

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

Application of San Diego Gas & Electric
Company (U902E) for Authority to
Update Marginal costs, Cost Allocation,
and Electric Rate Design.

Application 19-03-002
(Filed March 4, 2019)

And Related Matters.

Application 10-07-009

**COMMENTS OF THE CALIFORNIA ENERGY STORAGE ALLIANCE
TO THE OCTOBER 15, 2019 DYNAMIC PRICING WORKSHOP AND OCTOBER 29,
2019 DYNAMIC PRICING WORKSHOP REPORT**

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November 12, 2019

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In accordance with the Rules of Practice and Procedure of the California Public Utilities Commission (“Commission”), the California Energy Storage Alliance (“CESA”) submits these comments to the *October 15, 2019 Dynamic Pricing Workshop and October 29, 2019 Dynamic Pricing Workshop Report* (“Workshop”). Pursuant to *E-Mail Ruling Providing Draft Agenda and Directions for October 15, 2019 Workshop on Dynamic Pricing* (“E-Mail Ruling”), issued by Administrative Law Judge (“ALJ”) Valerie U. Kao on October 2, 2019, CESA timely files these comments. CESA was granted party status in these consolidated proceedings on October 28, 2019.

I. INTRODUCTION.

CESA appreciates the opportunity to participate in this proceeding to inform and shape the development of dynamic pricing proposals. Real-time pricing (“RTP”), dynamic pricing options, and other rate design innovations are very much needed to increase the utilization and take advantage of the capabilities of distributed energy resources (“DERs”). On the one hand, the Commission has made significant progress in advancing default time-of-use (“TOU”) rates for residential customers and in developing a suite of rate options that encourage grid-beneficial

consumption and align cost drivers with price signals. However, CESA believes that additional rate options are needed to provide sharper signals for customer response, leveraging the automation and DER resources available today. As it stands today, DERs are capable of much more but have faced some initial challenges in integrating into the California Independent System Operator (“CAISO”) market, cannot scale their capabilities by participating in resource- and time-intensive competitive solicitation for grid services, and/or have faced certain limiting factors (though not insurmountable barriers) to performance evaluation (*e.g.*, baseline methodologies) in demand response (“DR”) programs. While these other pathways represent a means to realize some range of DER capabilities, this proceeding’s consideration of dynamic pricing options is timely and offers some advantages of administrative simplicity and scalability compared to these other pathways.

As part of the scope of the discussions in this proceeding, CESA recommends that the Commission also broadly consider innovative rate designs that can enable dynamic and/or automated response from customer loads and DERs if the “rate” does not pass through price signals directly to the customer. Transactive energy, reduced rates for permanent load shapes, and subscription plans, for example, represent innovative new models to provide greater stability to customer bills while allowing automated devices and/or DER providers to act as an intermediary to shield customers from the complexity of dynamic price signals and manage customer loads and/or DER resources to respond dynamically to price signals. As evidenced by Southern California Edison Company’s (“SCE”) presentation on the Retail Automated Transactive Energy System (“RATES”), transactive energy represents a potential pathway to achieve dynamic response from customers. Pacific Gas and Electric Company’s (“PG&E”) Commercial Electric Vehicle (“EV”) Rate was also recently adopted in Application (“A.”) 18-11-003 and represents

another similar type of innovative rate concept (*e.g.*, subscription plan) that should be explored in this proceeding. These plans can support DER deployment and leverage automation while encouraging longer-term price response.

Finally, CESA supports this proceeding's consideration of the various proposals from the Load Shift Working Group ("LSWG"), which can advance the state's grid reliability and decarbonization goals. However, it is unclear on whether these issues can be wholly resolved within the course of this proceeding since there are additional open issues related to the appropriate incentive or pay-for-performance payment, performance and measurement methodologies, program participation and implementation requirements, among other issues. Decision ("D.") 17-10-017 was issued in the DR rulemaking (R.13-09-011) that determined that the final LSWG report would inform the future rulemaking to consider the development of new DR models.¹ If these LSWG product proposals are considered here, CESA recommends that the Commission provide additional clarity on the scope and outcomes sought in this proceeding related to the LSWG proposals and provide additional information on how determinations made in this proceeding will tie into determinations made in the potential new DR rulemaking, if one is still being planned to be established.

II. RESPONSES TO QUESTIONS.

To support the development of dynamic pricing options and rates in this proceeding, CESA provides our responses to the questions posed in the E-Mail Ruling that were the focus of the panel discussions at the workshop.

