4.7%	625	18.7%	4.3%	1	14.1	14.0	-0.8%	$88.32	$87.61	-$0.71
> 0% to 10%	1,090,399	79.0%	76.9%	83.0%	514	15.0%	8.2%	(5)	12.5	13.0	3.5%	$64.48	$66.73	$2.25
>10% to 20%	166,291	12.0%	12.1%	11.9%	413	15.1%	9.2%	(11)	9.6	10.7	12.0%	$39.45	$44.18	$4.73
>20% to 30%	0	0.0%	0.0%	0.0%	0	0.0%	0.0%	0	0.0	0.0	0.0%	$0.00	$0.00	$0.00
> 30% to 45%	0	0.0%	0.0%	0.0%	0	0.0%	0.0%	0	0.0	0.0	0.0%	$0.00	$0.00	$0.00
Above 45%	0	0.0%	0.0%	0.0%	0	0.0%	0.0%	0	0.0	0.0	0.0%	$0.00	$0.00	$0.00
Group Total	1,381,056	100.0%	100.0%	100.0%	509	15.3%	8.0%	(5.0)	12.4	12.8	3.7%	$62.97	$65.32	$2.35

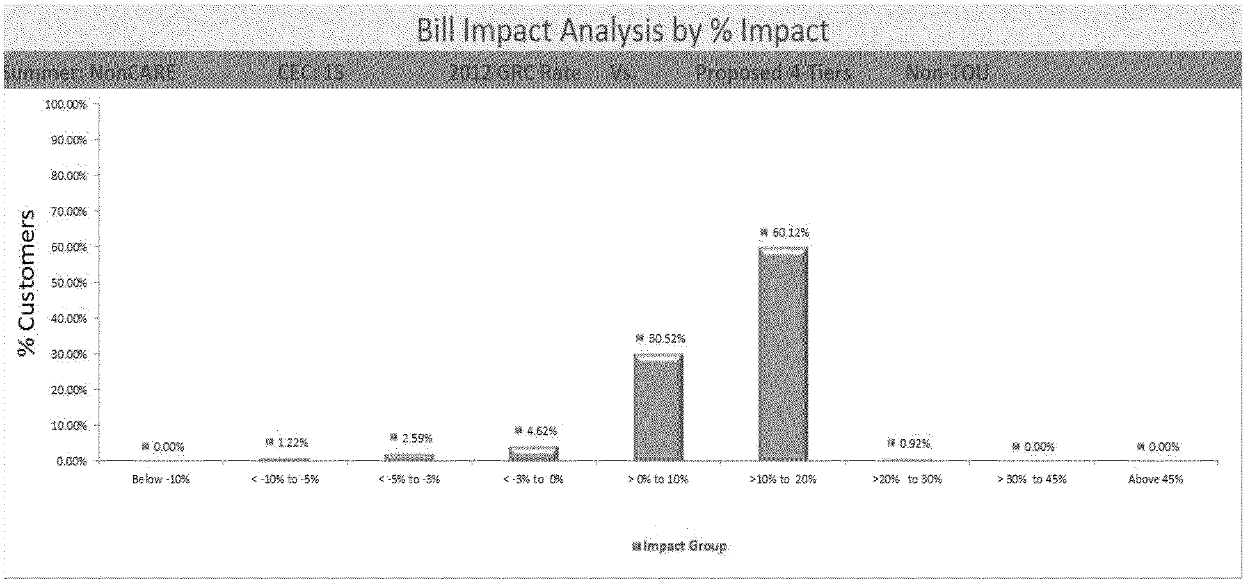
Figure B2.8 All CARE Customers – Introductory TOU Rate

CARE(	CEC : - All				2012 GRC Rate			Vs.	Proposed 4-Tiers			NON-TOU)		
Average Monthly Bill Change $	Customer				Average			Elasticity	Cents/kWh		%	Monthly $		Average
%	Number	% Customer	% Single	%Multi	Monthly - kWh	Annual Load Factor	% On Peak	Average Monthly Δ kWh	2012 GRC Rate	Proposed	Change	2012 GRC Rate	Proposed	Monthly $ Change
LE -$30	0	0.0%	0.0%	0.0%	0	0.0%	0.0%	0	0.0	0.0	0.0%	$0.00	$0.00	$0.00
-$30 to -$10	0	0.0%	0.0%	0.0%	0	0.0%	0.0%	0	0.0	0.0	0.0%	$0.00	$0.00	$0.0000
-$10 to $0	124,365	9.0%	11.0%	5.1%	618	18.2%	4.3%	1	14.1	14.0	-0.8%	$87.28	$86.54	-$0.73
$0 to $10	1,254,009	90.8%	88.8%	94.6%	500	14.9%	8.3%	(5)	12.2	12.7	4.2%	$61.06	$63.62	$2.56
$10 to $15	2,681	0.2%	0.2%	0.2%	1,004	19.0%	11.5%	(18)	12.6	13.7	8.6%	$126.89	$137.84	$10.95
$15 to $20	0	0.0%	0.0%	0.0%	0	0.0%	0.0%	0	0.0	0.0	0.0%	$0.00	$0.00	$0.00
$20 to $25	0	0.0%	0.0%	0.0%	0	0.0%	0.0%	0	0.0	0.0	0.0%	$0.00	$0.00	$0.00
$25 to $30	0	0.0%	0.0%	0.0%	0	0.0%	0.0%	0	0.0	0.0	0.0%	$0.00	$0.00	$0.00
GE $30	0	0.0%	0.0%	0.0%	0	0.0%	0.0%	0	0.0	0.0	0.0%	$0.00	$0.00	$0.00
Group Total	1,381,056	100.0%	100.0%	100.0%	509	15.3%	8.0%	(5.0)	12.4	12.8	3.7%	$62.97	$65.32	$2.35

3. SCE Introductory TOU: Inyo/Riverside Summer Non-CARE Bill Impacts

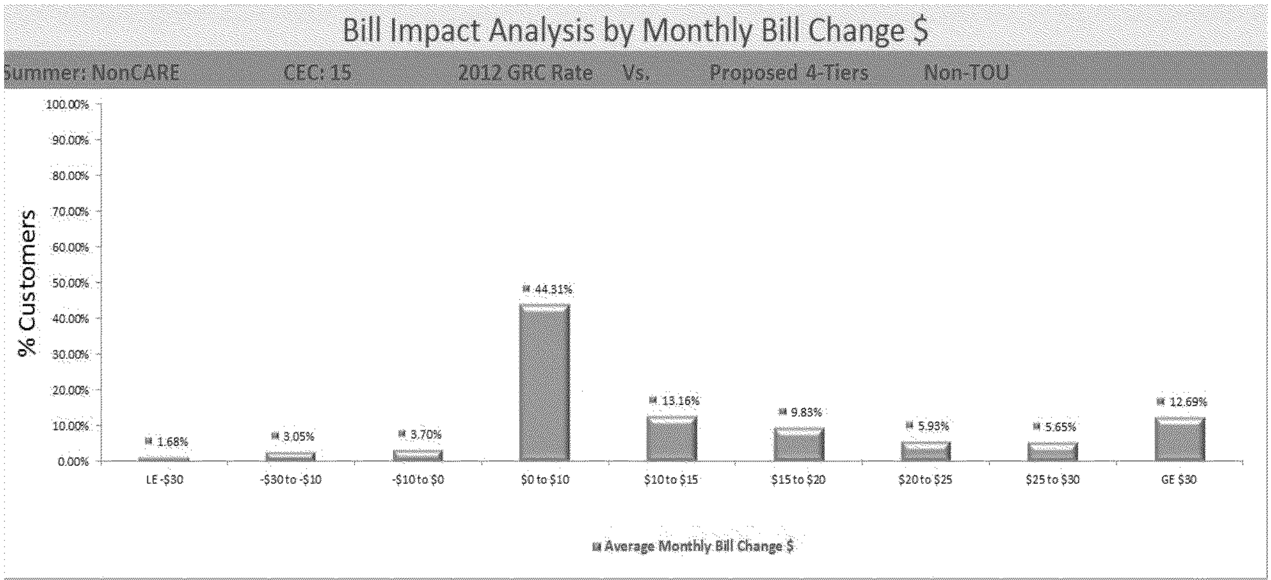
Figures B2.9 and B2.10 show monthly bill impacts for the Non-CARE customers in climate zone 15 (which covers the Inyo, Riverside, and Palms Spring areas) for a typical **summer** month in percentage and dollar terms. This zone has the largest baseline quantity and tends to have more extreme weather conditions than the other zones. About 8.5% of customers would see bill reductions, almost 30.5% would see bill increases between 0 to 10%, and about 60% could face 10% to 20% bill increases. Around 8% of customers may see their monthly bills decrease, while 44% and 13% may see monthly bill increases from $0 to $10 and from $10 to $15, respectively. About 34% could see their bills go up even higher than $15. Additional bill mitigation measures have to be developed to alleviate the bill impacts for the customers for this Zone.[24]

Figure B2.9 Inyo/Riverside Non CARE Customers Summer Season – Introductory TOU Rate



[24] Bill impact are worse for all non-CARE customers for a typical summer month compared to a monthly bill based on the average of annual average of the monthly bills. And, more customers in the extreme weather climate zone see more adverse bill impacts.

Figure B2.10 Inyo/Riverside Non CARE Customers Summer Season – Introductory TOU Rate



4. SCE Introductory TOU: Inyo/Riverside Summer CARE Bill Impacts

Figures B2.11 and B2.12 show the monthly bill impacts for CARE customers in climate zone 15 (which includes the Inyo, Riverside, and Palms Spring areas) for a typical **summer** month in percentage and dollar terms. About 37% customers would see bill increases between 0 to 10%. About 49% and 13% could face 10 to 20% and 20% to 30% bill increases respectively. Around 44% and 16% may see monthly bill increases between $0 and $10 and between $10 and $15 respectively. About 40% could see their bill goes up even higher than $15. Additional bill mitigation measures have to be developed to alleviate the bill impacts for the customers for this Zone.[25]

[25] Bill impact are worse for all CARE customers for a typical summer month compared to a monthly bill based on the average of annual average of the monthly bills. And, more customers in the extreme weather climate zone see more adverse bill impacts.

Figure B2.11 Inyo/Riverside CARE Customers Summer Season – Introductory TOU Rate

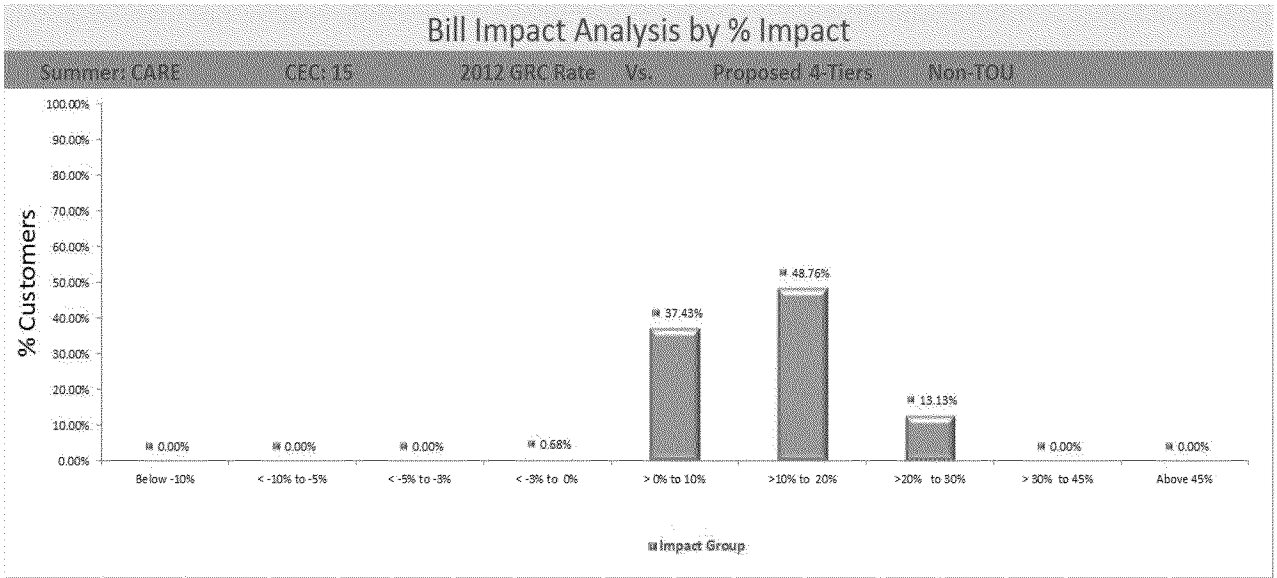
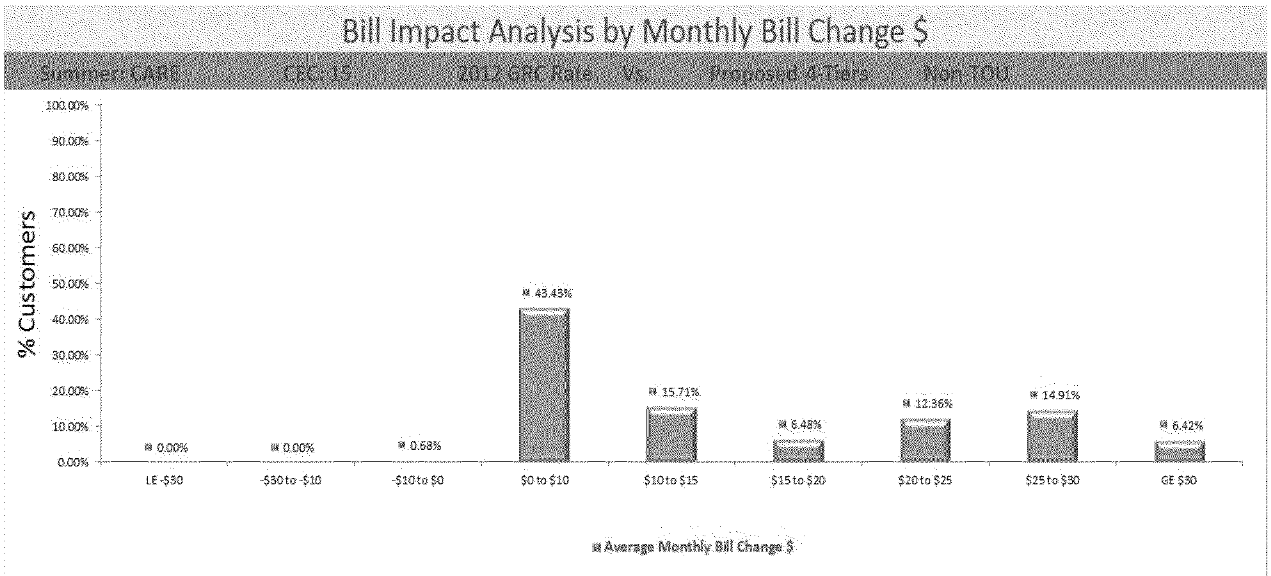


Figure B2.12 Inyo/Riverside CARE Customers Summer Season – Introductory TOU Rate



5. SCE 3 Tiers: All Non-CARE Bill Impacts

Figures B2.13 and B2.14 show Non-CARE monthly percentage bill impacts in graphical and tabular forms. About 58% of customers would see bill increases between 0 to 10%, and about 9% could face 10 to 20% bill increases.

