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BEFORE THE PUBLIC UTILITIES COMMISSION

OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking to Assess Peak Electricity Usage Patterns and Consider Appropriate Time Periods for Future Time-of-Use Rates and Energy Resource Contract Payments.	Rulemaking 15-12-012 (Filed December 17, 2015)

REPLY COMMENTS OF THE SOLAR ENERGY INDUSTRIES ASSOCIATION ON RESPONSES TO SCOPING QUESTIONS

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In accordance with the *Scoping Memo and Ruling of the Assigned Commissioner and the Assigned Administrative Law Judge* issued in the above captioned proceeding on May 3, 2016 (Scoping Memo), the Solar Energy Industries Association (SEIA)[1] responds to Opening Comments on the Scoping Questions which were filed on June 27, 2016.

I. INTRODUCTION

Throughout this proceeding, SEIA's overarching position has been, and remains, that time-of-use (TOU) periods should evolve in a measured way, based on the time profile of all utility marginal costs, on reasonable evidence that these marginal cost profiles are changing, and with adequate time for customers to understand and adjust to these changes.

SEIA's position has been delineated through its proposed set of general guidelines to bring greater definition and consistency to the data and methodology used to determine TOU periods.[2] SEIA has also outlined principles on TOU rate design, including a proposed default "TOU-lite" rate accompanied by a menu of optional rates that customers can elect to best match

1 The comments contained in this filing represent the position of the SEIA as an organization, but not necessarily the views of any particular member with respect to any issue.

2 *See* Opening Comments of the Solar Energy Industries Association Responding to Scoping Questions, R15-12-012 (June 27, 2016) (SEIA Comments), pp.6-8.

customer and system needs. Providing customers with a manageable default rate alongside a portfolio of options will be the key to both ensuring customer acceptance and retention on TOU rates once such rates become the default for residential customers and encouraging the technological developments necessary to adapt customers' usage and production of electricity to system needs. Measured change in TOU periods is also critical in light of the commercial and industrial customers who are now on mandatory TOU rates and could see a dramatic change to those rates just shortly after they became required.

Review of other parties' responses to the Scoping Questions reveal that there is a great deal of commonality with respect to certain elements which should be a part of any Commission approved methodology or guidelines for establishing TOU periods and rate design (e.g., the number of seasons, the menu of TOU options, and that periods should not change any more frequently than every five years). There are two critical areas, however, in which the Investor Owned Utilities (IOUs) have taken positions which are divergent from SEIA's -- (1) consideration, when setting TOU periods, of *all* marginal costs elements that vary with usage and demand, and (2) the grandfathering of solar customers when TOU periods change. As discussed in SEIA's opening comments and addressed further below, it is consistent with the purpose of TOU rates for retail electric service to consider the costs of all components of that service (generation, distribution, and transmission) in determining TOU periods. Moreover, in order to maintain customer confidence and to engender a response to new TOU periods sufficient to meet the desired objectives, grandfathering of existing TOU customers is necessary. Absent the certainty that grandfathering will provide, customers will be reluctant to invest in the new technologies necessary to create the desired response to TOU price signals. Any Commission decision issued in this proceeding should address these two issues clearly and comprehensively.

The Commission-approved methodology or guidelines for establishing TOU periods should assure the use of all marginal cost elements that vary with usage and demand and allow for sufficient grandfathering of existing customers on rate schedules with TOU periods, in order to provide certainty around investments in distributed energy resources.

II. ALL MARGINAL COST ELEMENTS THAT VARY WITH USAGE AND DEMAND MUST BE CONSIDERED IN SETTING TOU PERIODS.

SEIA's opening comments demonstrated why the time dependence of all elements of a utility's marginal costs, including generation, distribution, and transmission, should be considered in setting TOU periods. Retail rates recover costs for all these components of electricity service. The time-varying demand of customers on the transmission and distribution systems drives the need for capacity on the delivery system in the same way that peak demands cause generation capacity costs to be incurred.[3] Review of other parties' comments reveals no reasonable basis for excluding distribution and transmission costs from the formulation of TOU periods which send appropriate price signals to retail customers with respect to the utilization of all components of electric service. The Commission's decision in this proceeding should provide affirmatively that the time dependence of *all* elements of a utility's marginal costs that vary with customer usage should be part of the adopted methodology for determining TOU periods.

A. Deferral of a Determination of Whether to Consider Marginal Distribution Costs when Setting TOU Periods Negates the Purpose of this Proceeding

Several parties recognize the importance of considering marginal distribution costs in the determination of TOU periods,[4] but recommend not addressing this issue in this proceeding due

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[3] SEIA Comments, pp. 4, 11-15.