¹ *Decision Adopting Steps for Implementing the Competitive Neutrality Cost Causation Principle, Requiring an Auction in 2018 for the Demand Response Auction Mechanism, and Establishing a Working Group for the Creation of New Models of Demand Response*, D.17-10-017, issued on November 1, 2017 in R.13-09-011 at 60. <http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M198/K319/198319901.PDF>

Question 1: What technical and operational challenges must be overcome in order to make a dynamic rate using CAISO price data available to customers? What is the estimated cost of that work?

Given the suite of technologies available today, such as energy storage systems and smart load controls, CESA believes that the technical and operational challenges of responding to dynamic rates can be readily addressed by customers that are able to adopt these technologies. However, the challenge will be in supporting customer adoption of these technologies. As a result, CESA supports Sunrun’s Bring Your Own Device (“BYOD”) Program or something similar as a means to offset the upfront costs of adopting such smart energy devices while increasing access to these technologies. Recognizing that this proceeding is a ratesetting proceeding focused on rate designs rather than programs, broadly available dynamic pricing options has the potential to be layered onto existing DER programs – *e.g.*, EV investment programs, Self-Generation Incentive Program (“SGIP”) for energy storage – to support the grid and help with the state’s decarbonization efforts.

For the LSWG proposals presented at the workshop, there may be additional technical, operational, and administrative costs of paying upfront or performance-based incentives, evaluating performance relative to a baseline, and/or to assess the effectiveness of customer load response or shape along with the costs and benefits. Since many of these ideas are pay-for-performance or DR concepts, the Commission should provide clarity in terms of how these load-shift products should be considered as part of this proceeding.

Finally, CESA understands that there may be additional technical challenges faced by the investor-owned utilities (“IOUs”) in implementing and administering these dynamic pricing options. For example, San Diego Gas and Electric Company (“SDG&E”) highlighted how it is currently in the process of transitioning its Customer Information Service (“CIS”) system to be

able to implement recently adopted default time-of-use (“TOU”) rates. These challenges and costs should be identified over the course of this proceeding. At the same time, CESA notes that one of the advantages of dynamic rates is the reduced costs of ongoing monitoring, evaluation, and enforcement required of typical DR or other grid-service programs/contracts. As such, the costs and benefits of dynamic pricing options should also be assessed in comparison to alternative pathways to achieve similar or comparable levels of customer load and/or DER responsiveness.

Question 2: For dynamic rates based on CAISO wholesale market price data, what are the advantages and challenges of using day-ahead vs. day-of and real-time CAISO prices?

Using day-ahead prices have the advantage of providing greater certainty to customers and DER resource operators on how to react or dispatch DERs to economic signals. However, with greater automation and potential innovations in rate design, customers and resource operators should be able to respond to more dynamic price signals from day-of or real-time CAISO prices. Importantly, the Commission should recognize that there might be more value in the real-time market for DERs and ultimately the customer to capture despite the added volatility in prices. While negative prices occurred more frequently from 2017 to 2018, the CAISO reported that only 76 hours of the year where day-ahead prices were negative, representing less than 1% of the total number of hours in the year, though there are certain days and months of the year where negative pricing was more frequently observed.² By contrast, depending on the quarter, the frequency of negative 15-minute prices approximately ranged between 7% and 9% and the frequency of negative 5-minute prices approximately ranged between 9% and 13%.³ As evidenced here and

² 2018 Annual Report on Market Issues & Performance published by the CAISO on May 2019 at 73. <http://www.caiso.com/Documents/2018AnnualReportonMarketIssuesandPerformance.pdf>

³ *Ibid* at 86-88.

discussed further in our response to Question 4, there is much more value that can be captured and delivered when dynamic rates are closer and closer to real time.

Question 3: Besides CAISO wholesale market price data, is there any other data, such as the GHG emissions intensity of the grid, that should be used as the basis for a dynamic rate? What are the advantages and disadvantages of these alternatives?