Figure B2.13 All Non-CARE Customers – 3-Tier Rate

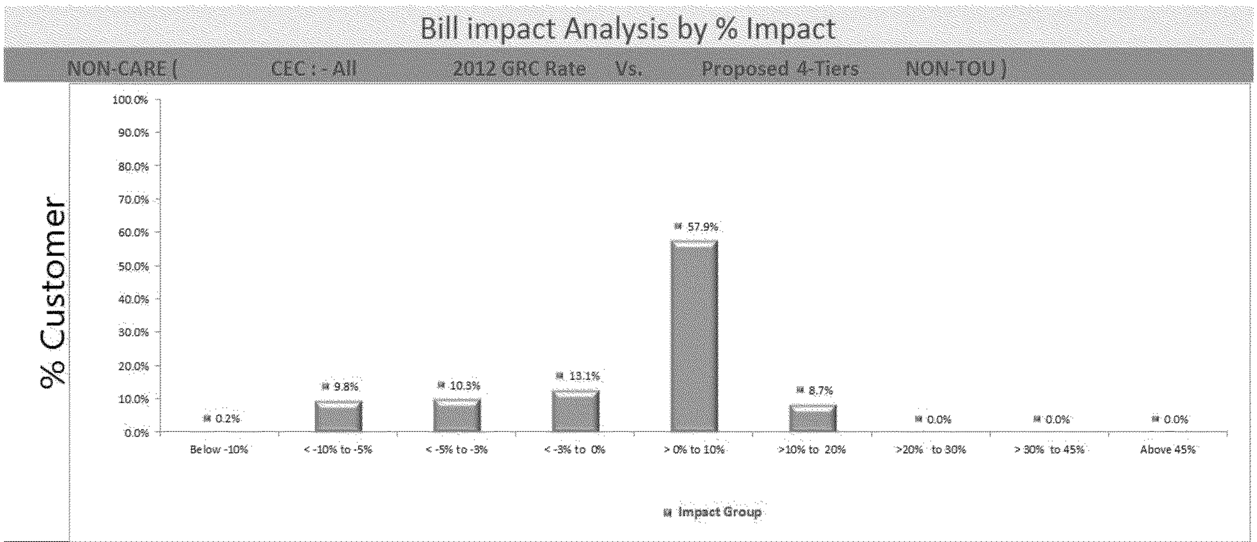


Figure B2.14 All Non-CARE Customers – 3-Tier Rate

NON-CARE (CEC : - All 2012 GRC Rate Vs. Proposed 4-Tiers NON-TOU)														
Impact Group	Customer				Average			Elasticity	Cents/kWh		%	Monthly $		Average
%	Number	% Customer	% Single	%Multi	Monthly - kWh	Annual Load Factor	% On Peak	Average Monthly Δ kWh	2012 GRC Rate	Proposed	Change	2012 GRC Rate	Proposed	Monthly $ Change
Below -10%	7,092	0.2%	0.0%	1.1%	0	5.8%	2.6%	0	572.4	437.6	-23.5%	$0.94	$0.72	-$0.22
< -10% to -5%	281,886	9.8%	12.3%	1.4%	1,443	19.8%	7.5%	20	25.1	23.3	-6.8%	$361.39	$336.70	-$24.6895
< -5% to -3%	294,338	10.3%	12.8%	1.5%	908	17.1%	7.4%	8	21.6	20.7	-4.1%	$196.25	$188.18	-$8.07
< -3% to 0%	374,073	13.1%	15.7%	4.1%	728	15.3%	7.2%	2	19.6	19.3	-1.6%	$142.55	$140.22	-$2.33
> 0% to 10%	1,658,384	57.9%	50.4%	83.3%	391	11.5%	6.5%	(4)	15.7	16.5	5.1%	$61.37	$64.52	$3.15
>10% to 20%	250,295	8.7%	8.8%	8.6%	384	13.8%	5.6%	(9)	14.1	15.7	11.5%	$54.07	$60.29	$6.22
>20% to 30%	0	0.0%	0.0%	0.0%	0	0.0%	0.0%	0	0.0	0.0	0.0%	$0.00	$0.00	$0.00
> 30% to 45%	0	0.0%	0.0%	0.0%	0	0.0%	0.0%	0	0.0	0.0	0.0%	$0.00	$0.00	$0.00
Above 45%	0	0.0%	0.0%	0.0%	0	0.0%	0.0%	0	0.0	0.0	0.0%	$0.00	$0.00	$0.00
Group Total	2,866,068	100.0%	100.0%	100.0%	589	13.6%	6.9%	0.3	19.4	19.2	-1.0%	$114.38	$113.20	-$1.18

6. SCE 3 Tiers: All CARE Bill Impacts

Figures B2.15 and B2.16 show CARE monthly percentage bill impacts in graphical and tabular forms. About 87% of customers would see bill increases between 0 and 10%, and about 11% could face 10 to 20% bill increases.

Figure B2.15 All CARE Customers – 3-Tier Rate

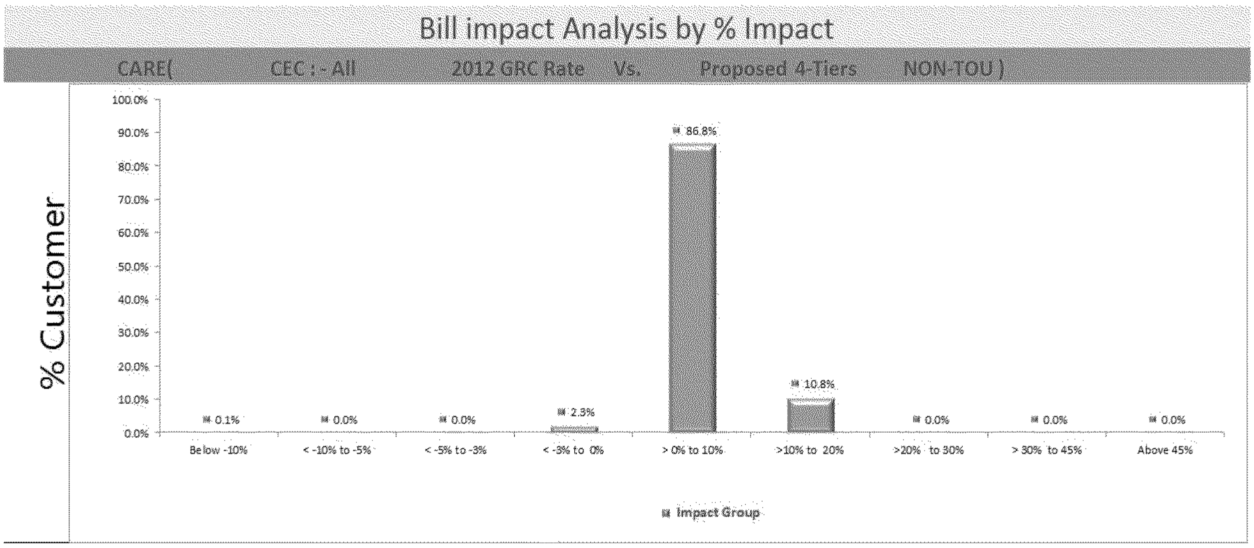


Figure B2.16 All CARE Customers – 3-Tier Rate

CARE(CEC : - All 2012 GRC Rate Vs. Proposed 4-Tiers NON-TOU)

Impact Group	Customer				Average			Elasticity	Cents/kWh		%	Monthly $		Average
%	Number	% Customer	% Single	%Multi	Monthly - kWh	Annual Load Factor	% On Peak	Average Monthly Δ kWh	2012 GRC Rate	Proposed	Change	2012 GRC Rate	Proposed	Monthly $ Change
Below -10%	1,622	0.1%	0.0%	0.3%	11	2.5%	2.5%	0	15.2	13.4	-11.5%	$1.71	$1.51	-$0.20
< -10% to -5%	0	0.0%	0.0%	0.0%	0	0.0%	0.0%	0	0.0	0.0	0.0%	$0.00	$0.00	$0.0000
< -5% to -3%	267	0.0%	0.0%	0.1%	40	7.1%	0.0%	0	11.1	10.7	-3.7%	$4.45	$4.29	-$0.16
< -3% to 0%	31,378	2.3%	3.2%	0.4%	707	20.8%	7.3%	0	13.8	13.8	-0.2%	$97.82	$97.61	-$0.21
> 0% to 10%	1,199,290	86.8%	86.3%	87.8%	518	15.2%	8.1%	(4)	12.6	13.0	3.2%	$65.26	$67.34	$2.08
>10% to 20%	148,500	10.8%	10.5%	11.3%	405	15.4%	6.6%	(10)	9.5	10.7	12.0%	$38.60	$43.24	$4.64
>20% to 30%	0	0.0%	0.0%	0.0%	0	0.0%	0.0%	0	0.0	0.0	0.0%	$0.00	$0.00	$0.00
> 30% to 45%	0	0.0%	0.0%	0.0%	0	0.0%	0.0%	0	0.0	0.0	0.0%	$0.00	$0.00	$0.00
Above 45%	0	0.0%	0.0%	0.0%	0	0.0%	0.0%	0	0.0	0.0	0.0%	$0.00	$0.00	$0.00
Group Total	1,381,056	100.0%	100.0%	100.0%	509	15.3%	8.0%	(4.7)	12.4	12.8	3.7%	$62.97	$65.28	$2.31

B2.(d) Illustrative SCE Cost-Based TOU Rate Summary

This section presents DRA's cost-based TOU rate structure, which is DRA's proposed end target rate. DRA recommends that the cost-based TOU rate, with a baseline credit,[26] be the default tariff. Customers would be allowed to opt out to the simple 2-Tier non-TOU rate. The following table summarizes illustrative cost-based TOU rates.

SCE Cost-Based TOU Rate Design

TOU Period (¢/kWh)	NonCARE	CARE
Summer On-Peak	37.61	27.40
Summer Shoulder	28.21	20.32
Summer Off-Peak	15.67	10.87
Winter Shoulder	27.56	19.83
Winter Off-Peak	15.31	10.60
BL Credit (¢/kWh)	5.00	5.00
Cust. Charge $/Mo.	0.88	0.66

B2.(e) Illustrative SCE Cost-Based TOU Rate Input Description

Goals:

DRA designed the rates to meet the following goals:

- All rates would follow the principles described in DRA Appendix A.
- Retain the baseline allowance using a baseline credit
- Maintain a total effective CARE discount of 30%

[26] These rates are for illustration only. As DRA emphasized at the beginning of Appendix B, these bill calculator models have their limitations and the derived rates should not be taken literally. Furthermore, it is not clear when the cost-based TOU rate should be implemented as it depends on many variables such as the revenue requirement, the cost, the customer load data, and the bill impacts. The actual rate design and the proper magnitude of baseline credit should be developed in the GRC phase 2 when the time to implement default cost-based TOU rate becomes appropriate.