[4] *See, e.g.*, Southern California Edison Company's Opening Comments Responding to Scoping Questions Pursuant to May 3, 2016 Ruling, R.15-12-012 (June 27, 2016) (SCE Comments), pp. 5, 9-10; Opening Comments of San Diego Gas & Electric Company Responding [to] Questions Posed in Scoping Memo and Ruling Dated May 3, 2016, R. 15-12-012 (June 27, 2016) (SDG&E Comments), p. 9.

to its complexity. Thus, SCE notes that "[g]iven the expedited timeline for the OIR, SCE believes that this proceeding should continue to focus on the time-dependency of generation marginal costs,"[5] while PG&E suggests that "use of this [distribution cost] data and methodology should be out of scope from the TOU OIR and [the] subject of the scope of other utility specific proceedings."[6] Such deferral is antithetical to the purpose of this rulemaking -- developing a consistent methodology to be used for setting TOU periods in future IOU-specific proceedings. SEIA submits that the record developed in this proceeding demonstrates that the inclusion of marginal distribution costs is critical to any methodology for determining TOU periods, and a Commission decision in this proceeding should affirmatively provide for such. The specifics of the time profile of each IOUs' marginal distribution costs then can be developed in their respective General Rate Cases.

B. The Fact that Distribution Circuits Peak at Different Times Does Not Preclude the Use of Distribution Marginal Costs in Setting TOU Periods.

Both PG&E and CLECA argue against the consideration of distribution marginal costs in the determination of TOU periods because "not all parts of the utilities' distribution systems peak at the same time."[7] SEIA does not contest that point. The concept of TOU rates, however, is to charge customers a higher rate based on their usage during a *multi-hour* on-peak period that applies on every day or every weekday. Within the many hours covered by this on-peak period, peak demands will occur at multiple levels – on circuits, substations, and the system as a whole.

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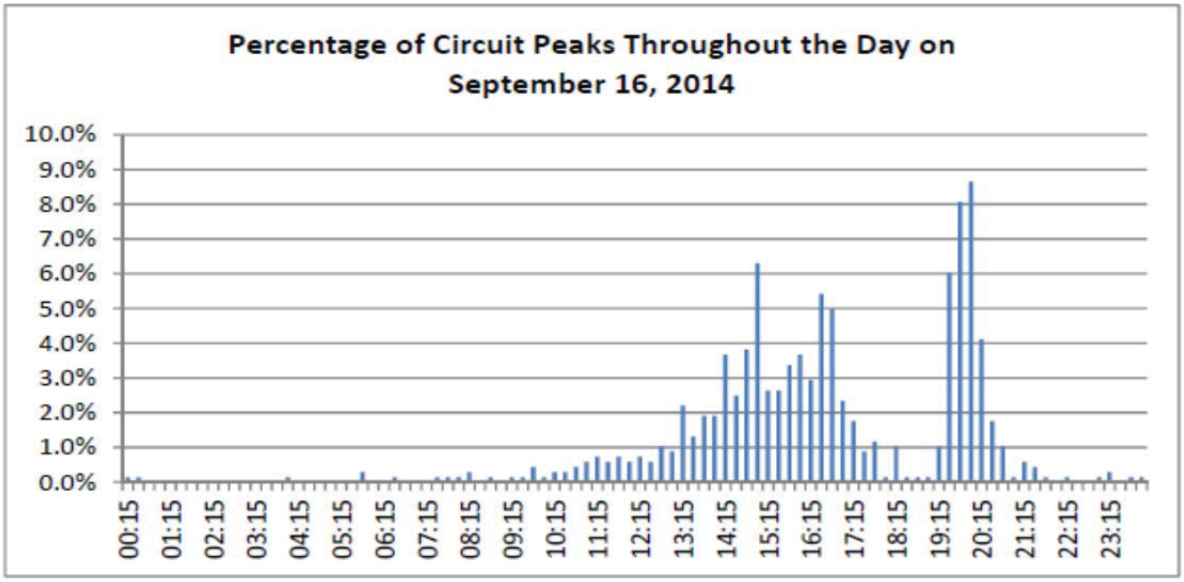
5 SCE Comments, p. 10

6 Opening Comments of Pacific Gas Electric Company in Response to Questions in Scoping Ruling of May 3, 2016, R. 15-12-012 (June 27,2016), p.12; *see also* Comments of the Office of Ratepayer Advocates on the May 3, 2016 Assigned Commissioner and administrative law Judge's Scoping Memo and Ruling, R. 15-12-015 (June 27, 2016), p. 9.

7 Comments of the California Large Energy Consumers Association in Response to Scoping Memo Questions, R. 15-12-012 (June 27, 2016), p. 5; *see also* PG&E Comments, p. 12.

The hours when SDG&E's distribution circuits peaked on its system peak day in 2014 is illustrative of this point:[8]

Figure 1



On this day, SDG&E's system peaked at about 4:00 p.m. (16:00). Although only 3.7% of distribution circuits also peaked at exactly 4 p.m., 84% of SDG&E's circuits peaked within four hours on either side of 4 p.m. Thus, a noon to 8 p.m. on-peak period would have captured the usage that drives 84% of the distribution circuit peaks on this day.[9] In short, TOU periods can and should be set to incorporate the large majority of distribution circuit and substation peaks.

C. Transmission Costs are Relevant to the Determination of TOU Periods

Most parties did not respond to the Scoping Memo's inquiry as to whether TOU periods should consider transmission system costs. CLECA provided a cursory response that appears to dismiss such consideration by stating that "transmission rates are set by FERC and are not TOU-

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8 *See* A. 15-04-012, SDG&E Testimony of John Baranowski, at p. JB-3 (Figure 1).

