

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

Order Instituting Rulemaking on the Commission's
Own Motion to Conduct a Comprehensive
Examination of Investor Owned Electric Utilities'
Residential Rate Structures, the Transition to Time
Varying and Dynamic Rates, and Other Statutory
Obligations.

Rulemaking 12-06-013
(Filed June 21, 2012)

**REPLY COMMENTS OF THE INTERSTATE RENEWABLE
ENERGY COUNCIL, INC. ON RESIDENTIAL
RATE DESIGN PROPOSALS**

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TABLE OF CONTENTS

I.	IREC’s Response to Parties’ Comments on the Role of Policy in Rate Design.....	2
A.	Fixed Customer Charges Frustrate Multiple Public Policy Goals.....	3
	<i>1. The Negative Impact of Customer Charges on NEM Customers Is Well Established in the Record.....</i>	<i>3</i>
	<i>2. Increasing Reliance on Customer Charges Will Set a Precedent that Harms Conservation Goals.....</i>	<i>5</i>
B.	Modifications to NEM Policy Are Outside of the Scope of this Proceeding.....	5
II.	Analysis of SDG&E Illustrative Rates.....	6
III.	Analysis of Proposals by Joint Solar Parties, Sierra Club and DRA.....	7
IV.	Reply to Parties’ Comments on IREC’s CleanCARE Proposal.....	12
V.	Conclusion.....	12

Appendix A: IREC Modeling Results for Illustrative SDG&E Rates

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Pursuant to the Administrative Law Judge's March 19, 2013 Ruling Requesting Residential Rate Design Proposals (March 19 Ruling), and subsequent rulings modifying the procedural schedule for filing deadlines, the Interstate Renewable Energy Council, Inc. (IREC) respectfully submits its reply comments on the impacts of parties' residential rate design proposals on existing and prospective net energy metering (NEM) customers. In this reply, IREC begins by addressing limited aspects of the opening comments of the Utility Reform Network (TURN), the Division of Ratepayer Advocates (DRA), Natural Resources Defense Counsel (NRDC), the Sierra Club, and the joint comments of the Center for Accessible Technology and Greenlining Institute (CforAT&GI). In Section II, IREC analyzes how the illustrative rates filed by San Diego Gas & Electric Company (SDG&E) on July 15, 2013 would impact NEM customers, and provides detailed analysis of the SDG&E illustrative rates in Appendix A. In Section III, IREC provides additional analysis on the bill impacts of the proposal put forward by the Solar Energy Industries Association and the Vote Solar Initiative (Joint Solar Parties) and the Sierra Club. In Section IV, IREC replies to parties' comments on its CleanCARE proposal.

I. IREC's Response to Parties' Comments on the Role of Policy in Rate Design

IREC's primary purpose in this proceeding is to provide quantification of bill impacts of specific rate design components for the Public Utilities Commission (Commission). Through our consideration of party proposals, IREC has narrowed its analysis to two focal points in this proceeding: the consideration of fixed customer charges and the general transition toward some form of time-variant pricing for residential customers. IREC's opening comments emphasized the negative impacts of fixed customer charges on the conservation price signals that support customer investment in distributed generation (DG). IREC's analysis also revealed that the value of NEM is highly sensitive to how peak time-of-use (TOU) periods are defined, an important consideration for the Commission given the high number of time-variant proposals in the record. With these two structural rate component changes on the table—and in light of the impacts on NEM and conservation price signals—the Commission faces threshold policy questions in choosing among the various, competing proposals.

In response to parties' opening comments regarding the role of policy in the future of residential rate design, IREC acknowledges that balancing complex priorities is required and that no single policy objective or any one party's interest should dominate the conversation. In the case of fixed customer charges, however, IREC is impressed by the chorus of diverse perspectives that have coalesced against fixed customer charges as a part of future residential rate design. The uniform opposition to fixed charges by nearly every non-utility party¹ suggests that fixed customer charges are contrary to multiple policy concerns, and that the Commission has more than enough reasons to conclude that fixed charges are not the best path forward.