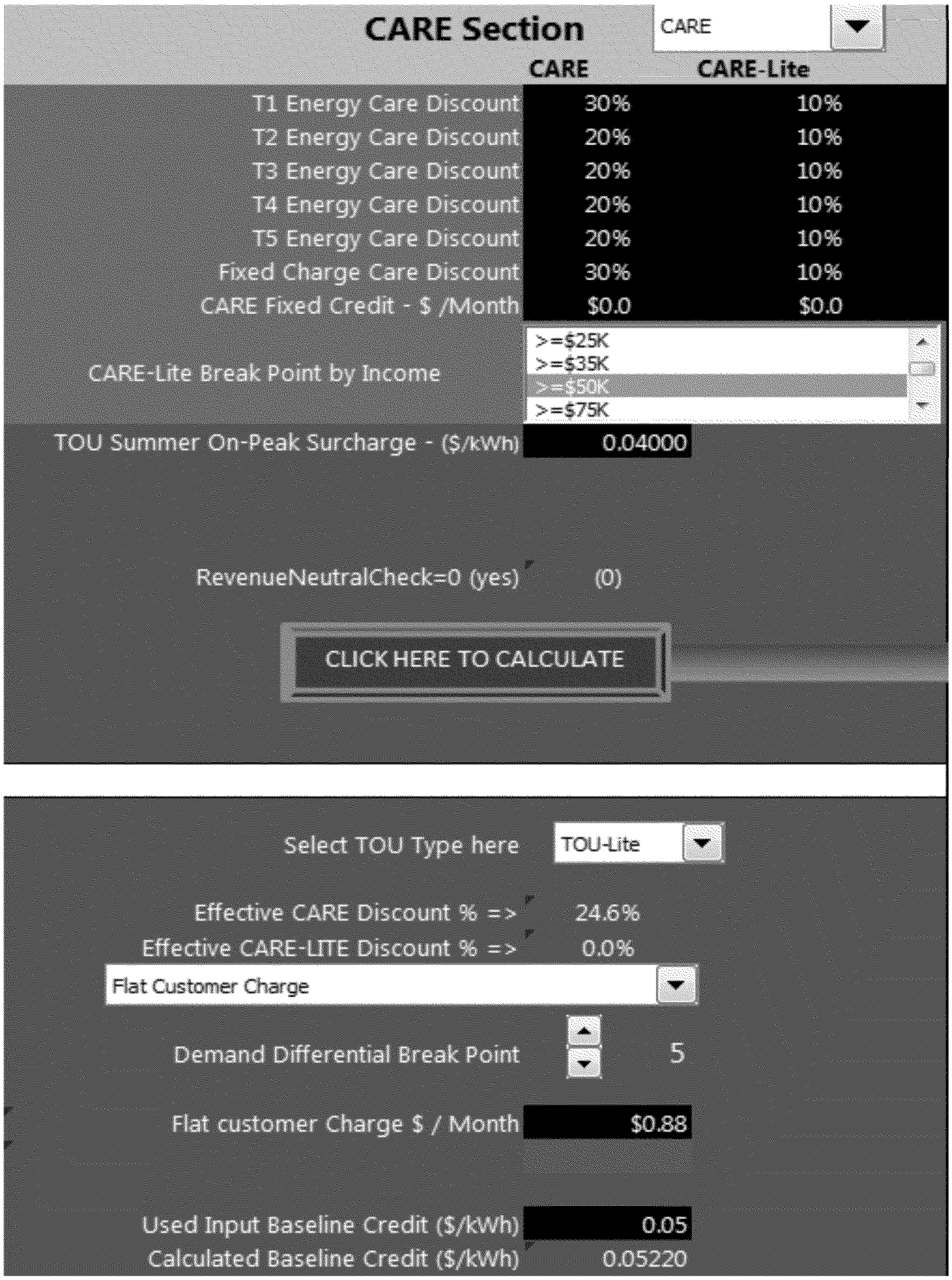
- Except for the summer on-peak period, aim for similar rates between the summer and winter seasons for the same TOU period

Inputs:

To achieve these goals, the bill impact model inputs would be specified as follows:

- Since SCE model's TOU CARE discount is dependent on the non-TOU scenario, use the effective CARE discount of 30% that resulted from the Introductory TOU as the starting point for the TOU rate design.
- Set the on-peak to shoulder period price ratios and the shoulder period to off-peak price ratios based on the results of the marginal cost analysis discussed in Appendix A.
- Move enough of the revenue requirement assigned to the summer season, based on the analysis in Appendix A, to the winter season to approximately equalize summer and winter rates in the same TOU period.

SCE Model Input Summary[27]



CARE Section

CARE

	CARE	CARE-Lite
T1 Energy Care Discount	30%	10%
T2 Energy Care Discount	20%	10%
T3 Energy Care Discount	20%	10%
T4 Energy Care Discount	20%	10%
T5 Energy Care Discount	20%	10%
Fixed Charge Care Discount	30%	10%
CARE Fixed Credit - $ /Month	$0.0	$0.0

CARE-Lite Break Point by Income: >=$25K / >=$35K / >=$50K / >=$75K

TOU Summer On-Peak Surcharge - ($/kWh)	0.04000
RevenueNeutralCheck=0 (yes)	(0)

CLICK HERE TO CALCULATE

Select TOU Type here	TOU-Lite
Effective CARE Discount % =>	24.6%
Effective CARE-LITE Discount % =>	0.0%

Flat Customer Charge

Demand Differential Break Point	5
Flat customer Charge $ / Month	$0.88
Used Input Baseline Credit ($/kWh)	0.05
Calculated Baseline Credit ($/kWh)	0.05220

[27] The Non-CARE inputs are the same as those on the Introductory TOU input sheet.

B2.(f) SCE Cost-Based TOU Rate Bill Impacts

1. SCE Cost-Based TOU: All Non-CARE Bill Impacts

Figures B2.17 and B2.18 show all the Non-CARE monthly bill impacts in percentage and dollar terms based on the annual average of monthly bills. About 18% and 22% of customers would see bill increases between 0 and 10% and 10% and 20% respectively. Around 32% could face a 20% or greater bill increase. About 41% may see \$0 to \$10 bill increases, 20% see between \$10 to \$15 bill increases, and 11% could face more than \$15 increase.

Figure B2.17 All Non-CARE Cost-Based TOU Rate

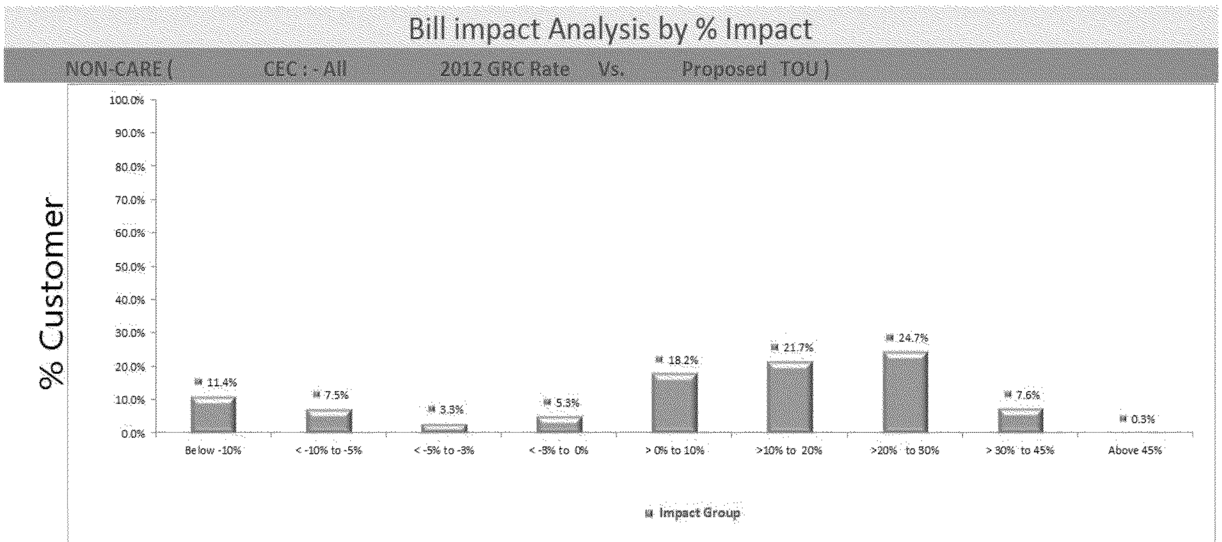


Figure B2.18 All Non-CARE Cost-Based TOU Rate

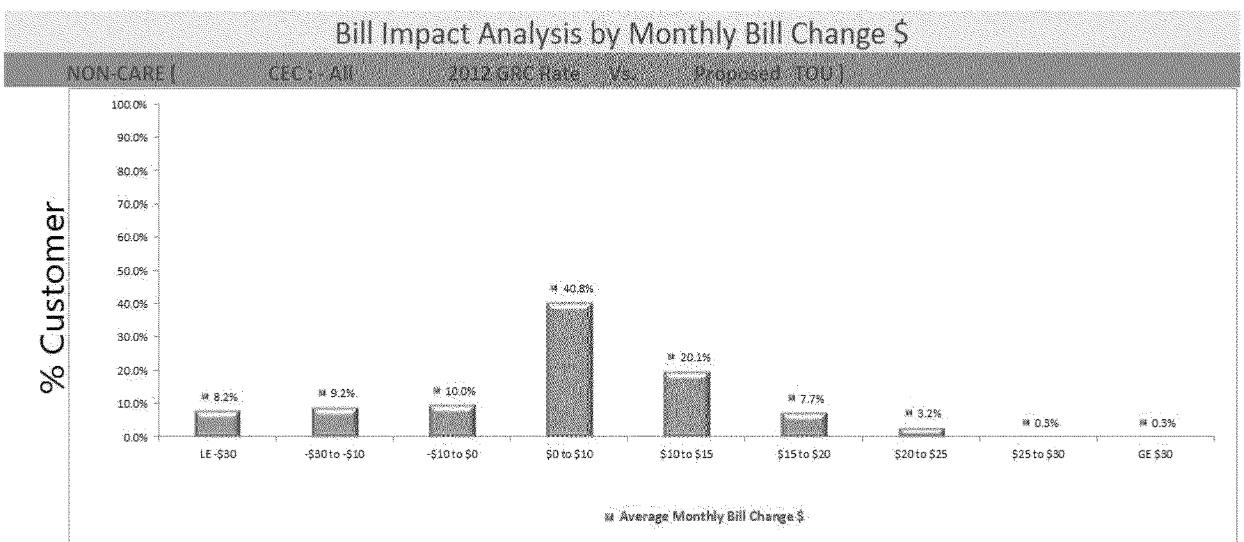


Figure B2.19 All Non-CARE Cost-Based TOU Rate

NON-CARE (	CEC : - All				2012 GRC Rate	Vs.				Proposed 4-Tiers		NON-TOU)		
Impact Group	Customer				Average			Elasticity	Cents/kWh		%	Monthly $		Average
%	Number	% Customer	% Single	%Multi	Monthly - kWh	Annual Load Factor	% On Peak	Average Monthly Δ kWh	2012 GRC Rate	Proposed	Change	2012 GRC Rate	Proposed	Monthly $ Change
Below -10%	326,271	11.4%	14.1%	2.3%	1,322	19.5%	6.4%	48	24.7	20.5	-17.3%	$326.97	$270.45	-$56.52
< -10% to -5%	216,101	7.5%	9.6%	0.6%	922	17.1%	7.2%	14	21.8	20.2	-7.5%	$200.99	$185.94	-$15.0515
< -5% to -3%	93,419	3.3%	4.0%	0.7%	808	16.6%	6.9%	8	20.7	19.8	-4.0%	$166.85	$160.11	-$6.74
< -3% to 0%	152,980	5.3%	6.2%	2.4%	721	14.7%	7.1%	3	20.0	19.6	-1.8%	$143.84	$141.32	-$2.52
> 0% to 10%	520,581	18.2%	20.2%	11.1%	631	14.1%	7.4%	(6)	18.5	19.3	4.7%	$116.61	$122.09	$5.48
>10% to 20%	623,311	21.7%	19.1%	30.9%	429	12.0%	6.3%	(13)	15.8	18.1	14.8%	$67.63	$77.67	$10.03
>20% to 30%	706,800	24.7%	20.0%	40.6%	314	11.3%	6.7%	(16)	14.3	17.8	24.1%	$44.96	$55.78	$10.82
> 30% to 45%	219,228	7.6%	6.8%	10.6%	317	10.4%	9.7%	(24)	13.9	18.6	34.3%	$44.02	$59.09	$15.08
Above 45%	7,376	0.3%	0.1%	0.9%	312	8.1%	16.3%	(35)	13.7	20.3	48.1%	$42.75	$63.32	$20.57
Group Total	2,866,068	100.0%	100.0%	100.0%	589	13.6%	6.9%	(2.9)	19.4	19.3	-0.5%	$114.38	$113.85	-$0.53

Figure B2.20 All Non-CARE Cost-Based TOU Rate

NON-CARE (	CEC : - All				2012 GRC Rate	Vs.				Proposed 4-Tiers		NON-TOU)		
Average Monthly Bill Change $	Customer				Average			Elasticity	Cents/kWh		%	Monthly $		Average
%	Number	% Customer	% Single	%Multi	Monthly - kWh	Annual Load Factor	% On Peak	Average Monthly Δ kWh	2012 GRC Rate	Proposed	Change	2012 GRC Rate	Proposed	Monthly $ Change
LE -$30	236,158	8.2%	10.3%	1.3%	1,523	20.1%	6.7%	57	25.2	20.7	-18.0%	$384.50	$315.32	-$69.17
-$30 to -$10	264,873	9.2%	11.5%	1.4%	937	17.6%	7.0%	17	22.0	20.1	-8.6%	$206.31	$188.55	-$17.7574
-$10 to $0	287,741	10.0%	12.0%	3.3%	712	15.1%	6.5%	4	20.1	19.5	-3.1%	$143.03	$138.53	-$4.50
$0 to $10	1,169,085	40.8%	34.8%	61.3%	382	11.5%	6.0%	(8)	16.7	18.2	9.0%	$63.81	$69.57	$5.76
$10 to $15	576,825	20.1%	20.1%	20.1%	454	12.5%	7.2%	(16)	15.8	18.5	17.0%	$71.58	$83.74	$12.16
$15 to $20	221,527	7.7%	7.8%	7.4%	500	11.9%	8.6%	(22)	15.6	19.0	21.9%	$77.97	$95.08	$17.11
$20 to $25	91,754	3.2%	2.9%	4.3%	551	12.7%	10.9%	(28)	15.9	19.9	25.0%	$87.67	$109.58	$21.91
$25 to $30	9,879	0.3%	0.3%	0.6%	625	13.3%	11.6%	(35)	15.6	19.8	27.5%	$97.31	$124.04	$26.73
GE $30	8,226	0.3%	0.3%	0.3%	758	14.6%	14.1%	(44)	16.1	20.6	28.1%	$122.08	$156.38	$34.30
Group Total	2,866,068	100.0%	100.0%	100.0%	589	13.6%	6.9%	(2.9)	19.4	19.3	-0.5%	$114.38	$113.85	-$0.53

2. SCE Cost-Based TOU: All CARE Bill Impacts

Figures B2.21 and B2.22 show all Non-CARE monthly bill impacts in percentage and dollar terms based on the annual average bill. About 20% and 26% of customers would see bill increases between 0 and 10% and between 10% and 20% respectively. Around 28% could face a 20% or greater bill increase. About 66% may see bill increases from $0 to $10, and 7% could see bill increases between $10 and $15.