9 Prepared Direct Testimony of R. Thomas Beach on behalf of the Solar energy Industries Association, A. 15-04-012 (July 5, 2016), pp. 27-28

based."[10] The assumption derived from such a statement is that transmission costs are not relevant to the determination of TOU periods. Such an assumption is incorrect.

Retail rates, which include transmission costs, send important price signals to customers related to their use of the electric delivery system. Choices made by retail customers based on these price signals will impact the transmission costs incurred by IOUs. Specifically the installation of distributed generation (DG) and the implementation of energy efficiency and demand response measures – actions which are taken in response to retail rate signals – avoid the need for more bulk transmission lines.[11] Evaluations of the impacts of solar DG installations have shown that they avoid bulk transmission costs.[12] Accordingly, it is important to calculate California Independent System Operator (CAISO)-level marginal transmission costs, to understand how the CAISO's transmission revenue requirement will change with variations in retail customers' electric use. As a result, it is important that the choice of TOU periods consider the time profiles of the system loads that drive CAISO transmission costs. Ignoring CAISO-level marginal costs would exclude a significant share of IOU costs from the analysis of appropriate TOU periods. The inclusion of marginal transmission costs is critical to any methodology for determining TOU periods, and a Commission decision in this proceeding

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10 CLECA Comments, p.5.

11 *See* "Cal-ISO Board Approves Annual Transmission Plan," *California Energy Markets* (No. 1379, April 1, 2016) at p. 10 (PG&E informs CAISO that CAISO that it is cancelling 13 sub-transmission projects in its service territory, which 2 would have cost $192 million, as a result of "a combination of energy efficiency and rooftop solar.")

12 Impact evaluation reports for the California Solar Initiative (CSI) have shown that CSI systems reduce peak transmission system loadings on at least a one-for-one basis (in other words, each kW of DG output in the peak hour reduces transmission loadings by at least one kW). Thus, DG makes additional capacity available on the high-voltage transmission system and avoids transmission expansion costs. *See* Itron, *2009 CSI Impact Evaluation Report*, at page ES-17. Also, Itron, "CPUC Self-Generation Incentive Program – Sixth Year Impact Evaluation Report" (August 30, 2007), at 5-29 to 5-33. These Itron reports are available on the CPUC website at http://www.cpuc.ca.gov/PUC/energy/Solar/evaluation.htm and http://www.cpuc.ca.gov/PUC/energy/DistGen/sgip/sgipreports.htm

should affirmatively provide for such. Finally, the Commission's choice of TOU periods will impact those IOU transmission rates that include on-peak TOU charges by changing the time definition of the summer and winter on-peak periods. For example, 10% of SDG&E's FERC-regulated transmission costs for its medium/large commercial customers in the A6-TOU, AL-TOU, and DG-R classes are recovered through summer and winter on-peak TOU demand charges.[13] Thus, any assertion that the Commission's choice of TOU periods will not impact transmission rates is incorrect.

III. GRANDFATHERING IS A CRITICAL PART OF ASSURING THAT THE GOALS OF TOU RATES ARE OBTAINED.

All three IOUs come out strongly against the concept of grandfathering existing customers on TOU periods when such periods change.[14] As illustrated below, the IOUs' position fails to (1) acknowledge that the Commission has an already-established policy with respect to grandfathering, or (2) recognize the role which technology investment will play in achieving the Commission's acknowledged goals for TOU pricing and the need for a degree of regulatory certainty to encourage consumers to invest in such technology. In addition, the IOUs' arguments against grandfathering, which are grounded in its purported complexity and its ostensible undermining of the purpose of TOU rates, are not supportable.

A. Commission Precedent Supports SEIA's Grandfathering Proposal

In its opening comments, SEIA set forth a two-part grandfathering proposal which takes into account the varying circumstances of different customer groups. This proposal recognizes

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13 *See* SDG&E's A6-TOU, AL-TOU, and DG-R tariffs, available at http://regarchive.sdge.com/tm2/ssi/inc_elec_rates_comm.html. Also, for the 10% allocation of FERC transmission costs to the on-peak TOU period, see SDG&E's Base Period Statement BL (the rate design workpapers) for SDG&E's Transmission Owner formula rate protocols in FERC docket ER13-941-003.

14 *See* PG&E Comments, p. 26; SDG&E Comments, p. 18; SCE Comments, p. 17.

the different circumstances between today's solar customers who have interconnected under the TOU periods which are currently in effect for each IOU and those future customers who interconnect after new TOU periods are established in the future. As illustrated below, this proposal is supported by established Commission policy.

1. Commission Policy Warrants Granting Solar Customers who have Interconnected under TOU Periods Currently in Effect an Extended (10 year) Grandfathering Period.