IREC also notes the high level of agreement that rate structures should slowly evolve toward a time-variant method of rate design. While there is some debate about phasing and whether or how to make time-variant rates mandatory, there is general agreement that time-variant rates can provide a more accurate reflection of marginal costs and provide a better canvas to illustrate a rate design based on cost-causation principles.

Lastly, IREC encourages the Commission to disregard suggestions or proposals by parties to modify current NEM practices or to consider unique charges for NEM customers that are currently prohibited by Public Utilities Code Section 2827.

¹ CLECA was the only non-utility party to put forward a customer charge in its rate proposal.

A. Fixed Customer Charges Frustrate Multiple Public Policy Goals

Parties in this proceeding have vigorously established the case against fixed customer charges as a necessary tool of ratemaking. IREC agrees with the principle that multiple parties expressed that fixed charges do not support conservation because the imposition of a customer charge tends to weaken the strength and dull the clarity of the conservation price signal for customers with the highest usage.² It is intuitive that customers with high usage are most likely to have the ability to change behaviors to reduce consumption by engaging in energy efficiency or by installing onsite generation to meet some portion of onsite load. IREC also agrees with CforAT&GI that when customer charges are imposed on customers with low usage, a customer charge can result in a disproportionately large increase, on a percentage basis, in customers' bills.³

1. *The Negative Impact of Customer Charges on NEM Customers Is Well Established in the Record*

The Commission has no shortage of data in the record to conclude that fixed customer charges do not support current NEM policy. IREC's analysis in opening comments provides a clear illustration of the negative bill impacts on NEM, expressed as a distribution of bill impacts for customers in each of the utility areas with varying amounts of solar DG installed.⁴ In a different approach, the Sierra Club performed a "break-even" analysis for distributed PV comparing the levelized cost of energy (LCOE) from distributed photovoltaics (PV) to the LCOE from the utilities under various rate design proposals using customer sample data from the PG&E Bill Impact Calculator.⁵ The Sierra Club estimated the kWh for which PV's LCOE would be lower than a utility's LCOE and used this as a metric for comparison of the impact of the rate proposals on the value of NEM.⁶ IREC appreciates the Sierra Club's thorough analysis and believes that the combination of these presentations will assist the Commission in forming a

² See, e.g., DRA Opening Comments at p. 8 (Noting that SDG&E's proposal would shave \$0.073/ kWh off of volumetric rates and could lead to an 8% spike in demand in the short run); CforAT&GI Opening Comments at p. 10 (customer charges lower upper-tier rates and encourage high-usage consumption);

³ CforAT&GI Opening Comments at p. 9.

⁴ The IREC approach includes customer sample data from PG&E, SCE and SDG&E and is closer in concept to the bill impact calculators developed by the IOUs.

⁵ Sierra Club Comments, p. 18.

⁶ Sierra Club Comments, p. 18.

conclusion about the impact that various rate design proposals are expected to have on the value of NEM.

For example, the Sierra Club finds that “[e]ven a \$5 fixed charge negatively impacts incentives for EE and rooftop solar. These impacts only become more severe as the fixed charges increase.”⁷ These results are consistent with IREC’s conclusion in opening comments that “even the more modest \$5 monthly customer charges will have a significant adverse effect on the value of NEM”⁸ and that larger customer charges, such as SCE’s proposed \$15-\$20 monthly customer charge, can result in average bill increases in excess of 100% for customers with large solar installations.⁹

As a follow up to our opening comments, IREC has preformed additional analysis, provided in Appendix A, on SDG&E’s illustrative end-state fixed customer charge of \$38.42/month. Consistent with the Sierra Club analysis as described in its Opening Comments, our analysis finds that the impacts of a customer charge become more severe as the monthly charge increases. IREC finds that SDG&E’s illustrative end-state customer charge would increase bills for customers with large solar installation by an average of roughly 200%; over 90% of those customers’ bills would more than double if such a large fixed charge were imposed.¹⁰

“Large solar customers”—defined for purposes of our model as customers who meet 80% of load with output from a NEM system—see the largest bill impacts based on SDG&E’s illustrative rates on a percentage basis, but smaller solar customers (meeting 40% of load) will typically face much greater absolute bill increases as a result of fixed customer charges. While a 50% bill increase may not seem as severe when taking into account the absolute value of the bill change for large solar customers, these increases are not trivial when considered along the full range of solar customers. For example, when looking at the absolute amount of bill increases that “small solar customers” could face under SCE’s end-state TOU rate, our analysis shows that 47% of inland customers would see a bill increase of \$15 or more, with 17% of those customers

⁷ Sierra Club Comments, p. 3.