Figure B2.21 All CARE Cost-Based TOU Rate

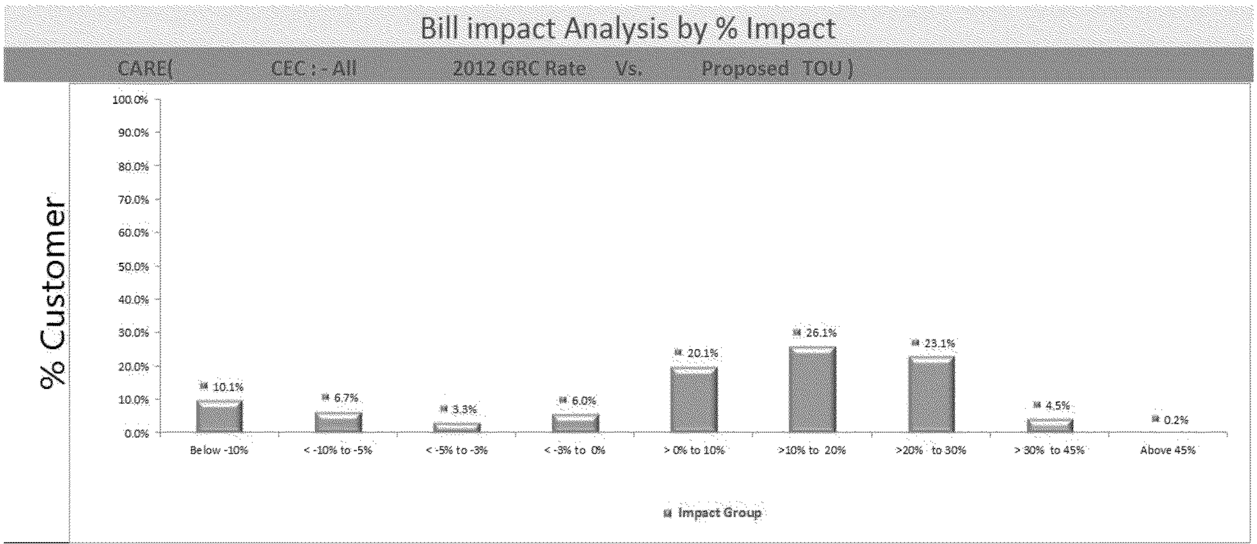


Figure B2.22 All CARE Cost-Based TOU Rate

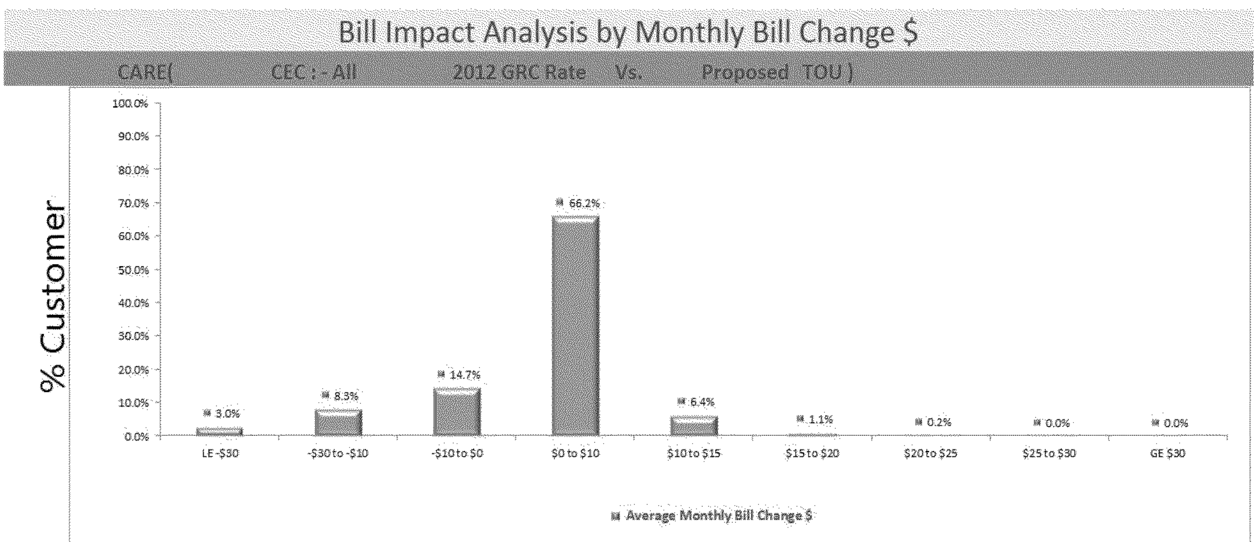


Figure B2.23 All CARE Cost-Based TOU Rate

CARE(	CEC : - All				2012 GRC Rate	Vs.			Proposed 4-Tiers			NON-TOU)		
Impact Group	Customer				Average			Elasticity	Cents/kWh		%	Monthly $		Average
%	Number	% Customer	% Single	%Multi	Monthly - kWh	Annual Load Factor	% On Peak	Average Monthly Δ kWh	2012 GRC Rate	Proposed	Change	2012 GRC Rate	Proposed	Monthly $ Change
Below -10%	138,960	10.1%	14.1%	2.3%	1,071	21.5%	6.0%	36	15.9	13.4	-15.9%	$170.32	$143.30	-$27.02
< -10% to -5%	92,287	6.7%	8.9%	2.3%	809	18.1%	8.3%	13	14.6	13.5	-7.5%	$117.95	$109.13	-$8.8288
< -5% to -3%	45,565	3.3%	4.2%	1.5%	809	17.5%	8.2%	6	13.7	13.2	-3.9%	$111.05	$106.67	-$4.38
< -3% to 0%	82,334	6.0%	8.1%	1.9%	759	17.7%	8.6%	2	13.6	13.4	-1.3%	$103.12	$101.82	-$1.31
> 0% to 10%	277,860	20.1%	22.9%	14.7%	534	15.4%	8.0%	(6)	12.0	12.5	4.5%	$64.00	$66.90	$2.89
>10% to 20%	360,501	26.1%	21.2%	35.5%	350	14.0%	7.8%	(12)	10.2	11.7	14.9%	$35.51	$40.81	$5.30
>20% to 30%	319,454	23.1%	17.3%	34.4%	320	13.7%	8.9%	(17)	9.4	11.6	24.1%	$30.00	$37.21	$7.22
> 30% to 45%	61,832	4.5%	3.2%	7.0%	330	11.9%	13.2%	(27)	9.2	12.4	34.0%	$30.48	$40.84	$10.37
Above 45%	2,263	0.2%	0.1%	0.4%	320	9.7%	17.5%	(31)	9.0	13.3	48.0%	$28.70	$42.47	$13.78
Group Total	1,381,056	100.0%	100.0%	100.0%	509	15.3%	8.0%	(5.8)	12.4	12.6	1.7%	$62.97	$64.06	$1.09

Figure B2.24 All CARE Cost-Based TOU Rate

CARE(	CEC : - All				2012 GRC Rate	Vs.			Proposed 4-Tiers			NON-TOU)		
Average Monthly Bill Change $	Customer				Average			Elasticity	Cents/kWh		%	Monthly $		Average
%	Number	% Customer	% Single	%Multi	Monthly - kWh	Annual Load Factor	% On Peak	Average Monthly Δ kWh	2012 GRC Rate	Proposed	Change	2012 GRC Rate	Proposed	Monthly $ Change
LE -$30	40,921	3.0%	4.1%	0.8%	1,497	23.4%	5.5%	60	16.8	13.6	-18.8%	$250.75	$203.64	-$47.11
-$30 to -$10	115,175	8.3%	12.0%	1.4%	1,007	21.2%	7.8%	24	15.4	13.7	-11.6%	$155.62	$137.58	-$18.0349
-$10 to $0	203,050	14.7%	19.3%	5.8%	708	17.1%	7.7%	6	13.6	13.1	-3.8%	$96.19	$92.54	-$3.66
$0 to $10	914,424	66.2%	58.1%	81.9%	371	14.0%	7.8%	(10)	10.6	11.8	12.1%	$39.24	$43.97	$4.74
$10 to $15	88,386	6.4%	5.4%	8.3%	505	13.6%	12.3%	(24)	10.5	12.8	22.5%	$52.93	$64.86	$11.93
$15 to $20	15,784	1.1%	1.0%	1.5%	634	14.9%	11.9%	(33)	10.9	13.5	23.8%	$69.30	$85.77	$16.48
$20 to $25	2,829	0.2%	0.2%	0.3%	746	17.8%	11.8%	(42)	10.6	13.5	27.4%	$78.99	$100.60	$21.61
$25 to $30	489	0.0%	0.0%	0.1%	859	14.0%	14.1%	(49)	11.3	14.3	27.3%	$96.59	$122.96	$26.37
GE $30	0	0.0%	0.0%	0.0%	0	0.0%	0.0%	0	0.0	0.0	0.0%	$0.00	$0.00	$0.00
Group Total	1,381,056	100.0%	100.0%	100.0%	509	15.3%	8.0%	(5.8)	12.4	12.6	1.7%	$62.97	$64.06	$1.09

B3: SDG&E Illustrative Rates and Bill Impact

B3.(a) Current and Illustrative Transitional Rate Summary:

This section provides DRA's proposed rate structure during the transitional period for SDG&E. As with the other two utilities, DRA recommends an Introductory TOU rate design as the default, and customers can opt out to a simple three-tier rate. The following table summarizes the Introductory TOU and the three-tier rate designs and compares them to the current rates.

As explained previously, the Introductory TOU and opt-in three-tier rate designs would collapse Tier 2 and Tier 3 in the current rate design. However, to facilitate comparison of the new rate designs with the current rates, the tiers in the table below are presented based on current tier usage definition. Current tier structure is as follows:

- Tier 1 is for usage up to 100% baseline,
- Tier 2 covers usage above 100% up to 130%,
- Tier 3 includes usage above 130% up to 200%,
- Tier 4 is for usage above 200% up to 300%, and,
- Tier 5 is for usage greater than 300%.

As shown, the Introductory TOU and the opt-in 3-Tier rate designs have identical Tier 2 and Tier 3 rates. This is because the usages for the current Tier 2 and Tier 3 (between 100% to 200%) have been combined to form the new Tier 2 usage. DRA's intent was to make the tiered rates in the Introductory TOU and opt-in three-tier rate designs the same. But achieving this result exactly was difficult to accomplish with SDG&E's bill impact model.[28] Nevertheless, the rates shown below should be regarded as illustrative.

[28] Note that the SDG&E model does not independently balance the revenues associated with the TOU surcharge and credit so that they sum to zero. It performs such revenue balancing in conjunction with setting the tiered rates, and thus it modifies the tiered rates to perform some of the revenue balancing required when the surcharge and credit are added to the rate design.

SDG&E Tiered Rate Design			
	Current Rates	Introductory TOU	3-Tiers
Non-CARE			
Tier (¢/kWh)			
Summer Energy			
Baseline Energy	14.3	13.8	14.3
101% to 130% of Baselin	16.6	21.6	22.1
131% to 200% of Baselin	28.0	21.6	22.1
Above 200% of Baseline	30.0	30.0	30.5
Winter Energy			
Baseline Energy	14.3	14.8	14.3
101% to 130% of Baselin	16.6	21.1	20.6
131% to 200% of Baselin	26.2	21.1	20.6
Above 200% of Baseline	28.2	29.4	28.9
Minimum Bill $/Mo.	5.0	5.0	5.0
Summer On-Peak Surcharge		4.0	
Summer Off-Peak Credit		-0.9	
Winter On-Peak Surcharge			
Winter Off-Peak Credit		-0.9	
CARE			
Tier (¢/kWh)	0.0	0.0	0.0
Summer Energy			
Baseline Energy	10.0	9.2	9.8
101% to 130% of Baselin	11.6	15.2	16.0
131% to 200% of Baselin	17.6	15.2	16.0
Above 200% of Baseline	17.6	21.2	22.1
Winter Energy			
Baseline Energy	10.0	10.0	9.8
101% to 130% of Baselin	11.6	14.8	14.8
131% to 200% of Baselin	16.4	14.8	14.8
Above 200% of Baseline	16.4	20.7	20.9
Minimum Bill $/Mo.	4.0	4.0	4.0
Summer On-Peak Surcharge		3.1	
Summer Off-Peak Credit		-0.7	
Winter On-Peak Surcharge		0.0	
Winter Off-Peak Credit		-0.7	

B3.(b) Transitional Rate Input Description

This section explains the criteria and objectives that DRA followed to develop its desired rates, as well as what data it inputted into the bill impact model.

