

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

Application of San Diego Gas & Electric
Company (U 902 E) for Authority to Update Electric
Rate Design Effective on January 1, 2015

Application 14-01-027
(Filed January 31, 2014)

**OPENING BRIEF OF THE
CALIFORNIA SOLAR ENERGY INDUSTRIES ASSOCIATION**

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Pursuant to Rule 13.11 of the Rules of Practice and Procedure of the California Public Utilities Commission (Commission), the California Solar Energy Industries Association (CALSEIA) submits this opening brief on the Rate Design Window Application of San Diego Gas & Electric (SDG&E).

1. Introduction

Changing peak time periods will change utility costs. That is the whole point of SDG&E's proposal. The utility wishes to influence customer behavior so that it can buy power at different prices and change the amount of infrastructure it builds. Absent from this proceeding is any discussion or analysis of what those changes are and how they impact each class of customers. Indeed, such discussion and analysis would be inappropriate for a Rate Design Window Application, which is not intended to address revenue allocation. Because major changes to TOU time periods would impact revenue allocation, they should only be considered in a General Rate Case.

CALSEIA recognizes that the desire to get ahead of projected changes in system load shape has compelled the Commission to consider major TOU changes within this proceeding.

However, the record does not support granting SDG&E's proposal in full. At this point, the Commission must choose between: A) granting the proposed changes for some but not all rate schedules; and B) deferring consideration of the full proposal to the next GRC Phase 2.

CALSEIA wants to be careful not to be obstructionist on this question. The future need for significant load shifting is real, and it is reasonable to head down the path of moving On-Peak time periods later in the day for some rate schedules. But moving all customers to a vastly different TOU structure is premature at best. Doing so would be unfair to customers for three reasons. First, making abrupt changes to rate structure would constitute the State turning its back on customers who responded to State policy that encouraged them to make long-term investments in generating facilities. Second, the solar market has been developed at great expense to ratepayers through the California Solar Initiative, and failing to maintain that momentum would diminish the value of that investment. Third, some customers are economically vulnerable and may be unable to shift load.

2. Existing Solar Investments Would Be Harmed by Peak Period Time Changes

A. CALSEIA Analysis Demonstrates Impacts

As demonstrated in CALSEIA's prepared direct testimony, the proposed changes would result in significant erosion in value for solar investments due to changing TOU time periods. For a typical residential solar system on Schedule DR-SES, annual savings would be reduced 33% and the capital recovery period would be increased 45%.

This analysis was not challenged in rebuttal testimony or cross-examination by any party. SDG&E disagreed with CALSEIA's conclusion on what should be done in response to the reduction in solar value, but did not rebut the analysis.

B. SDG&E Failed to Assess Customer Impacts

SDG&E acknowledges that there are winners and losers from the proposal,¹ but they did surprisingly little bill impact analysis to measure whether the negative impact on the losers is reasonable. The “Customer Impacts” section of their testimony comprises two paragraphs about the need for customer education and one paragraph about the negative impacts on public schools.² The bill impact analysis only included the default residential rate (Schedule DR) and the standard residential low-income rate (Schedule DR-LI).³ For agricultural customers, SDG&E revealed bill impacts only in response to a data request from the California Farm Bureau Federation, and that party found those impacts to be excessive.⁴ In rebuttal testimony, SDG&E included an analysis of bill impacts on schools only, but it did not include a traditional bill impact table showing the strata of customers by usage.

The analysis of schools made it clear that schools with solar systems that are only partially offsetting on-site load are not harmed by the SDG&E proposal,⁵ but schools with larger solar systems that accrue net energy metering (NEM) credits are negatively impacted.⁶ For NEM schools that would have higher bills due to the proposal, the collective average annual bill increase is 14%.⁷ This is a very significant increase for schools that have made long-term investments in solar systems and have incorporated energy savings into their operating budgets.

A more comprehensive bill impact analysis would be undertaken in SDG&E’s forthcoming General Rate Case Phase 2. If the Commission decides to close all alternative TOU

¹ Exh. SDG&E-02 (Yunker Rebuttal Testimony) at p. CY-14, lines 13-14.

² Exh. SDG&E-01 (Yunker Direct Testimony) at CY-22-23.

³ Exh. SDG&E-03 (Fang Direct Testimony), Attachment C.

⁴ Exh. CFBF-01 (Norin Direct Testimony) at 34.

⁵ Exh. SDG&E-05 (Fang Rebuttal Testimony) at p. CF-6, lines 4-7.

⁶ Reporters’ Transcript, Evidentiary Hearing (Transcript) (Fang, SDG&E) at p. 178, line 2 - p. 179, line 26.