⁸ IREC Comments, p. 10.

⁹ IREC Comments, Appendix A, p. 14.

¹⁰ See Appendix A to this reply for a full description of IREC’s modeling of SDG&E’s illustrative rates and discussion of the results.

facing an increase of \$25 or more. Arguments about the size of the customer charge or the scale of impacts aside, there is no debate that the impacts of imposing customer charges are wholly negative for NEM customers.

2. *Increasing Reliance on Customer Charges Will Set a Precedent that Harms Conservation Goals*

IREC is concerned by the possibility of the Commission setting a precedent that collection of fixed customer costs should be accomplished through a fixed charge. As demonstrated in several parties' opening comments, the very definition and scope of what constitutes customer costs is the subject of fairly extensive and esoteric debate.¹¹ Compared to average per-customer fixed costs reported by Southern California Edison (SCE) and Pacific Gas & Electric Company (PG&E), those utilities suggest that their fixed charge proposals are modest. IREC notes, however, that the illustrative rates provided by SDG&E, while not intended to represent an actual proposal, provides a cautionary tale for the Commission against choosing to go down this path. If utilities begin to collect more and more per customer fixed costs, as they perceive them, through fixed charges, SDG&E's illustrative \$38.42 monthly charge might not be far-fetched. If the Commission's starting premise is that fixed costs are most appropriately collected through fixed charges, it is conceivable that utilities will eventually want to collect all fixed costs (again, as they perceive them) through such a mechanism. As illustrated below, if SDG&E's end-state illustrative rates were put into effect, the results would be disastrous for NEM customers. Fixed customer charges, in this way, could threaten to upend the Commission's policy of ensuring that California's conservation-related policy goals are not hindered by the imposition of fixed charges.

B. Transition to Time-Variant Pricing

As IREC noted in its opening comments, and as discussed at more length in IREC's analysis of the Joint Solar Parties' and the Sierra Club's proposals in Section III, the transition to time-variant rates is not necessarily positive for the relative value of NEM to existing customers.

¹¹ See, e.g., DRA Opening Comments at pp. 8-13; NRDC Opening Comments at p. 4; Joint Solar Parties Opening Comments at pp. 7-8.

The value of NEM is sensitive to how TOU periods are defined.¹² As argued in our opening comments, IREC supports using residential TOU periods that are aligned with overall system peak.

Additionally, in the case of tiered-TOU proposals, IREC observes that steeply inclining tiers can lead to greater differences in bill impact distributions among climate zones, when compared to TOU pricing that is not tiered or that has a baseline credit in lieu of multiple inclining tiers. IREC believes that either approach can be successfully implemented, but provides its analysis in Section III to illustrate the impacts of the different approaches put forward for TOU pricing.

C. Modifications to NEM Policy Are Outside of the Scope of this Proceeding

The Commission should give no weight to statements in opening comments and proposals¹³ that would require changes to Public Utilities Code Section 2827, which protects NEM customers from additional charges that non-participating customers do not have to pay.¹⁴ As noted in IREC's opening comments, the future and character of the NEM program in California is being discussed in at least one other forum at the Commission, and IREC agrees with the consciously narrow scope of this proceeding in regards to the impacts of rate proposals on NEM.

II. Analysis of SDG&E Illustrative Rates

To help respond to the Commission's question regarding the impact that party rate design proposals will have on the value of NEM facilities, IREC has developed a bill impact model for NEM customers in each of the three IOU service areas. The models for PG&E and SCE were described in IREC's opening comments filed on July 12, 2013. On July 15, 2013, in response to

¹² IREC Opening Comments at p. 14 (“Under PG&E’s residential TOU tariff, in winter more than 99% of solar is generated in the off-peak period, as the part-peak falls largely after daylight hours.”).