Goals:

DRA designed its transition rate to fulfill the following goals:

- Mitigate bill impacts to the extent possible
- Create a three-tier structure by collapsing the current Tiers 2 and 3 such that the new Tier 2 would cover usage from 100% to 200% of baseline and the new Tier 3 would cover usage above 200% of baseline
- Keep the new Tier 1 rate close to current rate level
- Strive for a similar rate differential between the tiers
- Maintain the total effective CARE discount at 30%
- Introduce the concept of time-varying rates to customers by implementing a TOU overlay.
- Allowing customers who find it too difficult to adjust to the TOU overlay to opt-out to a three-tiered rate structure with mid-peak rates from the Introductory TOU design applied during all time periods.

Input description:

To achieve these goals, DRA set the model inputs as follows:

- Select a four-tier structure and set the rate difference between Tiers 2 and 3 to zero, making the Tier 2 and 3 rates identical. This effectively results in a three-tier structure with equal usage for both Tiers 1 and 2.[29]
- Fix the Tier 1 rate at the current level, allow the model to solve for the highest tier, and then find, by trial and error, a Tier 1 to Tier 2 rate difference that results in the rate differentials between the three tiers being almost the same.
- For the Introductory TOU, input an on-peak surcharge at 4 cents and allow the model to solve for the off-peak credit.
- Input the CARE discount at 23% (for Introductory TOU) and 21% (for the three-tier rate) for all tiers.[30] After taking into account of DWR bond charge, CSI, SGIP, and CARE surcharge exemption, CARE customers will receive a total effective discount of 30%. This can be verified by comparing the product of the

[29] The model presents this as a four tier rate structure. But, in reality, it is a three-tier structure since the Tier 2 and Tier 3 rates are identical.

[30] These discounts were arrived at by trial and error.

final CARE rates and the CARE billing determinants with the product of the final non-CARE rates and the same CARE determinants.

RESET INPUTS

Scenario 1: Introductory TOU

Distribution - Two cost components: Customer costs and Distribution Demand costs

Action Required

Customer Cost: **Recover through energy rates**

**Rate recovery options: Basic Service Fee which is a $/month customer change or recovery through energy rates which also gives the option of having a minimum bill.*

Minimum Bill Amount ($/Day):	$0.17	<---- Enter $/day
Set Minimum Bill for Delivery Only or Total Bill:	Total	<---- Enter 'Delivery' or 'Total'

Distribution Demand: **Recover through energy rates**

**Rate recovery options: Non-Coincident Demand Charge which is a $/kW charge, Fixed Charge Demand Adder which is a $/month charge based on maximum demand, an*

Include SGIP, CSI, & Demand Response in: **Distribution Rate**

**This is only the movement of the current "miscellaneous distribution rate" to PPP or have it remain in Distribution. It does not affect the total rate.*

Commodity - Two cost components: Capacity costs and energy costs

Capacity: **Recover through energy rates**

**Rate recovery options: On-Peak Demand Charge which is a $/kW charge or recovery through energy rates.*

Energy: **Time-of-Use**

**Rate recovery options: Time-of-Use rates (On-peak, Semi-peak, Off-peak) or non time differentiated rates.*

Define TOU Periods by Ratio or Cent Differential:	Cent	<---- Enter 'Ratio' or 'Cent'
Define Seasonal Off-Peak Credit or Find Annual Credit:	define credit	<---- Enter 'Define Credit' or 'Find Credit'
Summer On/Semi Difference: (On-Peak minus Semi-Peak)	4.00	<---- Enter Cent Difference On-Peak/Semi-Peak
Summer Semi/Off Difference: (Semi-Peak minus Off-Peak)	0.93	<---- Enter Cent Difference Semi-Peak/Off-Peak
Winter On/Semi Difference: (On-Peak minus Semi-Peak)	0.00	<---- Enter Cent Difference On-Peak/Semi-Peak
Winter Semi/Off Difference: (Semi-Peak minus Off-Peak)	0.93	<---- Enter Cent Difference Semi-Peak/Off-Peak
Seasonal Rate Adjustment - Percent Difference of Seasonal EECC:	30%	<---- Enter %

**Adjusts the total rate differential between summer and winter. Currently all commodity capacity is in the summer, less than 100% makes the seasonal differential smaller*

Total Rate Adjustment Component (TRAC) - Choosing the tier structure

Number of Tiers:	4	<---- Enter 2, 3, 4 or Flat
Maintain SDG&E Current Tier 1 and Tier 2 Rates:	No	<---- Enter 'Yes' or 'No'

**Enter yes to set current Tier 1 and Tier 2 rates equal to current, enter no to maintain CARE rate differences*

% Differential or Cent/kWh Differential Between Tiers:	Cent	<---- Enter 'Percent' or 'Cent'
Fix Tier 1 and find Highest Tier:	yes	<---- Enter 'Yes' or 'No'

**Entering Yes will fix Tier 1 and find the highest tier, otherwise the user can define the differential between every tier and Tier 1 will be found*

Tier 1 to Tier 2 Differential (Cents/kWh):	7.8	<---- Enter cents/kWh
Tier 2 to Tier 3 Differential (Cents/kWh):	0.0	<---- Enter cents/kWh

*Not in compliance with SB695 Tier 1 and Tier 2 Levels

California Alternate Rates for Energy (CARE) - Choosing the low income assistance mechanism

Set pre-discount CARE Tier 1 and Tier 2 Rate equal non-CARE:	No	<---- Enter 'Yes' or 'No'
Set pre-discount CARE Tier 3 Rate equal non-CARE:	No	<---- Enter 'Yes' or 'No'

**Option to set the pre-discount CARE rate equal to non-CARE rate minus DWR-BC, CSI, and CARE surcharge exemption. Currently the rates CARE customers pay include rat*

Type of CARE Discount: **Percent Discount**

**2 Options: % discount off the total bill or a $/month discount*

CARE Energy Discount % :	23%	<---- Enter %
	23%	
	23%	
	23%	

RESET INPUTS

Scenario 2: Three-Tier

Distribution - Two cost components: Customer costs and Distribution Demand costs

Action Required

Customer Cost: **Recover through energy rates**

**Rate recovery options: Basic Service Fee which is a $/month customer change or recovery through energy rates which also gives the option of having a minimum bill.*

Minimum Bill Amount ($/Day):	$0.17	**<---- Enter $/day**
Set Minimum Bill for Delivery Only or Total Bill:	Total	**<---- Enter 'Delivery' or 'Total'**

Distribution Demand: **Recover through energy rates**

**Rate recovery options: Non-Coincident Demand Charge which is a $/kW charge, Fixed Charge Demand Adder which is a $/month charge based on maximum demand, an*

Include SGIP, CSI, & Demand Response in: **Distribution Rate**

**This is only the movement of the current "miscellaneous distribution rate" to PPP or have it remain in Distribution. It does not affect the total rate.*

Commodity - Two cost components: Capacity costs and energy costs

Capacity: **Recover through energy rates**

**Rate recovery options: On-Peak Demand Charge which is a $/kW charge or recovery through energy rates.*

Energy: **Non-TOU**

**Rate recovery options: Time-of-Use rates (On-peak, Semi-peak, Off-peak) or non time differentiated rates.*

Seasonal Rate Adjustment - Percent Difference of Seasonal EECC:	30%	**<---- Enter %**

**Adjusts the total rate differential between summer and winter. Currently all commodity capacity is in the summer, less than 100% makes the seasonal differential smaller*

Total Rate Adjustment Component (TRAC) - Choosing the tier structure

Number of Tiers:	4	**<---- Enter 2, 3, 4 or Flat**
Maintain SDG&E Current Tier 1 and Tier 2 Rates:	No	**<---- Enter 'Yes' or 'No'**

**Enter yes to set current Tier 1 and Tier 2 rates equal to current, enter no to maintain CARE rate differences*

% Differential or Cent/kWh Differential Between Tiers:	Cent	**<---- Enter 'Percent' or 'Cent'**
Fix Tier 1 and find Highest Tier:	yes	**<---- Enter 'Yes' or 'No'**

**Entering Yes will fix Tier 1 and find the highest tier, otherwise the user can define the differential between every tier and Tier 1 will be found*

Tier 1 to Tier 2 Differential (Cents/kWh):	7.8	**<---- Enter cents/kWh**
Tier 2 to Tier 3 Differential (Cents/kWh):	0.0	**<---- Enter cents/kWh**

***Not in compliance with SB695 Tier 1 and Tier 2 Levels**

California Alternate Rates for Energy (CARE) - Choosing the low income assistance mechanism

Set pre-discount CARE Tier 1 and Tier 2 Rate equal non-CARE:	No	**<---- Enter 'Yes' or 'No'**
Set pre-discount CARE Tier 3 Rate equal non-CARE:	No	**<---- Enter 'Yes' or 'No'**

**Option to set the pre-discount CARE rate equal to non-CARE rate minus DWR-BC, CSI, and CARE surcharge exemption. Currently the rates CARE customers pay include rat*

Type of CARE Discount: **Percent Discount**

**2 Options: % discount off the total bill or a $/month discount*

Tier 1 CARE Energy Discount % :	21%	**<---- Enter %**
Tier 2 CARE Energy Discount % :	21%	**<---- Enter %**
Tier 3 CARE Energy Discount % :	21%	**<---- Enter %**
Tier 4 CARE Energy Discount % :	21%	**<---- Enter %**

B3.(c) Transitional Rate Bill Impact

1. SDG&E Introductory Rate All Non-CARE Average Monthly Bill Impact

Figures B3.1 and B3.4 show Non-CARE customer monthly bill impact in percentage and dollar terms based on the annual average of the monthly bills. About 66% could see no change or bill reduction between 0 to 5%, and 34% could face 0 to 5% bill increases. Around 80% may see monthly bill reductions between $0 and $10, and 18% may see increases between $0 and $5.

Figure B3.1 All Non-CARE Customers – Introductory TOU Rate

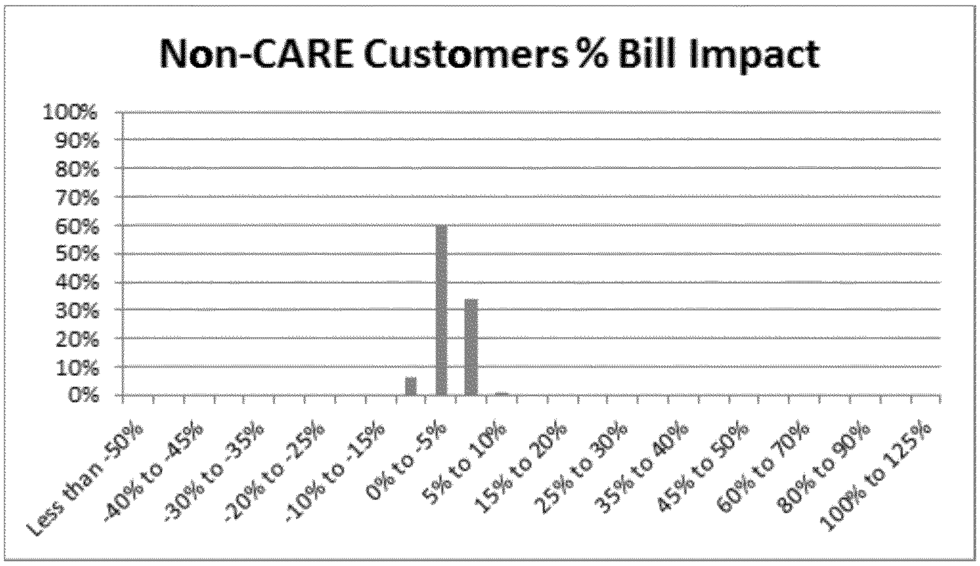


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Figure B3.2 All Non-CARE Customers – Introductory TOU Rate

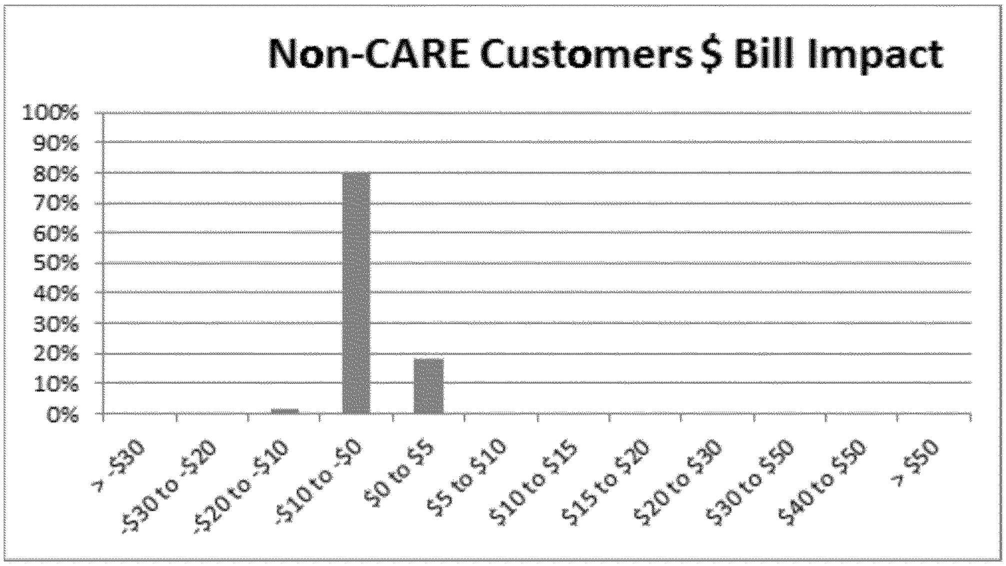

Figure B3.3 All Non-CARE Customers – Introductory TOU Rate

Non-CARE Bill Impact	% Customers	Average Monthly Chg in Bill	Number of customers
Less than -50%	0	0	0
-45% to -50%	0	0	0
-40% to -45%	0	0	0
-35% to -40%	0	0	0
-30% to -35%	0	0	0
-25% to -30%	0	0	0
-20% to -25%	0	0	0
-15% to -20%	0	0	0
-10% to -15%	0	0	0
-5% to -10%	6%	-7.9	62,221
0% to -5%	60%	-2.3	616,604
0% to 5%	34%	0.9	347,977
5% to 10%	0%	5.1	3,660
10% to 15%	0	0	0
15% to 20%	0	0	0
20% to 25%	0	0	0
25% to 30%	0	0	0
30% to 35%	0	0	0
35% to 40%	0	0	0
40% to 45%	0	0	0
45% to 50%	0	0	0
50% to 60%	0	0	0
60% to 70%	0	0	0
70% to 80%	0	0	0
80% to 90%	0	0	0
90% to 100%	0	0	0
100% to 125%	0	0	0
Total			1,030,462

Figure B3.4 All Non-CARE Customers – Introductory TOU Rate

Non-CARE $ Impact	% Customers
> -$30	0%
-$30 to -$20	0%
-$20 to -$10	1.3%
-$10 to -$0	80.4%
$0 to $5	18.0%
$5 to $10	0%
$10 to $15	0%
$15 to $20	0%
$20 to $30	0%
$30 to $50	0%
$40 to $50	0%
> $50	0%

2. SDG&E Introductory Rate All CARE Average Monthly Bill Impact

Figures B3.5 – B3.8 show the CARE customer monthly bill impact in percentage and dollar terms based on the annual average of the monthly bills. About 67% of customers could see no change or bill reductions, 25% could see bill increases between 0 to 5%, and about 5% could face 5 to 10% bill increases. Around 71% customers may see their monthly bill go down, while 21% may see monthly bill increases between \$0 to \$5, and 5% see increase between \$5 to \$10 per month.

