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ev energy Response to Proposed Regulatory Language in Docket Number 21-OIR-03

Additional submitted attachment is included below.

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February 4, 2022

California Energy Commission
Docket Unit
Re: Docket No. 21-OIR-03
715 P Street, MS-4
Sacramento, CA 95814

Re: Notice of Proposed Action in Docket Number 21-OIR-03 "2022 Load Management Rulemaking"

Dear Commission Staff:

EV.ENERGY CORP ("ev.energy") appreciates the opportunity to provide comments on the proposed regulations in the California Energy Commission's ("CEC") Proposed Regulatory Language, submitted by Commission Staff to the 2022 Load Management Rulemaking on December 22, 2021.

The proposed regulations represent an evolution of the existing Load Management Standards ("LMS") to advanced retail electricity rates that reflect the real-time marginal cost of electricity. The rates will incentivize customers in all sectors to shift load, assisted by automation technologies. The importance of automation interplays with the Flexible Demand Appliance Standards ("FDAS"), which recently administered a Request for Information ("RFI", to which ev.energy responded) and sought to develop standards for technology that would enable this form of automation.

Ev.energy enthusiastically supports the proposed updates to the LMS regulations. A unifying requirement for dynamic retail rates will create an incentive for all utilities to develop tariffs that take advantage of underutilized distributed resources, such as electric vehicles, while empowering progressive utilities to develop even more innovative programs. Under these dynamic retail rates, customers, and especially EV drivers, will stand to save hundreds of dollars per year just by optimizing their EV charging. This optimized charging will also be beneficial to the grid, which should see a meaningful and coordinated flattening of its daily load curve as more and more customers utilize their in-home technology to automatically shift load.

We encourage the Commission to consider how to maximize customer choice and minimize greenhouse gas (GHG) emissions while the Commission finalizes these LMS regulations. As

ev.energy shared in its November 1, 2021 comments to the FDAS RFI, technology that would enable customers through automation to easily participate on these tariffs exists today and is ready to scale. Missing are the proper incentives to drive rapid growth. Based on our first-hand experience serving customers who are on dynamic marginal rates and our desire to see these rates scale, we make the following recommendations:

1. The Commission should accelerate its timeline for tariff adoption so that a form of dynamic rates or equivalent programs are available to customers within 18 months of the adoption of the regulation.
2. The Commission should allow and encourage dynamic marginal rate tariffs that disaggregate individual technologies from the whole home.

We expand on our support for these proposed regulations and our two recommendations below.

BACKGROUND ON EV.ENERGY

Ev.energy is a leading software platform that manages residential EV charging for utilities and grid operators through direct load control. With services and customers across all 50 U.S. states including a significant presence in California, we provide an end-to-end solution for utilities, retailers, and grid operators to actively manage residential EV load through a suite of Application Programming Interfaces ("APIs") that connect to both vehicle telematic systems and networked EVSEs such as ChargePoint and Siemens. Our platform enables our customers to automatically engage in a variety of load management programs.

Ev.energy's software delivers multiple sources of value to grid operators, utilities and their residential customers. Ev.energy currently provides demand-response services by responding to California Independent System Operator ("CAISO") Flex Alerts and Emergency Load Reduction Program events. Ev.energy uses its vehicle telematics and EVSE APIs to curtail charging on all connected devices to deliver demand reductions during the specified windows and continuous dynamic load optimization at other hours. Beyond demand response, ev.energy also actively manages the EV driver's charging and shifts it to the off-peak hours on their time-of-use rate. In high-solar territories like California, ev.energy is further aligning EV charging with hours of high renewable generation (and low marginal costs of electricity) and mitigating the 'duck curve.' By engaging and rewarding EV drivers for their participation through an award-winning mobile app, ev.energy enables more than 95% of the charging on its platform to be optimized in line with grid/utility signals, with the remaining 5% attributed to temporary customer overrides or opt-outs.

In summary, our managed charging software is a technology-enabler helping utilities and grid operators such as the CAISO to realize:

- *Reliable load shifting.* We are consistently shifting ~90% of EV loads to off-peak hours across PG&E's time-of-use rates;

- *Meaningful demand response (DR) curtailment.* By maximizing customer participation in DR programs and events we are able to deliver an average of 1.5 kW

of load reduction per EV (average of all vehicles in our VPP, including those not plugged in/charging during an event) to CAISO and other grid operators;

- *Continuous renewable generation alignment.* We are aligning ~50% of the average California customer's EV charging with low-carbon generation, reducing the carbon intensity of the electricity used to charge by as much as 82%;

- *Customer savings.* EV drivers in California are saving over $600/year on their EV charging by charging off-peak with ev.energy.[1]

FLEXIBLE DEMAND CASE STUDIES

The combination of a dynamic tariff and an enabling technology such as ev.energy's is already a success in other energy markets and jurisdictions. In the U.K., ev.energy has partnered with Octopus Energy to serve EV drivers on Octopus' dynamic tariff based on real-time hourly energy market prices. Octopus customers use ev.energy's app to enable managed EV charging that automatically shifts charging to the cheapest periods in the day. This has resulted in thousands of customers saving $100 or more on their energy bills each year. In rare instances customers *are even paid* to charge their vehicle when the price of electricity is negative due to overgeneration. For example, during Storm Dennis in February 2020, wind generation surged overnight and ev.energy responded by shifting charging load from the typical charge window (4pm to 8pm) to the middle of the night when the wind was at full capacity and prices were negative.