¹³ *See, e.g.*, TURN Opening Comments at p. 52 (suggesting that an alternate rate design option to compensate for the value of solar, including charges for the use of the grid); NRDC Proposal at p. 24 (discussing a potential distribution use charge for NEM customers).

¹⁴ In his January 18, 2012 Scoping Ruling in A.11-10-002 (SDG&E Ph II GRC), Commission Ferron rejected a “network use charge” directed at NEM customers as out of scope, but indicated serious concerns that such a “new charge” would violate Public Utilities Code Section 2827. Scoping Ruling at p. 7.

a request from the Commission, SDG&E filed a supplemental response to the ALJ’s Ruling Ordering Parties to Submit Additional Information for Rate Design Proposals, Confirming Workshop Date, and Setting Forth Format for Comments. In the July 15 filing SDG&E provided a series of detailed illustrative rates that could be analyzed in the IREC model. In response to this additional information, IREC has analyzed the impact that SDG&E’s illustrative rates would have on the value of NEM. The results of this analysis are similar to that shown in our opening comments for the other two utilities and are provided in detail in Appendix A.

As described by SDG&E, the rates provided in its July 15th filing do not represent a firm proposal for an optimal rate design but rather illustrate “the kinds of transition steps that could be taken in the future together with associated illustrative bill impacts that could result from individual components of SDG&E’s Optional Rate Design Proposal.”¹⁵ With this understanding of the purpose of the SDG&E filing, IREC believes it is useful to examine the potential NEM bill impacts of SDG&E’s illustrative rates in a similar manner to our analysis of the proposals by SCE and PG&E.

SDG&E’s illustrative rates include a fixed monthly customer charge that rises from \$7.38 to \$38.42 for both an increasing block rate and TOU rate. IREC’s analysis shows that, consistent with our findings for the \$10 customer charge proposed by PG&E and the \$5-\$20 monthly customer charges proposed by SCE, even the smallest of SDG&E’s illustrative customer charges would have a significant and adverse impact on the value of NEM. SDG&E’s illustrative end-state customer charge would have a severe negative impact on bills for customers with large solar installations, with increases averaging roughly 200%; over 90% of NEM customers’ bills would more than double under such a rate structure.

III. Analysis of Proposals by Joint Solar Parties, Sierra Club and DRA

The proposals described in workshops and opening comments largely focus on the extent to which the current increasing block structure should be modified and whether TOU-related rate elements should be introduced. The results of the IREC modeling show that NEM value is sensitive to the details of TOU rate design including the extent to which an underlying tiered rate structure or baseline credit is maintained.

¹⁵ SDG&E Supplemental Response, July 15, 2013, p. 3.

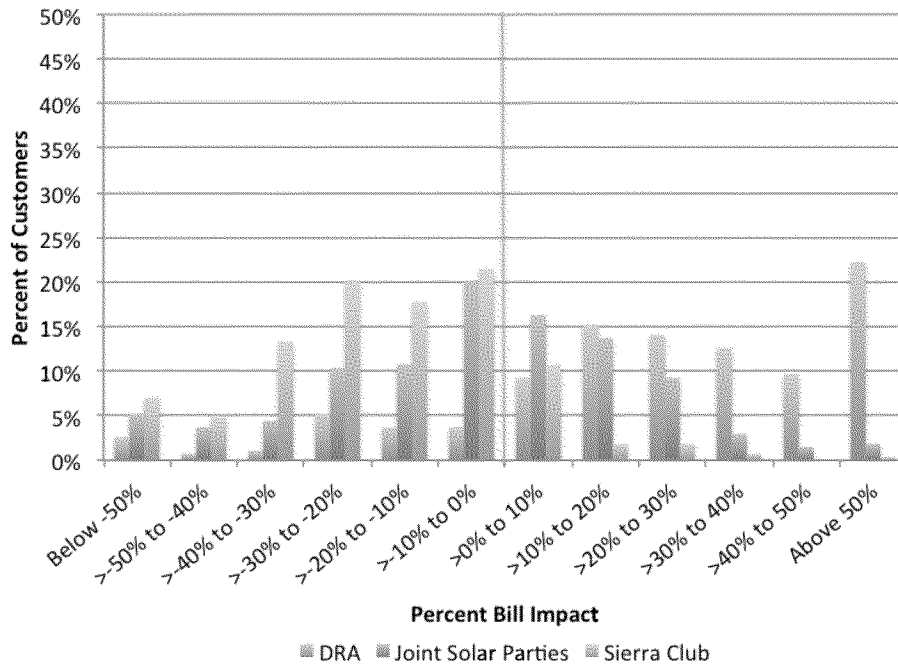
In addition to the utilities' proposals, IREC has examined the proposals of the Joint Solar Parties, the Sierra Club and the DRA. Each proposal incorporates a TOU rate with an underlying tiered structure or baseline credit. These proposals were found to have a varying impact on the value of NEM facilities. Consistent with the findings described in the Sierra Club Opening Comments,¹⁶ IREC found that the steeper tiers and baseline credits incorporated in the proposals of the Joint Solar Parties and Sierra Club would have a positive impact on the distribution of NEM bill impacts when compared to the DRA TOU proposal, which includes a smaller baseline credit of 5 cents/kWh.