Figure B3.5 All CARE Customers – Introductory TOU Rate

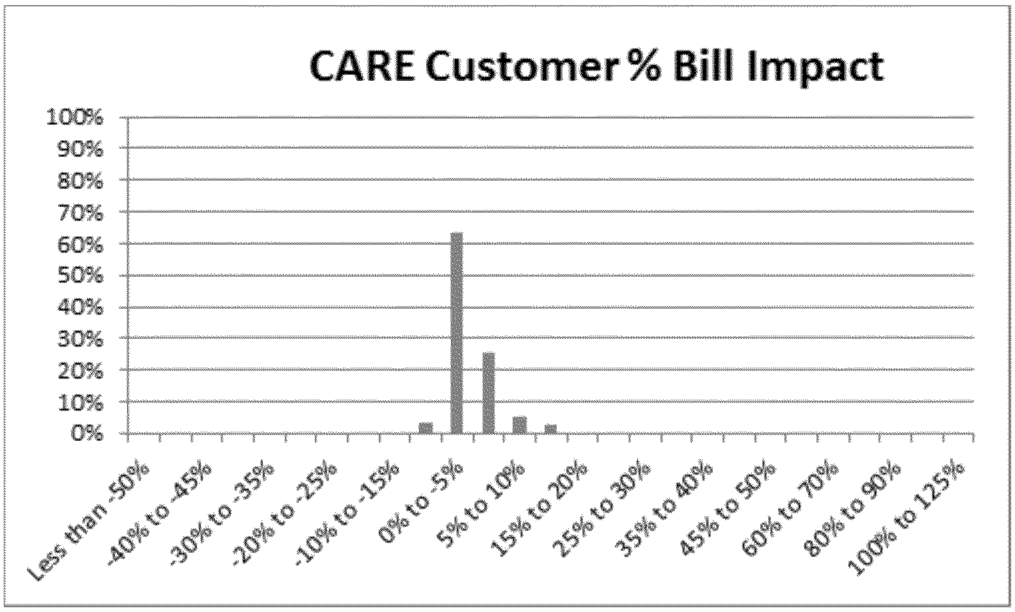

Figure B3.6 All CARE Customers – Introductory TOU Rate

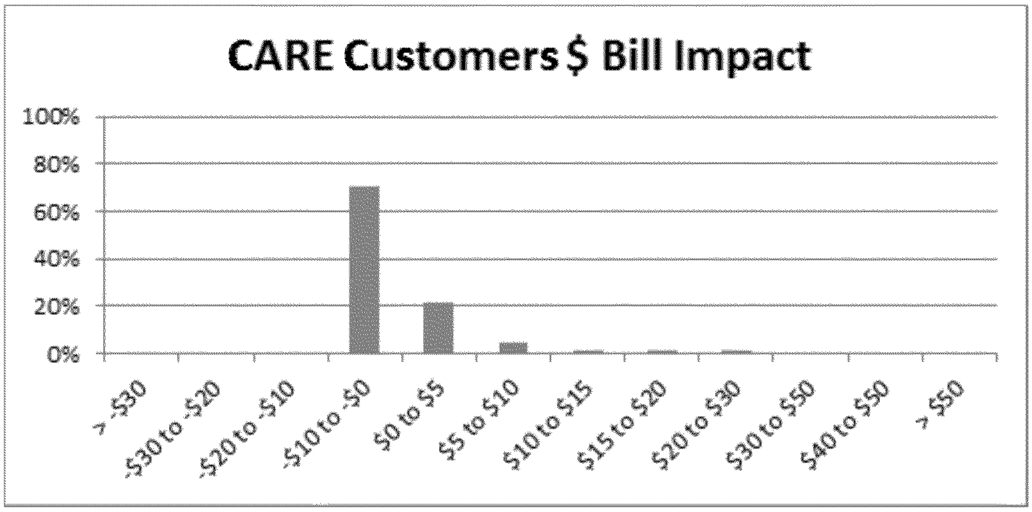

Figure B3.7 All CARE Customers – Introductory TOU Rate

CARE Bill Impact	% Customers	Average Monthly Chg in Bill	Number of customers
Less than -50%	0%	0	0
-45% to -50%	0%	0	0
-40% to -45%	0%	0	0
-35% to -40%	0%	0	0
-30% to -35%	0%	0	0
-25% to -30%	0%	0	0
-20% to -25%	0%	0	0
-15% to -20%	0%	0	0
-10% to -15%	0%	0	0
-5% to -10%	3%	-1	6,367
0% to -5%	64%	-1	123,984
0% to 5%	25%	2	49,477
5% to 10%	5%	9	10,167
10% to 15%	2%	24	4,745
15% to 20%	0%	0	0
20% to 25%	0%	0	0
25% to 30%	0%	0	0
30% to 35%	0%	0	0
35% to 40%	0%	0	0
40% to 45%	0%	0	0
45% to 50%	0%	0	0
50% to 60%	0%	0	0
60% to 70%	0%	0	0
70% to 80%	0%	0	0
80% to 90%	0%	0	0
90% to 100%	0%	0	0
100% to 125%	0%	0	0
Total			194,740

Figure B3.8 All CARE Customers – Introductory TOU Rate

Dollar Impact	Percent CARE Customers
> -$30	0%
-$30 to -$20	0%
-$20 to -$10	0.0%
-$10 to -$0	70.7%
$0 to $5	21.2%
$5 to $10	5%
$10 to $15	1%
$15 to $20	1%
$20 to $30	1%
$30 to $50	0%
$40 to $50	0%
> $50	0%

3. SDG&E 3 Tiers: All Non-CARE Bill Impacts

Figures B3.9 and B3.10 show the Non-CARE monthly percentage bill impacts in graphical and tabular forms. About 66% of customers could see bill reductions and 34% could see increases between 0 and 5%.

Figure B3.9 All Non-CARE Customers – 3-Tier Rate

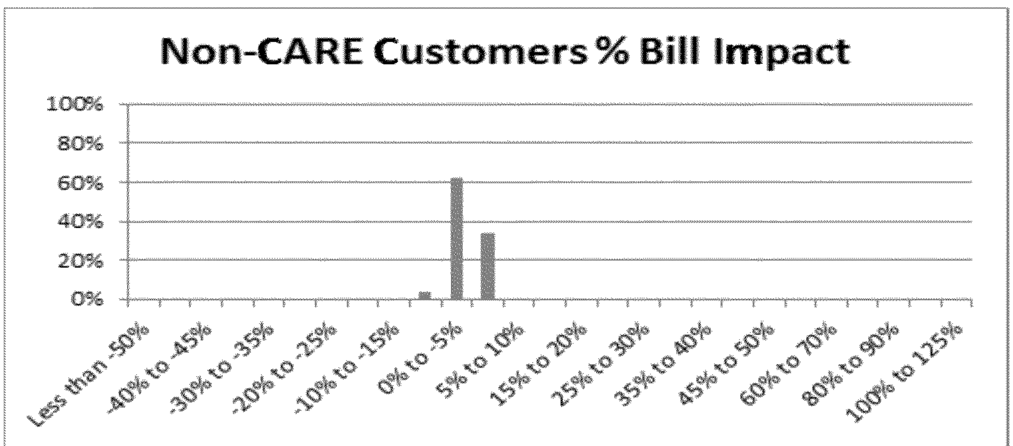

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Figure B3.10 All Non-CARE Customers – 3-Tier Rate

Non-CARE Bill Impact	% Customers	Average Monthly Chg in Bill	Number of customers
Less than -50%	0	0	0
-45% to -50%	0	0	0
-40% to -45%	0	0	0
-35% to -40%	0	0	0
-30% to -35%	0	0	0
-25% to -30%	0	0	0
-20% to -25%	0	0	0
-15% to -20%	0	0	0
-10% to -15%	0	0	0
-5% to -10%	4%	-7.0	40,264
0% to -5%	62%	-2.4	639,786
0% to 5%	34%	1.1	350,413
5% to 10%	0%	0.0	0
10% to 15%	0	0	0
15% to 20%	0	0	0
20% to 25%	0	0	0
25% to 30%	0	0	0
30% to 35%	0	0	0
35% to 40%	0	0	0
40% to 45%	0	0	0
45% to 50%	0	0	0
50% to 60%	0	0	0
60% to 70%	0	0	0
70% to 80%	0	0	0
80% to 90%	0	0	0
90% to 100%	0	0	0
100% to 125%	0	0	0
Total			1,030,463

4. SDG&E 3 Tiers: All CARE Bill Impacts

Figures B3.11 and B3.12 show CARE monthly percentage bill impacts in graphical and tabular forms. About 31% of customers would see no change or bill reduction between 0 and 5%, 52% and 14% could face 0 to 5% and 5 to 10% bill increases, respectively.

Figure B3.11 All CARE Customers – 3-Tier Rate

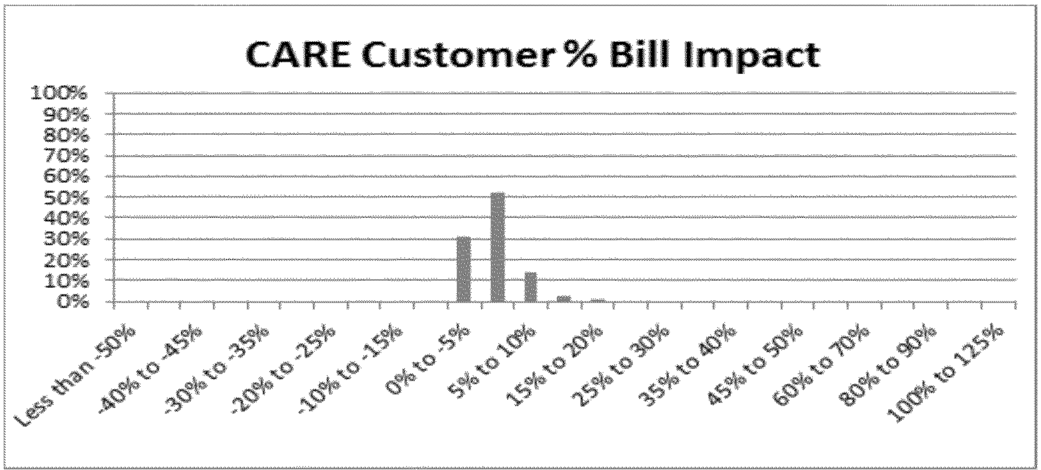

Figure B3.12 All CARE Customers – 3-Tier Rate

CARE Bill Impact	% Customers	Average Monthly Chg in Bill	Number of customers
Less than -50%	0%	0	0
-45% to -50%	0%	0	0
-40% to -45%	0%	0	0
-35% to -40%	0%	0	0
-30% to -35%	0%	0	0
-25% to -30%	0%	0	0
-20% to -25%	0%	0	0
-15% to -20%	0%	0	0
-10% to -15%	0%	0	0
-5% to -10%	0%	0	0
0% to -5%	31%	0	60,960
0% to 5%	52%	1	101,380
5% to 10%	14%	8	26,707
10% to 15%	2%	25	4,745
15% to 20%	0%	33	949
20% to 25%	0%	0	0
25% to 30%	0%	0	0
30% to 35%	0%	0	0
35% to 40%	0%	0	0
40% to 45%	0%	0	0
45% to 50%	0%	0	0
50% to 60%	0%	0	0
60% to 70%	0%	0	0
70% to 80%	0%	0	0
80% to 90%	0%	0	0
90% to 100%	0%	0	0
100% to 125%	0%	0	0
Total			194,741

B3.(d) Illustrative SDG&E Cost-Based TOU Rate Summary

This section presents DRA's cost-based TOU rate structure, which is DRA's proposed end target rate. DRA recommends that the cost-based TOU rate, with a baseline credit,[31] be the default tariff. Customers would be allowed to opt out to the simple 2-Tier non-TOU rate. The following table summarizes illustrative cost-based TOU rates.