⁷ Exh. SDG&E-05 (Fang Rebuttal Testimony) at p. CF-5, lines 8-9.

schedules, it should do so only within a GRC that examines the full impacts of rate changes. If the Commission prefers to make a decision on time periods within this RDW, it should limit that decision to the primary TOU tariffs and direct SDG&E to maintain alternative TOU tariffs.⁸

C. SDG&E’s Faulty Interpretation of NEM Transition Decision Must Be Rejected

SDG&E dismisses any consideration of the impact of proposed rate design changes on existing solar investments with a faulty interpretation of the Commission’s March 2014 decision on the NEM transition period, D.14-03-041. In rebuttal testimony, SDG&E states, “Ultimately the decision takes into account the potential variability in Customers’ otherwise applicable tariffs as a reason for the 20 year transition period for customers on the existing NEM tariff.”⁹ This statement implies that the length of the transition period was determined, at least in part, by estimating the impacts of potential rate changes. This is factually inaccurate. Rather, the Commission decided it was not possible to base the transition period on customer payback, given the uncertainties involved with forthcoming rate design change proposals. They rejected the utilities’ estimates of customer payback due to “concerns about the accuracy of those estimates.”¹⁰ The Commission set the transition period “based on a conservative estimate of the equipment’s expected life.”¹¹ In sum, the Commission did not decide to accept the utilities’ payback estimates and add a buffer for the uncertainty of future rate design changes. Rather, it concluded such an approach was not reliable and took an entirely different approach.

⁸ Primary TOU tariffs include DR-TOU, TOU-A, and AL-TOU. Alternative TOU tariffs include DG-R, DR-SES, and TOU-PA.

⁹ Exh. SDG&E-02 (Yunker Rebuttal Testimony) at p. CY-10, lines 20-22.

¹⁰ D.14-03-041 at 18.

¹¹ *Id.* at 20.

3. The Winter Peak Period End Time Should Not Be Altered

SDG&E explains that although system capacity costs are almost entirely driven by summer system peak,¹² the need for ramping capacity is driven by the residential load shape in the winter.¹³ In the winter, the sun goes down before people come home and use appliances, which creates an upward slope in the net load shape that is predicted to get steeper in the coming years if it is not addressed by various load shifting strategies.

The standard TOU winter peak period is 5-8 pm. Because increasing demand occurs much earlier than 8 pm, SDG&E's proposal to extend the peak period for one hour to 5-9 pm would do nothing to address ramping need.

The charts in Dr. Barker's opening testimony that depict hourly load or price in winter months show declining demand in the 8-9 pm hour in nearly every case. The 2013 DLAP prices (DTB-10), the projected 2017 prices (DTB-8), the projected 2017 load net of distributed solar (DTB-12), and the projected 2017 load net of all wind and solar (DTB-14) all show steep declines for the 8-9 pm hour from November through February. Each of those metrics also decline in March with the exception of projected 2017 price, in which the curve is flat at that hour at a level that is far below other months. Only April shows increases at that hour in multiple metrics, but again it is at levels below those of other months.

SDG&E argues that 8-9 pm should be included in the On-Peak period in all TOU schedules because it is a high price hour compared to the hours surrounding it. However, demand in that hour does not contribute to the biggest utility cost drivers. System capacity is driven by summer system peak; local capacity is driven by local peak, which will nearly always be in the

¹² Exh. SDG&E-07 (Barker Direct Testimony) at p. DTB-30.

¹³ Transcript (Barker, SDG&E) at p. 225, line 27 - p. 226, line 1.

summer months and before late evening; and ramping capacity needs will be driven by the winter ramp.

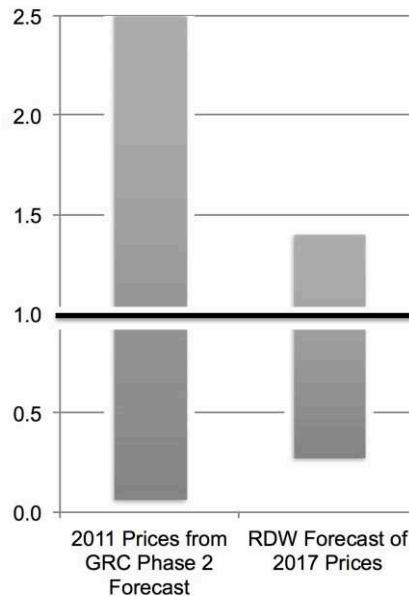
A desire for consistency across tariffs and customer classes should not be a bigger factor than other considerations. Many customers are already on tariffs with an 8 pm On-Peak end time. Moving that end time to 9 pm would add to confusion, not reduce it.