In determining whether to grandfather certain customers on rate schedules that will be discontinued, the Commission has stressed the need for investment certainty and the "desirability of ensuring that customers have an opportunity to receive a return somewhat consistent with their expectations."[15] Moreover, the Commission has stressed the importance of customers having "a uniform and reliable expectation of the stability of the [rate] structure under which they decided to invest in their customer-sited renewable DG systems."[16] The Commission's acknowledgement that it is the public interest to protect customers' renewable technology investments which were premised on an existing regulatory structure warrants establishing a substantial grandfathering period for solar customers who have interconnected under the TOU periods which are currently in effect for each IOU. Accordingly, SEIA has recommended that these existing customers be afforded a minimum grandfathering period of ten years, with a subsequent gradual transition to the then-effective TOU periods.[17]

The rationale for the extended period is two-fold. First, as noted by UCAN, the economics of existing systems are different than for future systems because prices continue to drop as technology involves. Thus, ensuring that these existing "customers have an opportunity

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[15] Decision 14-03-041 , p. 20.

[16] Decision16-01-044, p. 100.

[17] SEIA Comments, p. 33.

to receive a return somewhat consistent with their expectations" necessitates an extended grandfathering period. Second, the changes in TOU periods which are currently being considered in various IOU-specific proceedings are dramatic, involving shifts of up to five hours in the start of the critical summer on-peak period.[18] If such a shift were adopted for existing customers, it would upend the economics of solar systems interconnected under the current TOU periods, unless existing customers are allowed a reasonable transition to the new periods. SEIA agrees with the Farm Bureau's observation, "[i]t is difficult to fathom that future changes to TOU periods will prove to be as significant."[19]

2. Commission Precedent Set a Standard of a Minimum Five Year Grandfathering period for Solar Customers who Interconnect Under New TOU Periods

Given the dramatic and unprecedented change expected in TOU periods, 10 years of grandfathering is needed for customers on <u>existing</u> TOU periods. Going forward, 5 years of grandfathering for <u>new</u> periods is likely sufficient and is well within Commission precedent. In addressing the implementation of new TOU periods the Commission has acknowledged that "[t]here are excellent policy reasons for requiring a five-year forward-looking design for TOU periods," specifically noting that changing TOU periods would "make it difficult for customers to evaluate investments in energy efficiency improvements and rooftop solar."[20] More specifically, the Commission has stated that:

> In keeping with the [Rate Design Principles] RDPs of customer acceptance and energy efficiency, *we believe the impact of changing or closing TOU tariffs should be mitigated.* This is consistent with Section 745's recommendation that

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18 *See e.g.,* SDG&E's proposal in A. 15-04-012 to change from its existing 11 a.m. to 6 p.m. on-peak period to a 4 p.m. to 9 p.m. on-peak.

19 Comments of California Farm Bureau Federation Addressing Questions Related to Issues Presented in the Scoping Memo and Ruling of Assigned Commissioner and Assigned Administrative laws Judge, R. 15-12-012 (June 27, 2016) (Farm Bureau Comments), p. 10.

20 Decision 15-07-001, p. 143.

the Commission strive to set default TOU periods that are appropriate for at least five years.[21]

SEIA's proposed minimum five-year grandfathering for solar customers who interconnect under the *new* TOU periods is consistent with these prior Commission determinations. The IOUs have failed to address why this precedent is no longer relevant.

B. Grandfathering is Needed to Encourage Investment Amidst Regulatory Uncertainty.

The Commission-acknowledged purpose of moving all customers toward TOU pricing is that such will "communicate to the customer when system costs are high or low, *or to create incentives for a customer to shift usage to times that are better for the overall electric system*."[22] The Commission has opined that properly defined TOU periods should "assist in reaching state energy goals by minimizing costs, reducing greenhouse gas emissions, encouraging conservation, and increasing the supply of electricity at times that best serve the needs of the grid."[23] As addressed in SEIA's opening comments, recent findings by this Commission, in conjunction with the Energy Commission and the CAISO, suggest that absent investment in technology, TOU rates by themselves will not result in a load shift sufficient enough to accomplish the desired goals.[24] Even among large commercial and industrial (C&I) customers, where it is estimated that between 3.0% and 3.7% of load could be shifted from evening to early afternoon periods, there is considerable uncertainty in the likelihood of such beneficial shifts.[25]

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21 *Id.*, p. 155 (emphasis added).

22 Order Instituting Rulemaking to Assess Peak Electricity Usage Patterns and Consider Appropriate Time Periods for Future Time-of-Use Rates and Energy Resource Contract Payments, R. 151-2-102 (December 17, 2015) (OIR), pp. 4-5.

23 *Id.*, p.2.

24 *See* SEIA Comments , pp.5 and 22-23 *citing* Simon Baker, Silvia Bender, and Thomas Doughty, *Joint Agency Staff Paper on Time-of-Use Load Impacts* (Joint Agency Paper).

25 Joint Agency Paper, pp. 19-20.

Similarly, with respect to residential customers, the Joint Agency Analysis found that even "with aggressive rate design in targeted TOU periods, only modest increases in residential loads during periods where overgeneration is being predicted should be expected, given current knowledge."[26]

In its filing, SDG&E notes that the *California Demand Response Potential Study, Phase 1 Study Results,* demonstrates that TOU pricing could provide 1,200 MWs of load-modifying demand response by 2020 "lowering the CAISO-expected afternoon ramps." [27] While SDG&E is correct in noting that TOU rates are expected to reduce net load peaks, the 1,200 MW may not materialize at the times of the year when the steepest ramping to match the net load curve is expected to be the greatest challenge for the bulk system. Indeed, as the study notes, most of the load-modifying demand response potential it finds in its study comes from default residential TOU rates.[28] That TOU-rate-induced load shifting is based on air-conditioning loads,[29] which are largely absent during the winter and spring months when the up-ramps in the net load curve are expected to be the most severe.