SDG&E Cost-Based TOU Rates		
TOU Period (¢/kWh)	Non-CARE	CARE
Summer Energy		
On Peak	37.7	29.8
Semi Peak	23.4	17.1
Off Peak	17.6	11.9
Winter Energy		
On Peak	23.0	16.7
Semi Peak	23.0	16.7
Off Peak	18.0	12.2
Minimum Bill ($/Mo.)	5.0	5.0
Baseline Credit (¢/kWh)	5.0	4.5

B3.(e) Illustrative SCE Cost-Based TOU Rate Input Description

Goals:

DRA designed the rates to meet the following goals:

- All rates would follow the principles described in DRA Appendix A.
- Retain the baseline allowance using a baseline credit
- Maintain a total effective CARE discount of 30%
- Aim for similar rates between the summer and winter seasons off-peak periods, and between the seasonal partial-peak TOU periods

[31] These rates are for illustration only. As DRA emphasized at the beginning of Appendix B, these bill calculator models have their limitations and thus the derived rates are only exemplary. Furthermore, it is not clear when the cost-based TOU rate should be implemented as it depends on many variables such as the revenue requirement, the cost, the customer load data, and the bill impacts. The actual rate design and the proper magnitude of baseline credit should be developed in the GRC phase 2 when the time to implement default cost-based TOU rate becomes appropriate.

Inputs:

To achieve these goals, the bill impact model inputs would be specified as follows:

- The cost-based TOU rate ratios are developed based on the results of the marginal cost analysis discussed in Appendix A.
- Based on SDG&E's GRC revenue requirement and marginal costs, the total cost-based rate should reflect a summer on-peak to off-peak rate differential of about 2.3 times and a summer semi-peak to off-peak rate differential of approximately 1.3 times. However, this result had to be arrived at somewhat by trial and error because SDG&E's model reflects the TOU component mainly in its commodity rate,[32] which represents less than half of the total rate. DRA ended up raising the summer commodity rate on-peak to off-peak ratio to 6.5 and the summer semi-peak to off-peak ratio to 2.6 to achieve the desired total cost-based summer TOU rates.[33]
- As with the other two utilities, DRA aimed to simplify the rate structure by equalizing the summer and winter rates in the same TOU period. This was done to reduce the summer to winter rate volatility. Based on the analysis in Appendix A, DRA moved enough of the revenue requirement assigned to the summer season to the winter season to approximately achieve this result.

[32] SDG&E's commodity rate consists of generation capacity and energy costs.

[33] These rations are consistent with SDG&E's marginal generation costs, when marginal generation capacity costs are mostly assigned to the summer peak period.

RESET INPUTS

Scenario 3: Cost-based TOU

Distribution - Two cost components: Customer costs and Distribution Demand costs

Action Required

Customer Cost: **Recover through energy rates**

**Rate recovery options: Basic Service Fee which is a $/month customer change or recovery through energy rates which also gives the option of having a minimum bill.*

Minimum Bill Amount ($/Day):	$0.17	<---- Enter $/day
Set Minimum Bill for Delivery Only or Total Bill:	Total	<---- Enter 'Delivery' or 'Total'

Distribution Demand: **Recover through energy rates**

**Rate recovery options: Non-Coincident Demand Charge which is a $/kW charge, Fixed Charge Demand Adder which is a $/month charge based on maximum demand, an*

Include SGIP, CSI, & Demand Response in: **Distribution Rate**

**This is only the movement of the current "miscellaneous distribution rate" to PPP or have it remain in Distribution. It does not affect the total rate.*

Commodity - Two cost components: Capacity costs and energy costs

Capacity: **Recover through energy rates**

**Rate recovery options: On-Peak Demand Charge which is a $/kW charge or recovery through energy rates.*

Energy: **Time-of-Use**

**Rate recovery options: Time-of-Use rates (On-peak, Semi-peak, Off-peak) or non time differentiated rates.*

Define TOU Periods by Ratio or Cent Differential:	Ratio	<---- Enter 'Ratio' or 'Cent'
Summer On/Off Relationship:	6.50	<---- Enter Ratio On-Peak/Off-Peak
Summer Semi/Off Relationship:	2.60	<---- Enter Ratio Semi-Peak/Off-Peak
Winter On/Off Relationship:	3.00	<---- Enter Ratio On-Peak/Off-Peak
Winter Semi/Off Relationship:	3.00	<---- Enter Ratio Semi-Peak/Off-Peak
Seasonal Rate Adjustment - Percent Difference of Seasonal EECC:	70%	<---- Enter %

**Adjusts the total rate differential between summer and winter. Currently all commodity capacity is in the summer, less than 100% makes the seasonal differential smaller*

Total Rate Adjustment Component (TRAC) - Choosing the tier structure

Number of Tiers:	2	<---- Enter 2, 3, 4 or Flat
% Differential or Cent/kWh Differential Between Tiers:	Cent	<---- Enter 'Percent' or 'Cent'
Tier 1 to Tier 2 Differential (Cents/kWh):	5.0	<---- Enter cents/kWh

*Not in compliance with SB695 Tier 1 and Tier 2 Levels

California Alternate Rates for Energy (CARE) - Choosing the low income assistance mechanism

Set pre-discount CARE Tier 1 and Tier 2 Rate equal non-CARE: <---- Enter 'Yes' or 'No'

**Option to set the pre-discount CARE rate equal to non-CARE rate minus DWR-BC, CSI, and CARE surcharge exemption. Currently the rates CARE customers pay include rat*

Type of CARE Discount: **Percent Discount**

**2 Options: % discount off the total bill or a $/month discount*

CARE Energy Discount % : 11% <---- Enter %

B3.(f) SDG&E Cost-Based TOU Rate Bill Impacts

1. SDG&E Cost-Based TOU: All Non-CARE Bill Impacts

Figures B3.13 and B3.16 show all Non-CARE monthly bill impacts in percentage and dollar terms based on the annual average of monthly bills in graphical and tabular forms. About 23% would see no change or a bill reduction. About 16% and 51% of customers would see 0% to 10%, and 10% to 20% increases. 60% could see $0 to $10 increases, and 14% see bill increases between $10 and $20 per month.

Figure B3.13 All Non-CARE Cost-Based TOU Rate

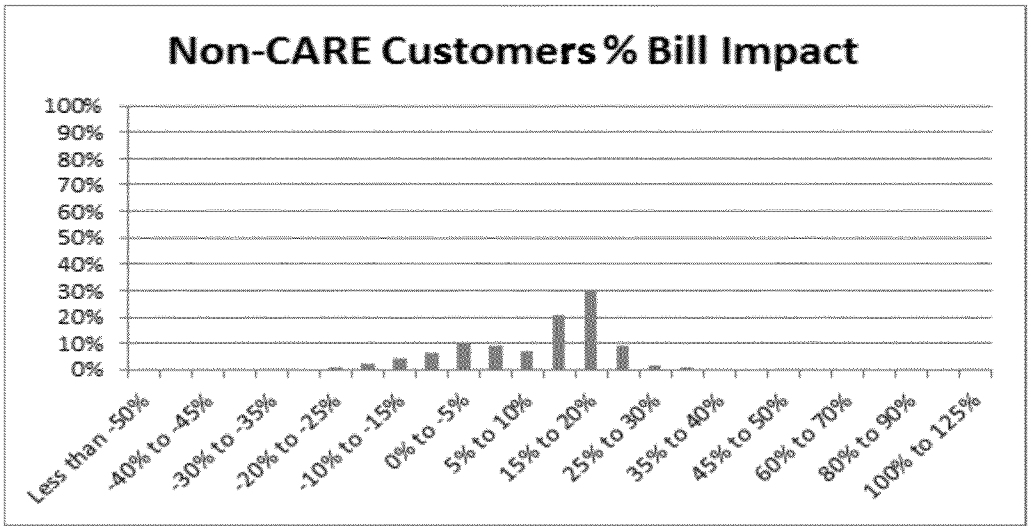

Figure B3.14 All Non-CARE Cost-Based TOU Rate

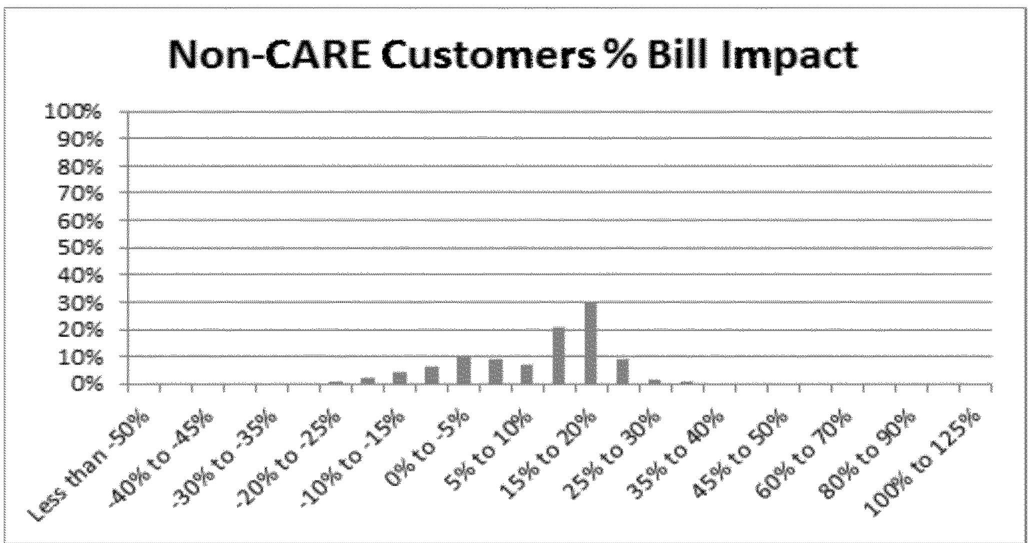

Figure B3.15 All Non-CARE Cost-Based TOU Rate

Non-CARE Bill Impa	% Non-CARE Customers	Average Monthly Chg in Bill	Number of customers
Less than -50%	0%	0	0
-45% to -50%	0%	0	0
-40% to -45%	0%	0	0
-35% to -40%	0%	0	0
-30% to -35%	0%	0	0
-25% to -30%	0%	0	0
-20% to -25%	0%	-220	2,847
-15% to -20%	2%	-57	24,266
-10% to -15%	5%	-40	47,176
-5% to -10%	6%	-15	63,987
0% to -5%	10%	-3	100,977
0% to 5%	9%	2	95,284
5% to 10%	7%	7	69,672
10% to 15%	21%	8	213,554
15% to 20%	30%	8	304,310
20% to 25%	9%	9	91,995
25% to 30%	1%	8	12,733
30% to 35%	0%	26	3,660
35% to 40%	0%	0	0
40% to 45%	0%	0	0
45% to 50%	0%	0	0
50% to 60%	0%	0	0
60% to 70%	0%	0	0
70% to 80%	0%	0	0
80% to 90%	0%	0	0
90% to 100%	0%	0	0
100% to 125%	0%	0	0
Total			1,030,462

Figure B3.16 All Non-CARE Cost-Based TOU Rate

Non-CARE Dollar Impact	% Customers
> -$30	6%
-$30 to -$20	3%
-$20 to -$10	5%
-$10 to -$0	11%
$0 to $5	28%
$5 to $10	32%
$10 to $15	10%
$15 to $20	4%
$20 to $30	2%
$30 to $50	0%
$40 to $50	0%
> $50	0%

2. SDG&E Cost-Based TOU: All CARE Bill Impacts

Figures B3.17 and B3.20 show all CARE monthly bill impacts, based on annual average bill impacts, in percentage and dollar terms and in graphical and tabular forms. About 21% and 53% customers would see bill increases between 0% and 10% and between 10% and 20% respectively. Around 26% could face bill increases of more than 20%. About 85% may see $0 to $10 bill increases, and 9% may see between $10 - $20 increases per month.