4. SDG&E's Modeling Exaggerates Cost Variability

SDG&E employed a creative methodology to predict future hourly prices. Dr. Barker used the Ventyx Market Analytics production cost model with assumptions for 2017 supply and demand throughout the Western Electric Coordinating Council area.¹⁴ Because the average annual price and the spread of prices were far smaller than those used in the 2012 GRC Phase 2, Dr. Barker applied an adjustment factor to “stretch” the results. As shown by the California Farm Bureau Federation, the Ventyx model predicted an upper end price 40% higher than the median price and the last GRC Phase 2 produced an upper end price 152% higher than the median price. This nearly four-fold difference illustrates that the Ventyx model did a remarkably poor job of predicting prices.

¹⁴ Exh. SDG&E-07 (Barker Direct Testimony) at pp. DTB-14-DTB-17.

Figure 1. Range of Hourly Prices Compared to the Median Hourly Price in SDG&E's Forecasts of 2011 and 2017 Prices (reproduced from Farm Bureau testimony)¹⁵



Simply applying an adjustment factor to the results of a deterministic model of future prices is unjustified and results in temporal price shapes with sharp peaks. This can be seen in SDG&E's opening testimony by comparing the 2012 actual data in Chart DTB-4, with a peak price roughly 50% higher than the mid-day price,¹⁶ the 2013 actual data in Chart DTB-9, with a peak price roughly 33% higher than the mid-day price,¹⁷ and the 2017 projections in Chart DTB-7, with a peak price roughly 100% higher than the mid-day price.¹⁸ Nothing in the testimony supports such an increase in volatility other than the unique methodology that does not mimic actual market or policy dynamics.

It is unsurprising that a deterministic model would over-accentuate responses to changing conditions. Applying perfect information to instantaneous decision-making results in sharp reactions. Applying imperfect information to real-world, hedged decision-making would tend to

¹⁵ Exh. CFBF-01 (California Farm Bureau Federation Opening Testimony) at 5.

¹⁶ Exh. SDG&E-07 (Barker Direct Testimony) at DTB-10.

¹⁷ *Id.* at DTB-18.

¹⁸ *Id.* at DTB-16.

produce smoother results. The “spikiness” of the 2017 prediction exaggerates the urgency of SDG&E’s proposal, whereas a flatter shape for 2017 summer weekday prices would reduce the urgency. For winter prices, the 2017 predictions in Chart DTB-8 are remarkably flat even with the stretching methodology, and would likely be even flatter without the stretching methodology.¹⁹

5. The Commission Should Direct SDG&E to Maintain Alternative TOU Schedules

A. Multiple TOU Time Periods Would Result in a Smoother Demand Curve

The portion of SDG&E customers taking service under TOU tariffs will increase greatly in the coming years. All medium and large commercial and industrial customers, as well as large agricultural customers, are already on TOU rates, with the exception of a very small number of customers still taking service under Schedule AD, which has been closed since 1987.²⁰ SDG&E has requested mandatory TOU for all small non-residential customers and agricultural customers of all sizes by November 2015.²¹ In the residential rates proceeding, some parties are holding firm on their proposals for default TOU starting in 2018, and SDG&E has indicated its intention to aggressively promote TOU rates for residential customers on a voluntary basis before then.

This increase in TOU participation will encourage people to delay using energy-intensive equipment until the end of the On-Peak period. This includes programmable appliances, agricultural pumps, and commercial equipment. Some equipment such as refrigeration cannot be turned off for the entire On-Peak period, but toward the end of the On-Peak period can forego some usage that can be made up for as soon as the period is over. If all customers are on the same TOU time periods, this could result in a surge in demand when time periods change that

¹⁹ *Id.* at DTB-17.

²⁰ Exh. SDG&E-03 (Fang Direct Testimony) at p. CF-18, lines 1-2.

²¹ *Id.* at p. CF-21, lines 5-6; p. CF-19, lines 15-16.

requires the utility to make more energy available than they would if the demand curve were smoother.

Witness Barker acknowledged that smoother load shapes are always better.²² He also stated that having all customers shift time periods at the same time could lead to sub-hourly surges. He compared it to the intermittency of solar and wind, and noted that CAISO has tools to address sub-hourly fluctuations. “There is all sorts of inner hour fluctuations that the CAISO is having to deal with, and they are trying to deal with that through flexible capacity, through added regulation, things like that.”²³ In other words, it would create a problem that would have to be dealt with.

Dr. Barker suggested this could be addressed by asking customers to change their behavior. “Now, on any particular distribution network you might have problems if you have a lot of EVs all turn on at the same time. And, therefore, you might want to have -- talk to the customers about adjusting their time periods slightly.”²⁴ If it were that easy to change customer behavior, we might not need time of use rates in the first place. The reality is that people can be expected to respond in ways that reduce their costs with minimal compromising of their capabilities. If power gets cheaper at 9:00, they will set their irrigation pumps and their dishwashers to run at 9:00. To ease this problem, SDG&E can maintain multiple TOU options.

