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Tesla Comments - Aug 22 2017 Staff Workshop

Please find attached Tesla's comments in response to Aug. 22, 2017, staff workshop.

Additional submitted attachment is included below.



September 6, 2017

Commissioner Andrew McAllister and Energy Commission Staff
California Energy Commission
Dockets Office
Re: Docket No. 17-BSTD-01
1516 Ninth Street
Sacramento, CA 95814

RE: August 22, 2017 Staff Workshop on Residential Solar Photovoltaic, Storage, the Energy Design Rating and Grid Integration Impacts

Dear Commissioner McAllister and Energy Commission Staff:

I am writing on behalf of Tesla to share our comments in response to the 2019 residential standards workshop focused on solar photovoltaic (PV), storage, Energy Design Rating (EDR) and grid integration impacts that took place on August 22, 2017. Tesla previously submitted comments on May 5, 2017, which among other items provided a recommendation of how to incorporate a credit mechanism for solar PV plus storage within the EDR score and clarified the capabilities of behind-the-meter storage systems. Upon participating in the August 22, 2017 workshop and reviewing the information presented by California Energy Commission (CEC) staff, Tesla focuses its comments below on reiterating the benefits of incorporating and accurately valuing storage for the 2019 code update. The key value for storage that must be captured in the 2019 code is to enable batteries to offset prescriptive energy efficiency and PV measures through the performance compliance approach.

Battery storage is one of the most flexible measures to meet the EDR score and reduce the home Time Dependent Value (TDV) because of its ability to offset electricity consumption from any home load at any time of day. Furthermore, builders should have the flexibility to achieve design standards. Feedback from builders indicates that the cost-effectiveness of many efficiency measures is variable, and measures that are cost effective on some homes might not be cost effective on others.¹ As state and building code agencies adopt stronger efficiency and renewable targets, some measures are approaching the point of diminishing returns. To that extent, batteries should be evaluated as their own category of credit/measure and be fully valued for their ability to reduce the EDR score and TDV. Creating a battery credit enables the adoption of a new and valuable technology to compete on an equal playing field with all technologies. A battery credit should therefore not be seen as a competitor to specific industries. Batteries can offset all technologies and should not be viewed as offsetting any single measure, efficiency or renewables.

Solar PV plus Energy Storage Compliance Mechanism

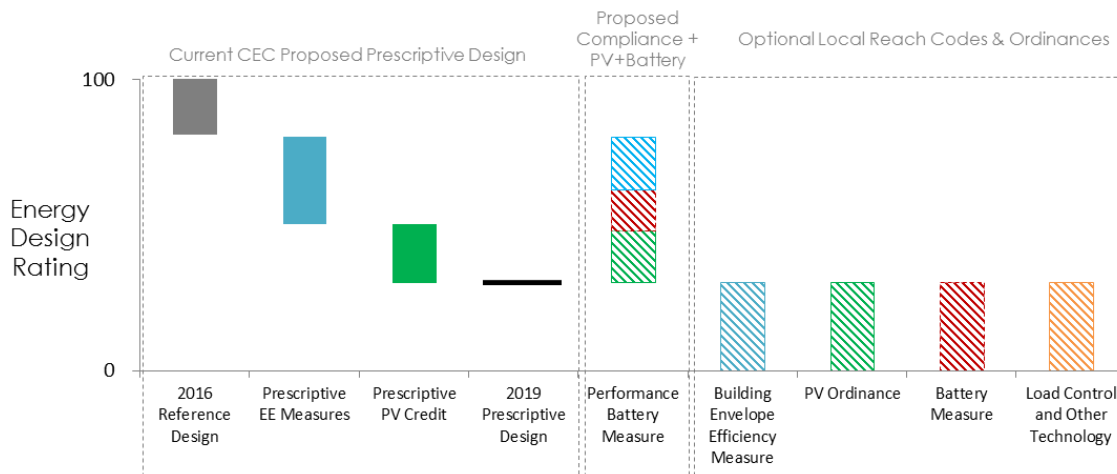
It is promising that during the August 22, 2017 workshop and in comments submitted, CEC staff and other stakeholders stressed the value that energy storage can provide as part of a performance-based compliance mechanism for the 2019 code update. The CEC staff presentation specifically states that as part of a strategy to mitigate distribution system impacts with proposed PV measures, there is a need for “strong compliance credits for battery storage to encourage self-

¹ http://docketpublic.energy.ca.gov/PublicDocuments/17-BSTD-01/TN217469_20170508T093603_California_Building_Industry_Association_CBIA_Comments_2019_ZNE.pdf

utilization on peak and avoidance of exports during off peak hours.”² Additionally, the Solar Energy Industries Association (SEIA), the California Solar Energy Industries Association (CALSEIA) and the California Building Industries Association (CBIA) all submitted comments in favor of enabling a credit mechanism for solar PV and storage to offset energy efficiency measures for the EDR score.³ Tesla likewise continues to be optimistic on the opportunities for incorporating storage within the 2019 code. In our previous comments, we provided a lengthy description of the storage’s ability to provide grid harmonization strategies as envisioned in a Zero Net Energy (ZNE) code future, which is particularly amplified when storage is paired with solar systems.⁴ The key take away from that discussion is that energy storage coupled with PV is a fully dispatchable, carbon-free solution that will be critical to meeting the state’s ZNE goals and overall greenhouse gas (GHG) targets.⁵ We therefore continue to support our previous recommendation that the CEC should develop an EDR credit value for solar plus storage as well as stand-alone storage that applies to the overall EDR score. This recommendation as outlined in our comments from May 5, 2017 is briefly summarized below.