If customer investments are needed to shift load to meet system needs in response to TOU rates, then certainty related to TOU periods will be needed. The ultimate goal of TOU rates could be impeded by the lack of certainty surrounding rate structures, including the TOU periods. As noted by CalSEIA, such uncertainty "is impairing the ability of customers to adopt clean energy solutions" because "[p]roposed systems on good installation sites often cannot get financed because lenders are not confident the system will make economic sense for the

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26 *Id.*, p.23.

27 SDG&E Comments, p. 7.

28 Peter Alstone, Jennifer Potter, Mary Ann Piette, Peter Schwartz, Michael A. Berger, Laurel N. Dunn, Sarah J. Smith, Michael D. Sohn, Arian Aghajanzadeh, Sofia Stensson, and Julia Szinai, *2015 California Demand* Response *Potential Study,Phase 1 Study Result*s, p. 57.

29 *Id*,. p. 53.

customer for the 20-year term of a power purchase agreement."[30] Similarly, the Farm Bureau attests that "[c]ustomers will be loath to make investments or significantly adjust operations without the certainty necessary to estimate payback of costs."[31] In short, customers need some certainty that rate *structures* will not change to a degree that would render their investment uneconomic. Absent affording such customers a defined period of grandfathering, they will lack that certainty.

The record of this proceeding documents the possibility that TOU periods could change going forward (*i.e.*, change from those that are initially established in the IOUs' ongoing, or soon to be ongoing, GRC and RDW proceedings). For example, SDG&E attests that there could be a significant change in the generation mix resulting from "the retirement of once-through cooling plants, changes in combined heat and power facilities, changes in long-term imported coal contracts, and potential SB 350 expansion of the CAISO footprint."[32] Similarly PG&E states that "the market is expected to evolve over the next several years in response to, among other things, Energy Imbalance Market (EIM) proposals and the possibility of new Participating Transmission Owner(s) (PTO) being added to the CAISO."[33] The possibility that TOU periods could change in the relatively near future in response to these market dynamics could impede the necessary technology investment unless customers are assured that the TOU periods upon which they based their investment economics will remain in place for a predetermined period of time. The Commission should address this issue upfront by providing a minimum of five years of

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30 Comments of the California Solar Energy Industries Association Responding to Scoping Questions, R. 15-12-012 (June 27, 2016), pp. 5-6.

31 Farm Bureau Comments, p. 10.

32 SDG&E Comments, pp. 9-10.

33 PG&E Comments, p. 6.

grandfathering of all newly adopted TOU periods for each IOU, as proposed in SEIA's opening comments.[34]

C. The IOUs' Arguments Against Grandfathering are Not Defensible.

The IOUs' two primary arguments against grandfathering -- (1) maintaining multiple sets of TOU time periods for different groups of individual customers would be operationally expensive and complex; and (2) grandfathering customers may exacerbate problems that cost-based target TOU periods are intended to alleviate[35] -- are readily dismissed.

First, the IOUs' complaints regarding the complexity of grandfathering are exaggerated. Thus, PG&E attests that

> [I]f there were grandfathering of TOU time periods such that each customer would have the same TOU time periods for a minimum of five years, in year one there would be groups of customers on five different timetables for transition to the new time periods.[36]

Such a situation will not arise if grandfathering is implemented in a straightforward manner. First, the Commission should recognize that only customers who have made a significant investment in load-shifting technology (for example, a solar installation or on-site storage) may suffer significant economic harm from a change in the TOU periods. Second, when an IOU adopts new TOU periods, it should be directed to close the rate schedule(s) with the old TOU periods to new customers. Third, the Commission should consider an approach to grandfathering and transitioning customers that creates the least confusion for customers. This approach should include automatic grandfathering of customers on a net-metering tariff or any other customers with an interconnection agreement with the utility and a notification to all other

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34 SEIA Comments, pp. 33-34.

35 *See* PG&E Comments, p. 27; SCE Comments p. 17; SDG&E Comments, p.18.

36 Decision 15-07-001, pp. 143-144 (emphasis added).

customers which (1) informs them of the pending changes to their rate schedule and TOU periods and (2) provides the opportunity to elect to stay on their current rate schedule. Such mechanisms will allow customers who may have made efficiency or other investments not identifiable through a mechanism visible to the utility, such as a tariff, the opportunity to protect their investment

The Commission has already recognized that the IOUs are well equipped to deal with the "vintaging" of TOU periods. In addressing future default TOU rates, the Commission determined that the options for the design of default TOU rates that must be considered going forward include:

> "… changing the default rate for new customers in each GRC to reflect new TOU periods, *but allowing already enrolled customers the option to keep their legacy TOU period structure for the five year period suggested by AB 327*."