Figure B3.17 All CARE Cost-Based TOU Rate

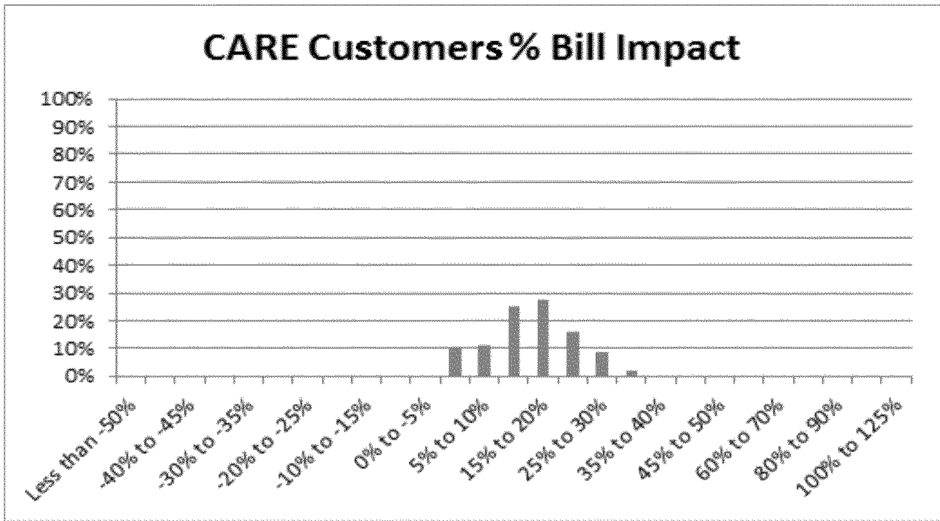

Figure B3.18 All CARE Cost-Based TOU Rate

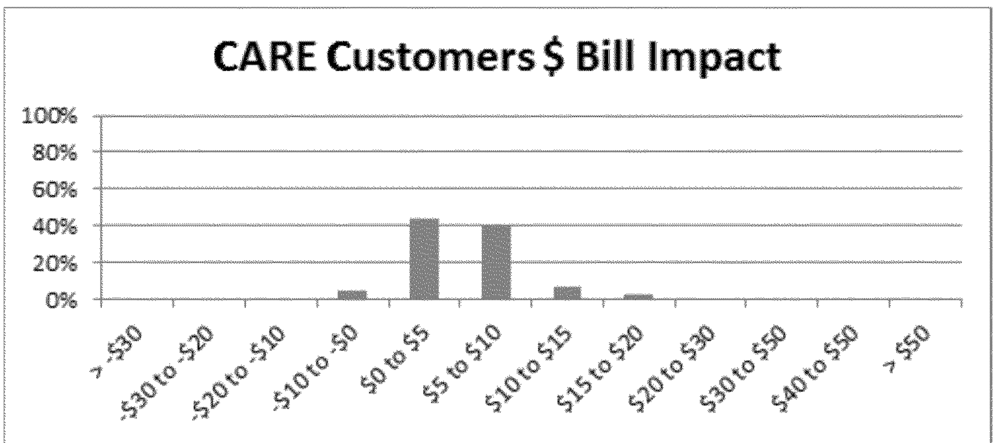

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Figure B3.19 All CARE Cost-Based TOU Rate

CARE Customer Bill Impact	% CARE Customers	CARE Average Monthly Chg in Bill	Number of customers
Less than -50%	0%	0	0
-45% to -50%	0%	0	0
-40% to -45%	0%	0	0
-35% to -40%	0%	0	0
-30% to -35%	0%	0	0
-25% to -30%	0%	0	0
-20% to -25%	0%	0	0
-15% to -20%	0%	0	0
-10% to -15%	0%	0	0
-5% to -10%	0%	0	0
0% to -5%	0%	0	0
0% to 5%	10%	2	19,246
5% to 10%	11%	6	22,097
10% to 15%	25%	7	48,518
15% to 20%	28%	6	53,795
20% to 25%	16%	8	31,030
25% to 30%	8%	8	16,394
30% to 35%	2%	14	3,660
35% to 40%	0%	0	0
40% to 45%	0%	0	0
45% to 50%	0%	0	0
50% to 60%	0%	0	0
60% to 70%	0%	0	0
70% to 80%	0%	0	0
80% to 90%	0%	0	0
90% to 100%	0%	0	0
100% to 125%	0%	0	0
Total			194,741

Figure B3.20 All CARE Cost-Based TOU Rate

CARE DollarImpact	% Customers
> -$30	0%
-$30 to -$20	0%
-$20 to -$10	0%
-$10 to -$0	5%
$0 to $5	44%
$5 to $10	41%
$10 to $15	7%
$15 to $20	2%
$20 to $30	0%
$30 to $50	0%
$40 to $50	0%
> $50	0%

APPENDIX C: ILLUSTRATIVE BILL

ENERGY STATEMENT

www.pge.com/MyEnergy

11/16 DRAFT

Account No: 1023456789-0
Statement Date: mm/dd/yyyy
Due Date: mm/dd/yyyy

Details of Electric Charges

mm/dd/yyyy - mm/dd/yyyy (31 billing days)

Service For: 1234 Main Street
Service Agreement ID: 9087654321
Rate Schedule: E1 TH [Rate Description]

mm/dd/yyyy - mm/dd/yyyy	Your Tier Usage	1	2	3	4

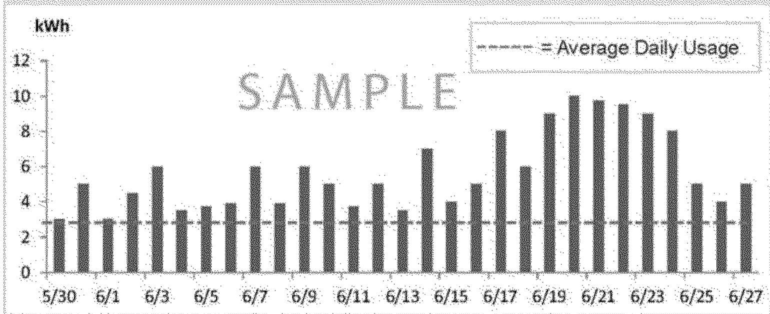
Tier 1 Allowance	xxx.xx	kWh	(## days x #.# kWh/day)			
Tier 1 Usage	xx.xxxxxx	kWh	@	$ 0.143	$	xx.xx
Tier 2 Usage	xx.xxxxxx	kWh	@	$ 0.229		xx.xx
Tier 3 Usage	xx.xxxxxx	kWh	@	$ 0.291		xx.xx
Peak Usage Surcharge	xx.xxxxxx	kWh	@	$ 4.000		xx.xx
Off-Peak Usage Credit	xx.xxxxxx	kWh	@	$ 0.600		xx.xx
Energy Commission Tax						xx.xx
Utility Users' Tax (x.xx%)						xx.xx

mm/dd/yyyy - mm/dd/yyyy	Your Tier Usage	1	2	3	4

Tier 1 Allowance	xxx.xx	kWh	(## days x #.# kWh/day)			
Tier 1 Usage	xx.xxxxxx	kWh	@	$ 0.143	$	xx.xx
Tier 2 Usage	xx.xxxxxx	kWh	@	$ 0.229		xx.xx
Tier 3 Usage	xx.xxxxxx	kWh	@	$ 0.291		xx.xx
Peak Usage Surcharge	xx.xxxxxx	kWh	@	$ 4.000		xx.xx
Off-Peak Usage Credit	xx.xxxxxx	kWh	@	$ 0.600		xx.xx
Energy Commission Tax						xx.xx
Utility Users' Tax (x.xx%)						xx.xx

Total Electric Charges **$xx.xx**

Electric Usage This Period: xxx kWh, xx billing days



Visit www.pge.com/myenergy for a detailed bill comparison.

Service Information

Meter #	1098765432
Current Meter Reading	x,xxx
Prior Meter Reading	x,xxx
Total Usage	xxx kWh
Baseline Territory	T
Heat Source	Electric
Serial	x
Rotating Outage Block	x

Additional Messages

Page X of Y
Recycled Paper
30% Post-Consumer Waste

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APPENDIX D: ILLUSTRATIVE CALCULATION OF TOU RATE BENEFITS

Most economists agree that residential consumers, as a group, will reduce their peak electricity demands in response to higher peak-hour electricity prices.[34] Numerous studies of time varying electricity prices have shown this effect. The benefits of TOU pricing stem largely from peak demand reduction; DRA presents an estimate of these benefits based on recent research by the Brattle Group.

In 2012, the Brattle Group presented A Meta-Analysis of Dynamic Pricing Studies-Some Initial Findings, by Ahmad Faruqui, Sanem Sergici, and Eric Shultz. This study presents the findings of 33 electricity pricing studies containing 151 pricing and technology treatments.[35] The analysis constructs a regression equation that relates the percentage peak demand reduction to the ratio of peak to off-peak electricity prices. It finds that there is a statistically significant positive relationship between the price ratio and load reduction,[36] but with diminishing returns as the price ratio increases. The analysis also finds that the load reduction is significantly enhanced when enabling technology is present.

The authors used regression to estimate the following relation:

Peak Demand Reduction[37] = 0.0543 + 0.0455*ln (price ratio)
+ 0.0583*ln(price ratio*tech)
Adjusted R-Squared = 0.3796

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[34] An NRRI literature survey, How to Induce Customers to Consume Energy Efficiently: Rate Design Options and Methods, p.63, by Adam Pollock and Evgenia Shumilkina of the National Regulatory Research Institute, identified electricity demand elasticity is about 0.7 in the long run and 0.2 in the short run.

[35] Of the 151 treatments, 83 are characterized as "price only" and 68 as "price and enabling technology"

[36] That is, the percentage load drop increases with price ratio.

[37] "ln (x)" denotes the natural logarithm of x. "tech" is a binary variable equal to 1 if enabling technology is present, zero otherwise.

Based on the results of this regression analysis, the Brattle Group estimated the peak demand reductions, for price ratios of 5 and 10, which is a typical range for critical peak pricing ("CPP") studies. However, the studies that underlie the meta-analysis also included TOU treatments, which typically have smaller price ratios than CPP treatments. Table D-1 includes the load reductions estimated by the authors, along with the load reduction for a price ratio of 2.5, typical of a well-differentiated TOU rate design.

Table D-1

Price Ratio (Peak to Off-Peak)	Percentage Peak Demand Reduction	
	Price-Only	Price with Enabling Technology
2.5	9.6%	14.9%
5	12.8%	22.1%
10	15.9%	29.3%

DRA incorporated a value of 2.5 into its illustrative preferred end-target cost based TOU rate. The table shows strong effect of diminishing returns, for the price-only studies, as the price ratio increase beyond the value of 2.5.

While these effects are quite striking, it is not at all clear that these levels of price response can be achieved in a large-scale rollout of time-varying pricing. The authors characterize the pricing studies as follows:

> *Some of these have been randomized experiments, some have been quasi experiments, some have been demonstrations and some have been full scale deployments" but, of the 33 studies, only four are characterized as "full scale rollouts".*

Several caveats are in order. First, with an R-Squared value of about 0.38, the confidence intervals about the forecast load reduction percentages would be wide, reflecting considerable uncertainty in those estimates. Second, various forms of bias can be introduced into such studies that would make the results not representative of the larger population. One example of bias is "self-selection bias." This is where the participant opts into the study and thus may be more enthusiastic about the rate than would be customers who are involuntarily placed on the rate. Third, few jurisdictions have inclining block rates as steep as those in California. Due to California IOU inclining block rates, many customers already experience rates that are comparable to the 40-cent summer on-peak rate in DRA's illustrative cost-based TOU rate design. Such customers may not notice a significant bill increase when switching to cost-based TOU, and may not, therefore, reduce their peak load. In general, therefore, the results in Table D-1 must be caveated as less than definitive.

Nevertheless, if TOU rates can achieve, on a large scale, something approaching the 9.6% peak load reduction indicated by the Brattle Group's regression equation, the resulting benefits would be large. The benefits would be significant even if no net conservation[38] results from the TOU rate. That is, all or most of the load might be merely shifted out of the peak period to a shoulder or off-peak period. Given this possibility, DRA analyzes two cases: (1) No net conservation, and (2) A 5% net conservation case, in which 95% of the drop in peak load returns in the non-peak periods. The following categories of benefits are tabulated:

- Peak demand reduction (MW)
- Peak period electric usage reduction (MWH)
- Total electric usage reduction (MWH)
- Natural gas power plant fuel consumption reduction (MMBtu)
- Greenhouse Gas emissions reduction (tons CO2 equivalent)
- Dollar value of societal benefits.

[38] The Brattle Group's "Time-Varying and Dynamic Rate Design" by Ahmad Faruqui, Ryan Hledik, and Jennifer Palmer (Study No. 6 cited above) states "The result is little or no conservation effect from time-varying rates alone". However, this conclusion is based primarily on CPP studies exposing customers to high prices for only 50 to 100 hours per year. The authors acknowledge that older TOU studies did find some conservation. Further, it is unclear whether the studies discussed in the Brattle report captured longer-term conservation effects due to energy efficiency upgrades to the building shell and energy-using appliances.

If a 9.6% peak load reduction could be achieved with a hypothetical statewide rollout of TOU rates, the peak load reduction would be on the order of 2,000 MW, equal the capacity of one of California's nuclear generating stations.

Table D-2: Hypothetical TOU Benefits of a Statewide TOU Rollout (Based on Ten Million Participants)

Case	MW Reduction	Peak MWH Reduction	Total MWH Reduction	Natural Gas Reduction (MMBtu)	GHG Reduction (tons CO2eq.)	Dollar Value
0% Conservation	2,400	1,439,870	-	4,319,610	234,490	$ 169,075,000
5% Conservation	2,400	1,439,870	71,990	4,823,560	261,850	$ 172,142,000

The heat rates, gas prices, and CO2 reduction per Btu of gas saved, and other parameters which were used in these calculations, are shown in Table D-3. DRA's analysis also used the price-only 9.6% peak load reduction predicted from the meta-analysis, for a 2.5 price ratio.

As discussed above, these results need to be taken with significant caveats. Nevertheless, Table D-2 could be seen as an upper bound for the benefits obtainable by TOU. They are more likely obtainable when TOU rates are combined with enabling technology. As shown in Table D-1, the Brattle results indicate that technology boosts the performance of price variation by perhaps 50%.

In conclusion, a cost-based TOU rate could confer very significant benefits in terms of both peak demand reduction and GHG reduction, as well as reduce future costs of generation capacity.

Table D-3: Parameters Assumed for Table D-2

Average demand per customer (600 summer peak hours)	2.5 kW
Marginal generation fuel (all hours)	natural gas
Marginal heat rate (average over 600 summer peak hours)	10,000 Btu/kWh[39]
Marginal heat rate (Summer off-peak)	7,000 Btu/kWh
Avoided cost of Generation Capacity (annual)	$85 per kW--year
Capacity adjustment factor (for limited hours of operation)	TOU: 70%
Natural Gas Fuel Cost	$5 per MMBtu
Value of GHG emissions	$20 per ton CO2 eq.

[39] PG&E's 2014 GRC Phase 2 workpapers indicate an average "effective market heat rate" of 9,100 Btu/kWh over its 774-hour summer peak period, compared with a corresponding average of 5,400 Btu/kWh during summer weekday non-peak hours. The 41% peak-to-non-peak difference in PG&E's data suggests that the 30% heat-rate difference assumed by DRA is conservative.