EDR Credit Value

Per our May 5, 2017 comments, for the EDR tradeoff credit value for storage, we continue to recommend utilizing two potential options: 1) solar plus storage and 2) stand-alone storage. Under the performance based approach, a builder should have the flexibility to include both solar and storage to meet grid efficiency and cost effectiveness standards and obtain an acceptable EDR target as determined by the CBECC-Res software. The key mechanism to do this is to provide a tradeoff credit for solar plus storage above the 2016 standard energy efficiency requirements. Below is an illustrative example that demonstrates how battery storage is used as a performance measure in conjunction with other efficiency measures to meet the efficiency portion of the EDR calculation while PV is added separately to reach the overall 2019 EDR value.



² http://docketpublic.energy.ca.gov/PublicDocuments/17-BSTD-01/TN220876_20170824T105443_82217_ZNE_Strategy_Presentation.pdf; Slide 52

³ http://docketpublic.energy.ca.gov/PublicDocuments/17-BSTD-01/TN217466_20170505T170153_Evelyn_Butler_Comments_Regarding_2019_Building_Energy.pdf;
http://docketpublic.energy.ca.gov/PublicDocuments/17-BSTD-01/TN217469_20170508T093603_California_Building_Industry_Association_CBIA_Comments_2019_ZNE.pdf

⁴ Tesla Comments May 5, 2017, pp.6-7; available at: http://docketpublic.energy.ca.gov/PublicDocuments/17-BSTD-01/TN217464_20170505T163804_Francesca_Wahl_Comments_Tesla_Comments_2019_ZNE_Residential_St.pdf

⁵ It is important to highlight that when couple with solar, storage can be controlled to charge 100% from the solar system.

As outlined by CEC staff during the workshop, the proposed 2019 standards approach includes increasing efficiency requirements for high performance attics and walls similar to what was provided at the April 20, 2017 workshop.⁶ Allowing solar and storage to offset the energy efficiency requirements under the performance based approach that goes beyond the 2016 standard efficiency requirements should not be counter to the loading order because it still enables the utilization of stringent energy efficiency measures first.

As discussed previously, there is also a second scenario where standalone storage at a new home that is not paired with solar can provide value. In this scenario as well as the solar plus storage scenario, the battery is providing benefits and helping with grid harmonization efforts. Similar to other efficiency measures, the storage offsets energy consumption on-peak and should be valued more highly than measures that do not given the TDV construct.

When determining the actual TDV and EDR value of battery storage, it is important to distinguish the solar PV kilowatt (kW) array size compared to the prescriptive design measures.⁷ We continue to recommend utilizing our previous proposal that if 6 kW are in fact installed, the additional 3 kW beyond the prescriptive amount should be credited at the full TDV value under the performance battery measure.

* * *

As the CEC continues to refine and finalize the 2019 standards approach, Tesla continues to recommend viewing solar PV plus storage as a performance based compliance mechanism that is no different from the proposed performance based energy efficiency measures. Specifically, in order to take full advantage of the storage's capabilities to reduce TDV and improve grid efficiency, stand-alone storage as well as solar plus storage must be allowed to offset portions of the energy efficiency EDR score. As CEC staff concludes in their workshop presentation, there is "limited opportunity for regulated loads to lower EDR in the future because in most climate zones, plug load are now the dominant load and they are unaffected by efficiency measures."⁸ Solar PV and demand flexibility are critical to achieving low EDR scores and meeting the ZNE goal. Recognizing there are outstanding challenges that CEC staff must work with stakeholders to overcome, we continue to support enabling pathways for the California to meet the 2020 ZNE goal.

Tesla appreciates the opportunity to submit additional comments on the proposed 2019 standards approach in regards to solar, storage and the EDR. We look forward to continuing to work in partnership with the CEC to achieve the state's clean energy and GHG goals.

Sincerely,

Francesca Wahl
Sr. Associate, Business Development and Policy
Tesla

⁶ CEC staff presentation, August 22, 2017, slide 19. Available at: http://docketpublic.energy.ca.gov/PublicDocuments/17-BSTD-01/TN220876_20170824T105443_82217_ZNE_Strategy_Presentation.pdf

⁷ Please reference Tesla's comments from May 5, 2017 for a detailed description.

⁸ CEC staff presentation August 22, 2017, Slide 27. Available at: http://docketpublic.energy.ca.gov/PublicDocuments/17-BSTD-01/TN220876_20170824T105443_82217_ZNE_Strategy_Presentation.pdf