In making this determination the Commission recognized that vintaging was already built into certain elements of IOU rate design, such as the Power Charge Indifferent Adjustment.[37] In practice the utilities would only have to create vintaged TOU periods periodically, first for 10 years at the conclusion of ongoing or pending rate cases seeking to make major changes to existing TOU periods, and subsequently for 5 years following any changes in the future. Given that most parties agree that TOU periods should be durable for at least two general rate case cycles (6 years), there will not be numerous vintages of TOU periods.

Second, the IOUs make the inaccurate argument that if certain customers are allowed to remain on obsolete TOU rates whose peak period definition no longer reflects a changed cost pattern, the purpose of TOU rates will be compromised. What the IOUs fail to factor into their argument is that a future shift in the TOU periods is likely to be at least partially premised on the

[37] *Id.,* p. 144, footnote 305.

fact that existing TOU rates have been successful -- *i.e.*, customers have responded to the existing TOU price signal and have taken steps, such as the investment in technology, that are producing the shift in peak periods that is causing the need to change TOU periods. For example, it is the response of solar developers that has produced the strong growth in solar generation that is moving the net load peak later in the day. This growth has been due in part to the price signals of existing TOU periods. This shifting in load has and will impact the pattern of cost incurrence. Customers who have invested significant resources in response to a TOU price signal, and have premised their investments on specific TOU periods, should not be punished for taking such action.

IV. TOU RATES SHOULD MAINTAIN TWO SEASONS AND THE SUMMER SEASON SHOULD BE SIX MONTHS.

For TOU rates that are designed to be the default or are intended to be selected by a broad group of customers, SEIA strongly recommends the relative simplicity of two seasons – winter and summer, and that those seasons be November through April and May through October, respectively.[38] This recommendation was mirrored in ORA's comments which noted that for the rollout of default TOU, the majority of residential ratepayers may find a simplified TOU season structure -- *i.e.*, two seasons -- more understandable.[39] As noted in both SEIA's and PG&E's comments, in lieu of creating a separate spring season, it is preferable to address the potential for spring overgeneration conditions through an overlay such as "Discount Days" or a super-off-peak rate credit.[40] Moreover, concern was expressed regarding the move from the current two

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[38] SEIA Comments, p. 22-23.

[39] ORA Comments, p. 12.

[40] SEIA Comments , p. 22; PG&E Comments, p. 18.

season construct to three seasons if the potential exists that such a move would need to be reversed if system conditions evolve and renewable supply continues to increase.[41]

In terms of the length of the summer season, SEIA's opening comments recommended that the Commission should consider that the studies of the expected impacts of climate change on California point to the likelihood of longer and hotter summers that start earlier (in May) and extend later (into October).[42] Indeed, this trend already can be seen in historical data, such as the 30-year temperature record in Los Angeles cited in SEIA's opening comments.[43] Further, **Figure 1** below shows the increasing frequency of daily high temperatures in May that are greater than or equal to 95 F at 26 weather stations in the San Diego region. As a result, both climate models and historical trends suggest that a six-month summer will be increasingly important in order to capture all periods of extremely hot weather in California, and SEIA recommends that all three IOUs should adopt the use of a longer, six-month summer season.