As described in IREC's Opening Comments, the DRA TOU rate proposal may have a substantial negative impact on some classes of NEM customers, such as those with large solar installations in PG&E's inland climate zones.¹⁷ By comparison, the IREC modeling of the end-state TOU proposal of the Joint Solar Parties, which includes a baseline credit of 9.9 cents/kWh, finds that a TOU proposal with a larger baseline credit can be implemented with a more moderate impact on the value of NEM. The Sierra Club proposal, which includes a 3-tiered rate structure, in turn has a more positive impact on the value of NEM for the PG&E inland area customer sample. The estimated bill impacts of each of these proposals on customers with large solar installations in the PG&E inland customer sample are illustrated in Figure 1.

¹⁶ Sierra Club Comments, p. 3.

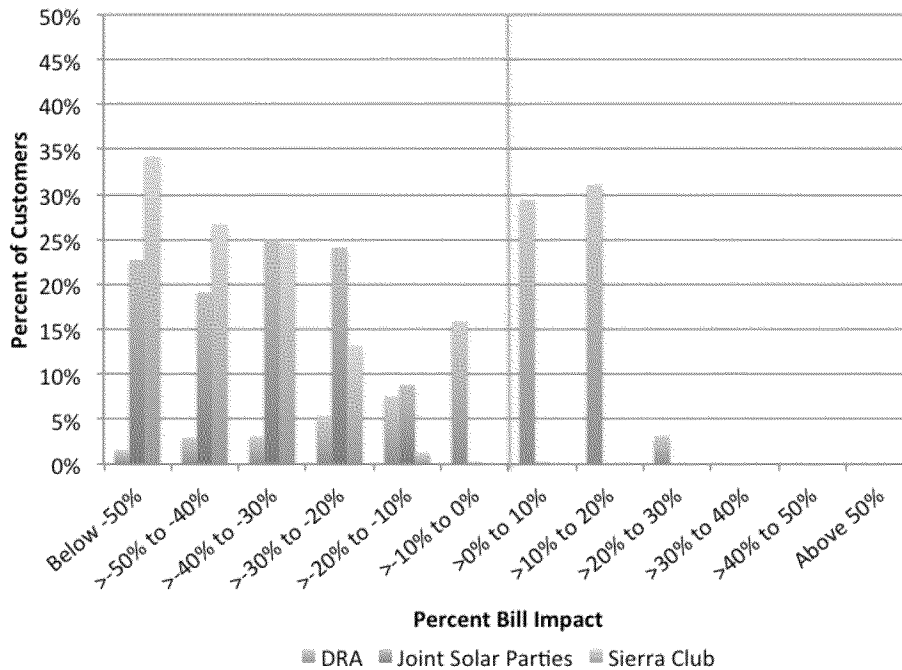
¹⁷ IREC Comments, Figure 2, p. 14.

