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Tesla Comments - IEPR Energy Roadmaps June 13 Workshop

Additional submitted attachment is included below.



June 27, 2017

Chair Weisenmiller and Energy Commission Staff
California Energy Commission
Dockets Office
Re: Docket No. 17-IEPR-12
1516 Ninth Street
Sacramento, CA 95814-55 12

RE: June 13, 2017 Joint Agency Workshop on the Review of the Actions and Status of State-level Energy Roadmaps

Dear Chair Weisenmiller and Energy Commission Staff:

We are writing on behalf of Tesla to share our comments in response to the Energy Roadmaps workshop that took place on June 13, 2017. The status of the recommended action items in the three Energy Roadmaps including energy storage, demand response and vehicle grid integration, as developed in collaboration with the California Public Utilities Commission (CPUC) and the California Independent System Operator (CAISO), is an important element to consider in the development of the 2017 Integrated Energy Policy Report (IEPR).

In response to the information presented at the workshop, Tesla focuses its comments below on the capabilities of behind-the-meter (BTM) battery energy storage systems both in the context of the Energy Storage Roadmap and the DR Roadmap.

Enabling Behind-the-Meter Battery Export

Overall, Tesla is pleased to see the comprehensive list of activity updates as it pertains to the Energy Roadmaps provided by the Joint Agencies during the workshop. It appears that progress has been made in many of the areas originally identified as opportunities for advancing storage and other distributed energy resources (DERs) through a variety of channels including regulatory proceedings at the CPUC and the Electric Program Investment Charge (EPIC) research and development (R&D) projects at the CEC. After listening to the discussion at the June 13, 2017 workshop and reviewing the Energy Storage and DR Roadmaps, it is evident that stakeholders and the Joint Agencies recognize the substantial value energy storage can provide as a grid asset. Yet it is unclear to what extent progress has been made in enabling one of the key capabilities of BTM storage assets, namely the ability to export to the grid during times of grid need. Currently, BTM batteries are either not compensated or prohibited from exporting energy to the grid for purposes of providing demand response or resource adequacy, even though the batteries are capable of providing energy and capacity at times when it is badly needed. To the extent that both wholesale and retail market rules inhibit the full utilization of BTM storage resources, substantial value is being left on the table. As BTM storage systems continue to proliferate, the untapped value only increases.

A simple example of this export constraint limiting the true value of BTM batteries is a single residential home that deploys a 5 kilowatt (kW)/10kWh battery. While the battery may have been purchased by the customer to help manage their energy bills under time-of-use (TOU) rates, or to provide back-up power in the event of a grid outage, it has the capability to provide a large number of grid services for the distribution grid or in the wholesale market. In particular, the battery could easily discharge in the early evening hours during the time of both the local distribution system's peak and the broader system peak seen in the wholesale market. If the battery were to discharge at this time, it would reduce the need for both distribution and system capacity. While the battery is capable of providing up to 5 kW for two hours of the

evening peak, the home owner's load in this example is, on average, relatively small during this time – only 1 kW. Under the existing paradigm, the 4 kW of capacity that is technically available to address grid needs is essentially stranded.

Tesla has highlighted this constraint in several venues including the Energy and Distributed Energy Resources (ESDER) stakeholder process at the CAISO and relevant CPUC proceedings such as DR and energy storage.¹ Because this issue crosses the jurisdiction of several agencies and there is currently no single venue to address it, Tesla recommends that the final 2017 IEPR contains a section that highlights the export constraint as a limitation to realizing the full value of BTM batteries.

Demand Response Rules Limit Behind-the-Meter Batteries

The BTM battery export constraint is further directly implicated by antiquated DR rules. Traditional DR programs were designed for a different suite of technologies available at the time of program development. For the most part, these programs only consider drop in load. In contrast to typical load-drop only DR programs, DERs such as storage that can export offer the potential for much higher availability and reliability because their usable capacity is not restricted by host load. A fully charged battery can fully discharge during an event even if host load is at zero. Under current DR rules, however, the utility and/or Independent System Operator (ISO) administering the DR program would not recognize any benefit from the battery beyond its ability to reduce the 1 kW of customer load. This is because the net home load is used as limiting criteria for the basis of measuring the benefit provided by the battery.

Hence, Tesla recommends that the final 2017 IEPR also make specific recommendations to 1) re-evaluate traditional DR programs to encompass new technologies including BTM batteries and 2) modify existing DR program rules and/or establish new programs at the CAISO and the CPUC that recognize and compensate batteries for having the capacity to and exporting during DR events even when on-site load is zero.

* * *

As the CEC continues to develop the 2017 IEPR, Tesla recommends that a discussion on BTM battery energy storage within the report recognize the additional grid value that can be gained by enabling export from BTM batteries to the grid and the existing policy barriers that need to be addressed.

We appreciate the opportunity to comment on the June 13, 2017 workshop and look forward to continuing to work in partnership with the CEC to provide input in the development of the 2017 IEPR.

Sincerely,

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¹ May 18, 2017, Tesla ESDER Phase 2 Comments available at: <https://www.caiso.com/Documents/TeslaComments-EnergyStorageandDistributedEnergyResourcesPhase2-ThirdRevisedStrawProposal.pdf>; Feb. 14, 2017, SolarCity Comments DR, R.13-09-011, available at: <http://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M175/K427/175427880.PDF>, (Tesla acquired SolarCity on November 21, 2016.)