Greenhouse gas (“GHG”) emissions intensity should absolutely be considered as part of the development of dynamic rates. Fortunately, since GHG emissions intensity is a function of the generation mix of the grid and the marginal resource at a specific time, generation cost allocation ratemaking and/or wholesale market price pass-through in rates should be able to capture the co-benefits of not only aligning consumption with cost drivers but also with GHG emissions. As highlighted by Lawrence Berkeley National Laboratory (“LBNL”) in its presentation, generation costs and wholesale market prices correlate well with GHG emissions in California as the state invests more in low to zero marginal cost renewable generation.⁴ However, GHG emissions do not always align well with customer rates given the lag time of (non-dynamic) rate changes in response to changing generation portfolio mix or to specific weather or grid conditions that may drive GHG emissions intensity or timing to deviate from the economic signals in rates. For these reasons, passing through wholesale market prices in RTP or dynamic rates present a pathway to align rates with GHG emissions. Such data, for example, has already been collected, processed, and transmitted by WattTime via a marginal GHG signal that is being developed as part of SGIP.⁵ Layering such a GHG Signal onto dynamic rate options or by incorporating them into the design may also support this type of alignment.

⁴ CESA understands that this correlation works well for California with significant zero-carbon resource buildout but this may not be the case in other states.

⁵ It is important to note that this GHG signal is a marginal signal that represents the GHG emissions attributable to the marginal resource – *i.e.*, it does not report fuel mix.

Question 4: What is the appropriate time interval for dynamic rates? What are the issues and challenges of implementing rates that are based on the CAISO real time market price that use an interval longer than CAISO real time market data? How will the differences in temporal granularity of pricing be reconciled?

CESA supports hourly granularity for dynamic rates at minimum to better reflect grid conditions. While further granularity could be achieved, such as through a five-minute price or GHG signal, CESA recognizes that this would require certain levels of automation and/or technology deployment, such as from energy storage resources. As the Commission is already aware, by April 1, 2020, SGIP will implement a five-minute GHG signal for energy storage systems to respond to and demonstrate compliance to the program's GHG goals, suggesting that the Commission already believes that this is achievable by the current suite of technologies. This will be soon proven out once the GHG signal is in place and energy storage systems begin incorporating this granular GHG signal into its operations. Importantly, as noted in our response to Question 2, increased levels of time-based granularity provide an opportunity for customers and DERs to capture and deliver significantly more value. Negative pricing, for example, increases with frequency going from the day-ahead to 15-minute to 5-minute prices in the CAISO market. Similar volatility is likely to be found in the GHG emissions and wholesale energy prices by moving toward sub-hourly dynamic pricing, more so than blended and lower-resolution rates. Granted, sub-hourly granularity presents issues around billing processes that need to be worked out, considering residential customers are billed on an hourly basis and commercial customers are billed in 15-minute intervals, but with such dynamic but optional rate designs in place, CESA imagines that the enabling technologies will follow.

However, reduced granularity (*i.e.*, greater than one-hour granularity) would not support the development of dynamic rate options as it would increasingly resemble rate options available

today, which establish multi-hour TOU periods for peak, off-peak, and super-off-peak times. In this proceeding, the Commission should strive for dynamic rate options that go above and beyond what is currently available today.

Question 5: Should dynamic rates focus solely on periods of overgeneration where CAISO wholesale prices are negative (i.e. critical consumption pricing), or should they seek to send critical peak price signals as well?

Dynamic rates should focus on addressing both peak capacity and overgeneration needs as they both address key cost drivers and align with the state's decarbonization goals. Resources like energy storage, for example, are well positioned to address both needs through the charging and discharging of energy at the right times.

Question 6: Given that overgeneration events are a key driver in dynamic rate use and may be limited to a transmission constrained area, should certain dynamic rates be available statewide to all customers, regardless of local grid conditions?

CESA generally supports broad availability of dynamic price options but understands that there may be specific local constraints that could be addressed, such as through circuit-specific adders. SDG&E's VGI and GIR rates are examples that help to address both system-wide and localized needs. To the degree possible, the Commission should strive to develop dynamic rates that address both needs without having to make trade-offs in terms of designing a rate that addresses one or the other.

Question 7: At which level of granularity should wholesale prices be sourced? Should it be the default load aggregation point (DLAP), the sub-load aggregation point (sub-LAP), price node (Pnode), or circuit substation-level? What challenges would the use of any sub-system level of granularity present in terms of design, implementation, and frequency of updates?

CESA generally supports the use of the sub-load aggregation point (“sub-LAP”) prices as striking the appropriate balance in locational granularity and implementability.

Question 8: How should distribution rates be treated in a dynamic rate scheme? To what extent should distribution capacity costs be included in a dynamic rate?