Similarly, Ameren Missouri has an hourly dynamic rate called PowerSmart Pricing that mirrors MISO day-ahead prices. While optimizing energy consumption by the hour may be impractical at the household level, ev.energy partnered with Ameren Missouri to enable automatic cost optimization for EV customers via the ev.energy mobile app. Ameren customers set a departure time in the app, and ev.energy's telematics APIs polled the battery level to calculate the kWh of charge required between plug-in and departure, and scheduled charging during the lowest-priced hours based on Ameren's 24-hour forecasts. An EPRI-verified study reported that customers using ev.energy saved over $50 per year on their energy bills through ev.energy's hourly price optimization.[2]

These case studies highlight that the success of hourly/dynamic rates is not hypothetical but realistic and actionanable. Coupled with enabling technology, customers on dynamic rates have already shown they can shift load to periods of lower emissions and receive meaningful bill savings along the way.

[1] See BloombergNEF's analysis at https://about.bnef.com/blog/ev-drivers-save-big-when-they-charge-smart/.
[2] See March 2021 "MANAGED EV CHARGING SOFTWARE Incubatenergy Labs 2020 Pilot Project Report", available at https://skipsolabs-epri.s3.amazonaws.com/uploads/content/44bf0c2a83c23c767aa6ef08548c268bb68864ba.pdf.

PROPOSED RECOMMENDATIONS

The CEC should accelerate its timeline for tariff adoption.

As ev.energy has described above and in its comments on the FDAS RFI, the technology to meaningfully shift residential load already exists today. EVs typically represent the single greatest load within a house, and companies such as ev.energy are able to fully and automatically control that load. There is no technical reason why a house with an EV would not be able to participate *right now* on a dynamic tariff.

Furthermore, the number of EVs projected to be grid-connected are forecast to skyrocket in the near future. California has set the aggressive goals of reaching 250,000 electric vehicle charging stations across the state by 2025 and five million zero-emission vehicles on the road by 2030.[3] Given the load impact EVs have on the grid (currently estimated as hundreds of MWs at the peak), it would be appropriate to accelerate regulations that incentivize load shifting. Doing so will better stabilize the grid and prevent investment in grid infrastructure that may be rendered unnecessary once there is broad participation on these dynamic tariffs and the load curve is sufficiently flattened .

The CEC should allow and encourage dynamic marginal rate tariffs that disaggregate individual technologies from the whole home.

The Commission proposes to require that at least one marginal cost rate per customer class is applied for within one year of these regulations being adopted. However, it appears that the actual design of the tariff will largely be left up to the utilities. We strongly recommend that the utilities consider optional tariffs for the distributed resources in the home rather than the whole home itself.

Controlling the whole home load could require a host of technologies and significant aggregator coordination. For this reason, we believe it may be more efficient to focus on the most impactful technology. As we note above, EVs are typically the biggest source of household demand. EVs are also an inherently flexible distributed resource, both with simple communication protocols, fast response time, and large-capacity battery. Furthermore, the EV onboard telematics and EVSE hardware (L1/L2/DC) all generate revenue-grade meter data that can be used for settlement. Taken together, these characteristics demonstrate that EVs are a premium technology for a specialized, disaggregated dynamic tariff. In addition, EVs are also primed to participate on such a tariff today, and a specialized tariff for EVs would enable utilities to accelerate the rollout of a dynamic marginal rate tarif.

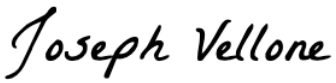
Finally, a disaggregated tariff helps to include customers that may otherwise be unable to participate due to their building type. For example, customers that charge in a multi-unit dwelling or at work could utilize connected vehicle telematics to show charging behavior throughout the entire day in a specialized, EV-specific tariff.

[3] See https://www.cpuc.ca.gov/zev/.

CONCLUSION

Ev.energy is excited that the Commission seeks to support such innovative rates. If these rates are implemented correctly, they will bring about meaningful load flexibility that will help maintain grid reliability throughout California. Ev.energy thanks the CEC for providing the opportunity to comment, and looks forward to working with the CEC and other stakeholders to develop these innovative tariffs. Please contact us with any questions.

Sincerely,



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