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SCE Comments and Redlines on 2019 Title 24 Standards

Please accept SCE's comments and redline edits on the 2019 Title 24 Standards (2 of 2 documents)

Additional submitted attachment is included below.

October 27, 2017

California Energy Commission
Docket Office, MS-4
1516 Ninth Street
Sacramento, CA 95814-5512
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Re: Southern California Edison Company's Comments on the California Energy Commission Docket No. 17-BSTD-01: October 13, 2017 Meeting on Residential Solar Photovoltaic, Storage, the Energy Design Rating and Grid Integration Impacts for the 2019 Building Energy Efficiency Standards

Dear Commissioners:

Southern California Edison ("SCE") appreciates the opportunity to submit written comments on the October 13, 2017 meeting regarding Residential Solar Photovoltaic, Storage, the Energy Design Rating and Grid Integration Impacts for the 2019 Building Energy Efficiency Standards. SCE also appreciates the California Energy Commission's ("Energy Commission," or "CEC") efforts and accomplishments to date on the Title 24 standards, and looks forward to providing additional support and input going forward.

SCE supports the Energy Commission's overall approach to the proposed building energy standards and appreciates the interest and effort shown towards integrating and harmonizing buildings with the electric grid. SCE supports the enabling of customers to have options in managing their energy use. To that end, SCE is modernizing the grid to support California's transition to a cleaner and more sustainable future that includes distributed renewable generation resources, energy efficiency, energy storage, electric vehicles, and demand response.

SCE agrees with the CEC that energy storage will play an important role in achieving California's Zero Net Energy policy objectives and supports the inclusion of energy storage as an option for achieving compliance credit in the 2019 Title 24 standards. SCE is actively working on the integration of battery storage, as well as other distributed energy resources (DERs), with the electric grid through various California Public Utilities Commission (CPUC) rate and interconnection tariff proceedings, research efforts, incentive programs, CEC working groups, etc., to achieve this challenging but critical integration. The value of distribution services that technologies such as battery energy storage can offer varies widely based on location-specific characteristics. The value of energy storage and its subsequent treatment by Title 24 is currently being investigated and will need further study and coordination with the utilities and storage industry.

SCE looks forward to continued engagement with CEC staff on this important effort and recommends quarterly meetings with the utilities to apprise each other on the progress that is being made.

The following are the Key Questions for the Utilities that were posed by the CEC and SCE's responses:

1. Should we allow a limited battery discharge to the grid during the high TOU periods to maximize battery benefits, resulting in a smaller more harmonized PV system?

The primary response to this questions will be dependent on the outcome of the various regulatory proceedings that are currently underway. In particular, the utilities' interconnection rules and tariffs (Rule 21, Generating Facilities Interconnections for the IOUs that are currently being updated) that will be in effect during the time when the 2019 Title 24 building energy standards are in effect, will largely provide the response to this question. It is anticipated that Rule 21 would include the requirements for smart inverters not only for PV, but will also be applicable to energy storage systems. It is also anticipated that Rule 21 will allow for battery discharge to the grid and smaller PV systems that are more harmonized with the grid. These smart inverter requirements are currently being developed with the IOUs and the CEC.

The development of the NEM successor tariff, residential time of use rates, and incentive programs that will be in effect for the 2019 Title 24 has also begun but is still in very early stages. It is anticipated that these proceedings and planning processes will also go to support smaller battery discharge to the grid and PV systems that are more harmonized with the grid.

Given these other proceedings and their anticipated outcomes, SCE believes that the Title 24 standards should allow capabilities for this type of battery operation, but not necessarily indicate how it should be operated given the current uncertainties. For the purposes of developing the compliance software and ACM, SCE recommends that the CEC uses the "perfect knowledge" battery controls algorithms and apply a conservative factor to "discount" the contribution of the battery. At present, batteries are generally treated by the utility distribution planners as an incremental load that will be charged at peak times, and discharged to the grid simultaneously with maximum PV output to the grid despite the fact that they can be potentially controlled to be more of a grid asset.

As the technology, controls, tariffs, rates, and utility programs and other market interventions are better defined and developed, this discount can be reduced to better reflect actual performance. A past example of this approach would be the basic whole house fans that have the savings heavily discounted because of the large uncertainty of occupants operating the system with perfect knowledge (e.g. opening windows and operating the fan when outdoor temperature is sufficiently low, and operating the fan at night despite the fan noise being too loud). Subsequently, as advanced whole house fans became available, and using louvers to let in outdoor air tied to intelligent controls to actuate the fan and louvers, the discount factor is reduced since the system has more capabilities, and is more likely to be operated with perfect knowledge.

2. Should utilities have the capabilities to control the batteries?

Yes. The capability for utility control can happen either through direct control with customer batteries or via control through third-party aggregators. The utility is the only entity that has visibility of the entire distribution system from a reliability perspective and can provide dispatch instructions that are aligned with real-time grid needs. However, at this time the utilities don't have this mass-scale control capability acquired or implemented. The utilities are working very diligently in the next few years to acquire, pilot (with lessons learned), and deploy such capabilities. Lastly, in order to avoid any misunderstanding, SCE wants to emphasize that any future utility control of batteries would be a customer choice with customers having to "opt-in" to a utility and/or third party program.

- 3. Should there be a storage only credit (no PVs)? If yes, should the credit be for:**
- a. Charging from the grid and using the stored electricity for self-use only, or**
 - b. Charging from the grid and using for self-use plus discharge to the grid during peak periods?**

SCE does not believe that compliance credit should be provided for storage-only systems at this time.

SCE believes that rather than provide credits for storage, it would more effective to provide incentives for the operation of a battery such that it provides grid harmonization. This could potentially be accomplished through TOU rates, utility incentives, and other market interventions.

- 4. Should storage be mandatory for very large PV systems, like 8 kW or more?**

As noted above, in the short term, this requirement would generally cause utility infrastructure costs to increase since utility planners would have to assume higher system capacities to accommodate both the PV and the battery discharging to the grid simultaneously. As noted above, it is anticipated that rates, tariffs, interconnection requirements, utility programs and other market interventions would greatly reduce this from happening, however, the utilities cannot currently make that assumption. These higher utility infrastructure costs would currently be spread to the developers/builders/home buyers and ratepayers.

Conclusion

SCE agrees with the CEC that batteries that are advanced control-capable but are only operated with basic controls (i.e. charge only from solar PV and discharge is never greater than host load) should be given compliance credit in the 2019 Title 24 building energy standards because the energy storage device will provide grid benefit with basic control immediately and will still be enabled to provide more advanced future capabilities of grid harmonization later down the road. As noted above, SCE recommends initially basing the credit on a conservative (large) discount or de-rating of a battery control having "perfect knowledge." In subsequent code cycles, as more knowledge about the operation of energy storage systems is gained, more credit (less discount of energy performance) can be given. Lastly, Title 24 needs to defer to, or include interconnection requirements (as defined by Rule 21 for IOUs), such as smart inverter certification that must be included in the general requirements for battery

storage. Refer to the attached edits to Joint Appendix JA11 – Qualification Requirements for Battery Storage System.

SCE appreciates the Energy Commission’s consideration of these comments and looks forward to its continuing collaboration with the Energy Commission and stakeholders as these standards are further developed and deployed. Please do not hesitate to contact me at (916) 441-3979 with any questions or concerns you may have. I am available to discuss these matters further at your convenience.

Very truly yours,

/s/

Catherine Hackney