Distribution capacity costs can be integrated into any dynamic rate adopted in this proceeding, but such costs should be incorporated as time-varying base rates wherever possible and reasonable, with potential adders to support localized circuit-specific peak needs. SDG&E’s Grid Integrated Rate (“GIR”) from its Transportation Electrification (“TE”) Applications present a potential template for developing rates that incorporate these distribution capacity costs.

Question 9: Do SDG&E customers currently have the technology available to automatically take advantage of a dynamic rate?

CESA believes that SDG&E and other IOU and community choice aggregator (“CCA”) customers have the technologies today to take advantage of a dynamic rate. Energy storage is one technology that can enable customers to shift load and respond to dynamic price signals while minimizing customer attrition and comfort since storage loads are separate from customer loads. California also has the largest behind-the-meter (“BTM”) energy storage installations in the nation, highlighting how storage technologies are widely available. Energy storage accessibility will only continue to grow with continued support through SGIP. Moreover, there are a wide range of additional technologies, such as smart load controls (*e.g.*, grid-integrated water heaters, smart thermostats), that are widely available to customers. CESA does not view technology availability or maturity as a barrier to dynamic rate subscription, though additional support via incentive programs are needed for various customer segments to support their adoption.

Question 10: If most adjustments in a dynamic rate take place within the generation component of the rate, how will CCAs operationalize the rate if at all? Are CCAs capable of mirroring or otherwise designing a dynamic rate that its customers can take advantage of? What operational challenges do the CCAs face with such a rate? How much does the success and benefits of wider deployment of more dynamic rates depend on CCAs following suit?

CESA generally agrees with the sentiment that IOUs and CCAs will need to collaborate on developing dynamic rates given that they are responsible for different components of rate design for unbundled customers.

Question 11: What sorts of customer education, outreach, and technology adoption might be necessary to ensure eligible customers maximize the benefits of these rates?

Customer education and outreach will be critically important to ensure eligible customers are able to respond in a timely and meaningful fashion to dynamic rates, but the level and type of education and outreach needed may vary with the structure and type of the dynamic rate. With the greater adoption of automated devices or the use of easier-to-understand subscription plans for transactive energy that both could shield customers from the complexities of real-time pricing, CESA imagines that customer education and outreach needs may be reduced and more focused upfront to encourage customers to adopt these devices or opt into these rate options.

Question 12: What are the potential revenue collection and cost shift impacts of adopting dynamic rates and how can these impacts be managed while satisfying long term rate design and retail market development goals?

CESA understands that dynamic pricing options make it more difficult to forecast whether the IOUs will be able to recover the authorized revenue requirements. However, to the degree possible, these concerns can be mitigated by ensuring that the appropriate rate components are

incorporated into the dynamic price, such as how SDG&E's Vehicle-Grid Integration ("VGI") Rate or Southern California Edison Company's ("SCE") real-time pricing that includes a base rate or Base Period Usage ("BPU") level that ensures some "base" level of recovery of generation and distribution costs. To avoiding diluting the load shift incentive though, the Commission should be careful to set a time-varying base rate if possible. At the same time, by allowing for dynamic changes that allow for pass-through of wholesale day-ahead prices and/or adders for circuit-specific needs, dynamic prices send a sharper signal to customers to manage their customer loads in real time or on an hour-by-hour basis, delivering additional value to the grid.

Furthermore, CESA understands that cost shifting is a concern if a select number of customers opt into the dynamic pricing options. However, as an optional rate, cost-shifting concerns can be mitigated. Additionally, with BYOD Programs or similar types of technology incentive or deployment programs that increase access to enabling technologies, some of the concerns around low participation from the Public Advocates Office ("PAO") can be addressed to some degree. By making dynamic pricing options broadly available and layered onto existing DER programs, some of the access and participation concerns can be addressed by having the Commission instead focus on DER programs, such as done for the SGIP Equity Budget, which provides higher incentives for low-income and disadvantaged community customers that face greater or unique financing challenges to adopt enabling storage technologies that can then participate in dynamic pricing options.

III. CONCLUSION.

CESA appreciates the opportunity to submit these comments in response to the workshop and the October 29, 2019 Workshop Report. We look forward to working with the Commission and stakeholders in this proceeding.

Respectfully submitted,

A handwritten signature in blue ink, appearing to read "Alex J. Morris".

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CALIFORNIA ENERGY STORAGE ALLIANCE

Date: November 12, 2019