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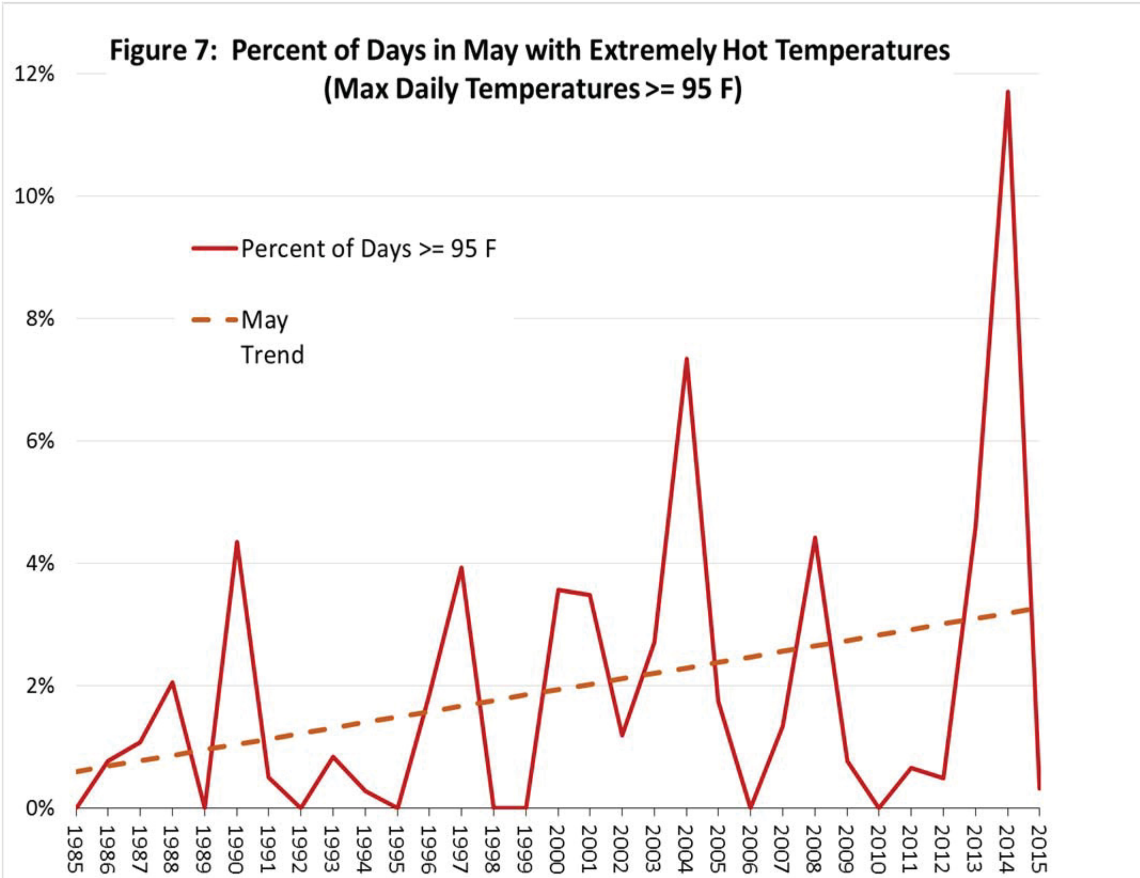
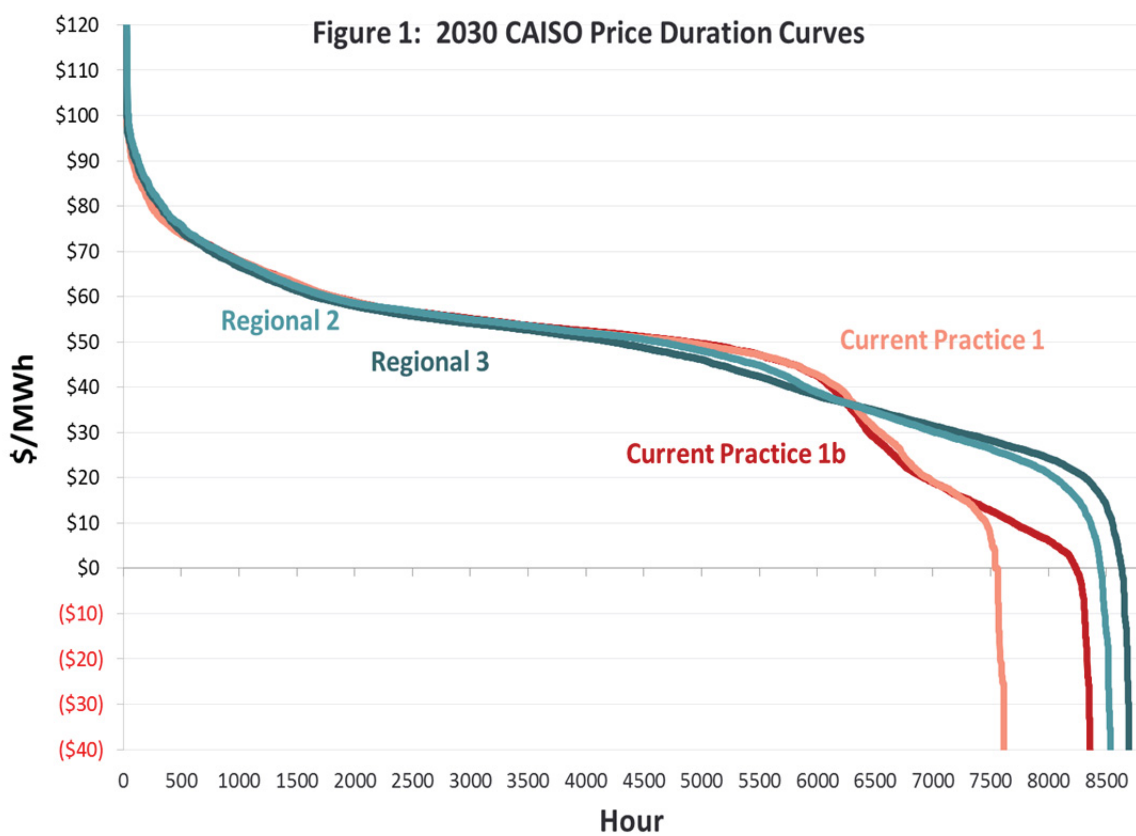
41 SCE Comments, p. 13.

42 See SEIA Comments , p. 24; also, California Energy Commission, *Our Changing Climate 2012: Vulnerability & Adaptation to the Increasing Risks from Climate Change in California – A Summary Report on the Third Assessment from the California Climate Change Center* (2012), at p. 7 ("The third assessment confirms that climate change will increase demand for cooling in the increasingly hot and longer summer season.").