B. Having Multiple Time Periods Is Consistent with SDG&E’s Plans

SDG&E notes in rebuttal testimony that it prefers one On-Peak time period for all customers, but that “optional and alternative tariffs can be considered, as contemplated in SDG&E’s Residential Rate OIR proposal ...”²⁵ In that proceeding, SDG&E proposed

²² Transcript (Barker, SDG&E) at p. 301, lines 4-8.

²³ *Id.* at p. 306, line 22 - p. 307, line 4.

²⁴ *Id.* at p. 306, lines 8-13.

²⁵ Exh. SDG&E-02 (Yunker Rebuttal Testimony) at p. CY-3, lines 4-5.

experimental TOU rates, including one with a summer On-Peak period of 2 pm to 6 pm. Also, in this proceeding, SDG&E proposes to maintain separate On-Peak periods for the different options within Schedule PA-T-1, including one that ends at 5 pm and one that ends at 7 pm. This demonstrates a willingness to deviate from consistent time periods.

The data supporting a 9 pm end time for the On-Peak period as opposed to an 8 pm end time is not convincing, as shown above, and continuing to encourage customers to invest in self-generation has the benefit of reducing greenhouse gas emissions. It would therefore be reasonable for SDG&E to set the On-Peak period at 2-9 pm for the most common TOU schedules (those for non-NEM commercial and residential customers), to maintain the TOU period as is for NEM customers and most agricultural customers,²⁶ and to adopt the various options as proposed for the experimental agricultural rate.²⁷

C. Having Multiple Time Periods Is Consistent with Other IOUs

The recent settlement in the 2014 Rate Design Window for Southern California Edison (SCE) includes adoption of a menu of TOU rate options, including a variety of TOU time periods for residential customers.²⁸ That order is not precedential for this case because it adopts a settlement, but it does indicate that having a range of TOU time periods was acceptable to a diverse group of parties that includes SCE, the Office of Ratepayer Advocates, the Solar Energy Industries Association, and the Natural Resources Defense Council.

The TOU schedules of Pacific Gas and Electric have different on-peak time periods for different types of customers: 12-6 pm for commercial, 1-7 pm for residential, and 2-9 pm for electric vehicle users.

²⁶ This would include Schedules DG-R, DR-SES, and TOU-PA.

²⁷ Schedule PA-T-1.

²⁸ D.14-12-048.

D. Grandfathering Existing Customers Is Necessary

As stated above, CALSEIA recommends keeping optional TOU schedules open for future customers. Within this, we obviously agree with other parties that have advocated for grandfathering existing NEM customers.

Customers know that electricity rates should always be expected to change, but they have an expectation that the basic structure of rates will evolve only slowly. Abandoning mid-day peak is a fundamental change that was virtually unthinkable just a few years ago. SDG&E's proposal is changing the structure under which existing solar customers made long-term investments, encouraged by the Commission's California Solar Initiative and the general structure of rate schedules. The existing investments of solar customers were made in response to tariffs that were based on the load and net load shapes that existed at the time of the investment. It is unfair to penalize existing solar customers based on forecasts that subsequent solar additions may shift net loads to later in the day. The lower savings resulting from SDG&E's proposal would not allow customers to reach their expected return on investment. The impact will be even higher for customers that financed the installation of the solar systems because in those cases part of the savings is used to cover the financing costs.

Fundamental changes to underlying rate design must be measured and gradual, with consideration of the impacts on all types of existing customers. Abrupt change would create a massive black eye for state policy makers and for the statewide solar industry. One simply cannot take away 33% of the value of people's investments without expecting a backlash. This would lead prospective solar customers to lose confidence that future changes will be reasonable and gradual. Considering the potential of this decision to damage the household economies of existing solar customers and the damage to the market that could result, the Commission must conclude that current solar customers should be allowed to take service under rate schedules with

the current TOU time periods. This should include customers who have made a financial commitment to installing solar by signing a contract but have not yet had their systems installed.

In the most recent SDG&E General Rate Case, the decision rejected a proposed settlement to change TOU rate design because the proposed changes would have harmed the investments of existing solar customers.²⁹ The Commission faces the same question in this case and should be consistent with precedent by rejecting SDG&E's proposal for its tariffs that were designed for solar customers.

6. Conclusion

For the reasons stated, if the Commission chooses not to defer the question of making major changes to TOU time periods until the next GRC Phase 2, it should make the proposed changes only to the primary TOU rate schedules and leave alternative TOU rate schedules unchanged.

Respectfully submitted this February 12, 2015 at Santa Rosa, California,

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²⁹ D.14-01-002.