Figure1: Impacts of TOU Rates Proposed by DRA, Joint Solar Parties and Sierra Club in Relation to PG&E Current Rates, Large Solar Inland Customers



For comparison, the bill impacts on the PG&E coastal customer sample for those same three TOU rate designs are more generally positive, as shown in Figure 2 (again, for customers with solar installations that meet 80% of load). This result is consistent across the three utility models and is primarily due to the relatively lower consumption during peak TOU periods in coastal areas in comparison with inland areas, presumably due to lower air conditioning loads in coastal areas. As shown in Figure 2, the relative NEM impacts of the proposals of the DRA, the Joint Solar Parties and the Sierra Club are consistent with the relative impacts shown for inland customers. Similar results are seen in our modeling of SCE and SDG&E, in which TOU rate proposals with a more substantial baseline credit were shown in our opening comments to have a positive impact on the value of NEM.

Figure 2: Impacts of TOU Rates Proposed by DRA, Joint Solar Parties and Sierra Club in Relation to PG&E Current Rates, Large Solar Coastal Customers¹⁸



The IREC NEM impact modeling confirms the significance of a tiered rate structure for the value of NEM facilities. However, analysis of the rate proposal of the Joint Solar Parties demonstrates that a TOU proposal that includes a significant baseline credit can be implemented with relatively minor impacts on the value of NEM. To illustrate this, the NEM bill impacts of moving from the current rate structure to the Joint Solar Parties’ end-state TOU proposal are shown for the SCE customer samples in Figure 3 and Figure 4 below. Results are similar in the PG&E and SDG&E models.

¹⁸ Again, large solar customers are defined in this context as customers who offset roughly 80% of their annual consumption with a solar PV system. In comparison to inland customers, coastal customers have lower average annual consumption, and do not need as large of a PV system to meet 80% of their load.

Figure 3: Bill Impacts of Joint Solar Parties' End-State TOU Rate in Relation to SCE Current Rates, Coastal Customers

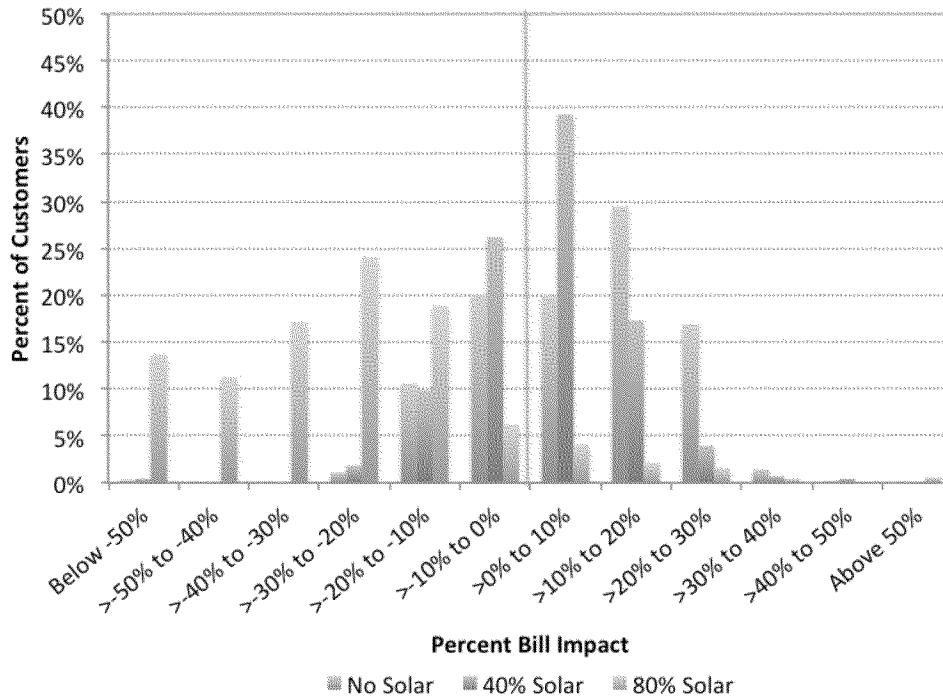
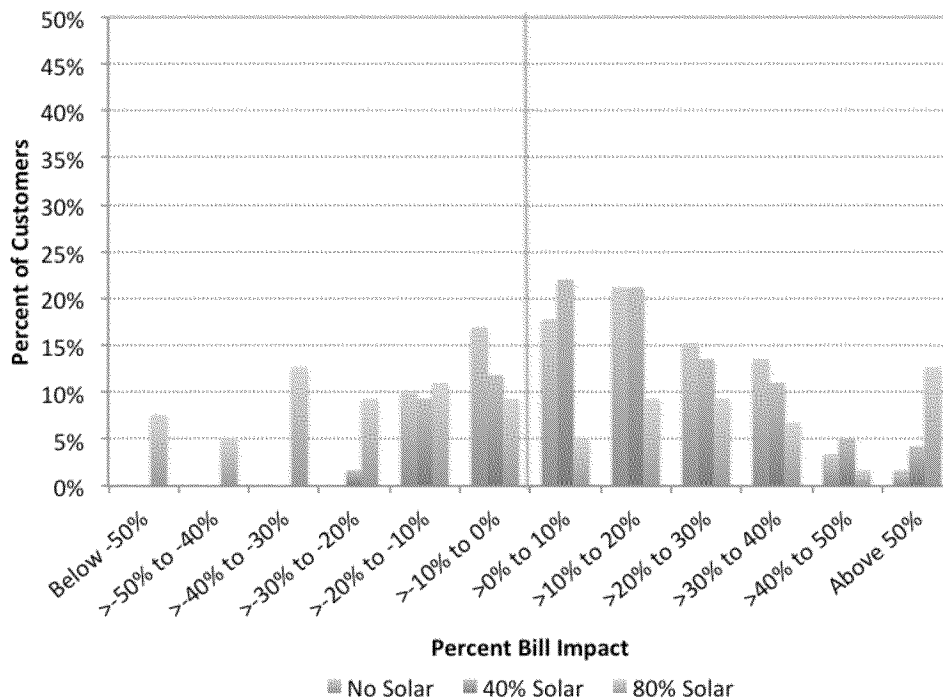