43 SEIA Comments, pp. 24-25 and Figure 8.



A potentially significant change to system conditions is the expansion of the current area of the California ISO to include new utility territories in the western U.S., which could dramatically limit the hours of overgeneration that have been used to justify the establishment of a new spring season. Indeed, recent analysis done as part of the California ISO's "SB 350 Studies" shows that an expanded balancing area, currently under consideration, could limit the number of hours of negative energy prices even under much higher penetrations of renewable generation. The results of this analysis, conducted by Energy & Environmental Economics and the Brattle Group, show that regionalization could reduce renewable curtailments from 4,500 – 4,800 GWh in 2020 to 100 – 1,600 GWh in 2030, even with a significant increase in renewable generation over this decade.[44] As shown in the price duration curves in Figure 1 below, regionalization in 2030 (represented by the "Regional 2" and "Regional 3" curves) limits the number of negative prices to 300 or fewer hours per year, which could be managed through optional rates and overlays rather than through the creation of a potentially confusing third season.[45] Indeed, this analysis suggests that overgeneration could remain manageable and that targeted optional rates and overlays will best match this limited system need with those customers who can take advantage of discounted prices.



44 See the Brattle Group, *SB 350 Regional Market Study: Analysis and Preliminary Results* (presented May 24-25, 2016), at Slide 162. Available at http://www.caiso.com/Documents/Presentation-May24_2016-SenateBill350Study-PreliminaryResults.pdf.

45 *Id.,* at Slide 161.

V. THE COMMISSION SHOULD DIRECT THE IOUS TO CONSIDER "OVERLAYS" TO TOU RATE SCHEDULES TO ADDRESS TARGETED SYSTEM CONDITIONS.

TOU rates traditionally have been structured with pre-set on- and off-peak periods that are the same every day, perhaps differentiated only by weekdays versus weekends. However, given today's means of mass communications with customers, it is feasible to offer time-varying pricing that is more limited in time and more directly targeted to those days when system needs are the most acute. Customers with the ability and inclination to respond to such pricing should be afforded such opportunities. In its April 6, 2016 Comments in this proceeding, SEIA set forth examples of overlays that could work in conjunction with a single set of foundational TOU periods -- Critical Peak Pricing (CPP) and Discount Days. The former would be used to address days when high demand on the system is anticipated and the latter would be used to address periods of excess generation.[46] Such optional overlays can allow for a simpler TOU rate structure for the majority of customers. For example, instead of creating a third (spring) season for all customers in order to address overgeneration during that period, the "Discount Days" overlay would implement a low rate on a static or dynamic basis to encourage midday consumption that is targeted at times when overgeneration is forecasted. Other parties supported this concept of overlays through a menu of TOU rate options,[47] viewing such a menu approach as "critical to ensure goals related to customer engagement are achieved."[48]

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[46] *See* Comments of the Solar Energy Industries Association on Time Differentiated Rate Structures, R. 15-12-012 (April 6, 2016), pp. 6-7.

[47] SDG&E Comments, p.19 (supporting TOU rates with and without dynamic pricing); CLECA Comments, p. 19 (discussing the incorporation of dynamic pricing periods into new TOU rate structure).

[48] SDG&E Comments, p. 19; *see* also ORA Comments, p. 20 ("giving customers the choice to select a rate that minimizes the impact to their bills or operations would promote customers staying on TOU rates.")

While concerns have been raised that too many options can confuse consumers, the Commission should not prematurely proscribe the number or types of TOU rate options that the IOUs offer. These various options will not be mandatory but will be chosen by customers who are able to respond to their price signals, while the remaining customers will have the option of a simple default TOU rate. A portfolio of TOU options and a manageable default "TOU-lite" rate will be important to ensuring customer acceptance of TOU rates and peak period changes. Indeed, while ORA expresses concerns about too many options being confusing to customers,[49] it also notes that incentives may be needed to encourage customers to adopt TOU rates given customers' constraints in responding to such rates.[50] With the certainty afforded by grandfathering provisions, a broad set of optional rates could provide the revenue-neutral means to incentivize investments that is needed to overcome such constraints. Finally, SEIA expects that that the ongoing TOU pilots will help to clarify customers' response to various TOU rate structures, as well.

Concerns about customer confusion which may be generated by too may TOU options, can be ameliorated not only by the Commission-directed marketing, education and outreach programs, but by third-party entities that can work with a broad set of TOU rates to match customers, technology, and rates to maximize both customer savings and system benefits. Solar companies already play this role by helping educate customers and match them to the rate schedule for which they and their solar system are best suited. Indeed, the utility-commissioned The Hiner study showed that solar customers were much more aware of TOU rates than the

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49 ORA Comments, p. 20.

50 *Id.*, p. 14.

"core" group of customers;[51] this fact is a reflection of the third-party education of customers that will continue as the solar industry helps utility customers to transition onto TOU rates.

VI. CONCLUSION

TOU periods should evolve in a measured way, based on (a) the time profile of all utility marginal costs, on reasonable evidence that these marginal cost profiles are changing; (b) evidence of challenging system operating conditions such as hours of potential overgeneration or steep net load up-ramps, and (3) customers' ability to understand and respond to the TOU price signals. Absent such, any adopted TOU periods will not accurately reflect utility cost incurrence, will not reflect periods for helpful load shifting based on the needs of the grid, and will not incent customer response to the price signal sent by the TOU periods. In short the objectives of TOU rates will fail.

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51 PG&E Rate Design Proposal, Appendix A, Hiner & Partners Key Findings, p. 37.