Figure 4: Bill Impacts of Joint Solar Parties' End-State TOU Rate in Relation to SCE Current Rates, Inland Customers



As described in IREC’s opening comments, NEM impacts are highly sensitive to the definition of the TOU periods in a time-differentiated rate structure. Several parties in this proceeding have addressed the potential for future peak-period shifting. However, as noted by the Joint Solar Parties, “any changes to the present TOU periods and rate design must be based on actual data on load profile changes, not speculative forecasts.”¹⁹ As residential rates transition to a time-differentiated rate structure the Commission should closely monitor the definition of TOU periods and provide sufficient lead time for all residential customers, including NEM customers, to adapt to any changes in TOU period definition.

IV. Reply to Parties’ Comments on IREC’s CleanCARE Proposal

In our opening comments, IREC put forward a proposal called CleanCARE to begin a discussion with stakeholders regarding how the CARE program could be reimaged to better align with state policy priorities regarding energy efficiency and renewable energy. IREC appreciates the comments of The Alliance for Solar Choice supporting further exploration of the CleanCARE proposal. We appreciate the concerns raised the Division of Ratepayer Advocates and their openness to offering DG programs to low-income communities. We believe the concerns raised by DRA are addressable prior to the launch of any DG program focused on low-income communities and we look forward to discussing those concerns further should the Commission decide that the CleanCARE proposal has merit. IREC’s goal in offering CleanCARE for consideration in this docket was to present one idea for bringing DG to low-income communities in a way that leverages current state support with shared renewables programs, energy efficiency and, possibly, storage, to create a new program offering.

V. Conclusion

IREC appreciates the opportunity to submit reply comments and encourages the Commission to reject proposals to institute fixed customer charges as a matter of course, as those charges are contrary to conservation and other state policies, as illustrated by the data analysis of IREC and Sierra Club. IREC encourages the Commission to consider the sensitivities of NEM to TOU period definitions in recommending a transition toward time-variant rates.

¹⁹ Joint Solar Parties Comments, p. 14.

Respectfully submitted at San Francisco, California on July 26, 2013,

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