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## SolarCity Comments Draft Funding Initiatives 2018-2020 EPIC

*Additional submitted attachment is included below.*

SolarCity

March 20, 2017

California Energy Commission
Dockets Office
Docket No. 17-EPIC-01
1516 Ninth Street
Sacramento, CA 95814-5512

RE: 2018-2020 Triennial Electric Program Investment Charge (EPIC) Investment Plan

Dear Commissioners,

SolarCity respectfully submits the following comments in response to the draft 2018-2020 EPIC investment plan provided during the March 14, 2017 California Energy Commission (CEC) workshop.

SolarCity is California's leading full service solar power provider for homeowners and businesses – a single source for engineering, design, installation, monitoring, and support. The company currently has approximately 4,000 California employees based at more than 30 facilities around the state and had installed solar energy systems for over 300,000 customers nationwide as of September 30, 2016. Tesla, Inc. acquired SolarCity on November 21, 2016.

## General Comments

SolarCity is pleased to see that the draft funding initiatives for the 2018-2020 EPIC investment plan as presented by staff during the March 14 workshop build on several of the project areas suggested by SolarCity.[1] These include transmissions deferral, multi-use optimization, and aggregation of distributed energy resources DERs. In general these project areas fall under the sections of the investment plan we are most interested in having the CEC fund, including theme 2 (accelerating widespread customer adoption of DERs) and theme 3 (increase system flexibility from low-carbon resources). Additionally, SolarCity supports the inclusion of theme 7 (develop tools and analysis to inform energy policy and planning decisions) and theme 8 (catalyze clean energy investment in California's disadvantaged communities) within the draft funding initiatives as these areas continue to represent opportunities to help meet the state's climate and clean energy goals. Finally, in our comments below, we highlight the importance of re-considering the inclusion of the other project areas we previously proposed in order to ensure current market and research gaps are adequately addressed.

Theme 2 – Accelerating Widespread Customer Adoption of DERs

SolarCity supports the continued focus on addressing the barriers to widespread customer adoption of DERs. One area that is particularly relevant is S.2.3.1, which among other things aims to clearly define revenue opportunities for and value the benefits of energy storage in California.[2] In SolarCity's previous comments, we articulated the need to further refine multi-use optimization for DERs including storage. This funding imitative aligns well with that idea. Funding initiative 2.4.1 regarding Advanced Energy Communities (AEC) is important for driving local communities toward meeting their climate goals. In addition to the stated objectives under this initiative we recommend exploring the potential for

[1] SolarCity Comments, Feb. 13, 2017. Comment sets 1-7 available at: https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=17-EPIC-01

[2] Slide 33 available at: http://docketpublic.energy.ca.gov/PublicDocuments/17-EPIC-01/TN216519_20170310T163615_20182020_EPIC_Investment_Plan_Draft_Funding_Initiatives.pdf

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community solar projects.[3] While tariffs relating to community solar fall under the jurisdiction of the California Public Utilities Commission (CPUC), there may be opportunities for research that could advance hardware and software technologies that facilitate community solar transactions. For example, there may be opportunities to further develop energy trading platforms based on "blockchain" that allocate energy credits from community solar arrays.[4] In addition, there may be opportunities to demonstrate the ability of community solar arrays combined with battery storage and smart inverters to act as a microgrid, defer transmission and distribution projects and provide other benefits, particularly for new communities.

Theme 3 – Increase System Flexibility from Low Carbon Resources

SolarCity generally supports this category of funding. In SB 350, the Legislature required the state's electric utilities to devise Integrated Resources Plans (IRPs) that, among other things, integrate renewable energy using zero-carbon resources to the greatest extent possible.[5] By increasing system flexibility from low-carbon resources, the research projects in Theme 3 could advance that goal. Nevertheless, SolarCity recommends making a few modifications that could make this effort more successful.

SolarCity recommends modifying Initiative 3.1 to allocate some funding towards facilitating adoption of auto demand response (DR) services that use energy storage. Focusing on energy storage as a DR technology is important for several reasons. First, with the rollout of the revised Self Generation Incentive Program (SGIP), California is likely to see greatly increased deployment of batteries sited behind-the-meter at homes and businesses. Failure to use these batteries for renewable integration would be a lost opportunity, particularly since batteries offer vast potential as a flexible, dispatchable resource that can provide multiple value streams. Second, batteries face issues that are unique from other demand response technologies and that need to be resolved in order to unlock their full potential. One of these issues is the current inability of batteries to get credit for energy exported to the grid from behind the meter. Solving this constraint would significantly improve the ability of distributed batteries to serve as dispatchable "virtual power plants" capable of providing zero-carbon renewable integration.

In addition, SolarCity supports the proposed funding initiative seeking to increase the value of DERs and renewables to the transmission and distribution system. In addition to the objectives outlined in initiative S3.3.1, it is important for any projects funded under this initiative to build off of existing utility pilot projects focused on smart inverter functionality.[6] Furthermore, quantifying the value steams for ancillary services from advanced smart inverters will be a particularly relevant metric for determining the success of this funding initiative and therefore should be prioritized.

While SolarCity supports the objectives outlined in funding initiatives S3.3.2[7] and S3.3.3[8] in terms of continuing to streamline interconnection and reduce costs, we recommend closely coordinating this with the efforts currently being undertaken in the Distribution Resources Plan (DRP) proceeding and the working groups at the CPUC. Additionally, we recommend that S3.3.3 regarding advancing distribution planning tools also consider evaluating the current underlying grid planning approach, which biases grid

[3] Slide 34-35; available at: http://docketpublic.energy.ca.gov/PublicDocuments/17-EPIC-01/TN216519_20170310T163615_20182020_EPIC_Investment_Plan_Draft_Funding_Initiatives.pdf
[4] Cardwell, Diane. "Solar Experiment Lets Neighbors Trade Energy Among Themselves," New York Times, March 13, 2017. https://www.nytimes.com/2017/03/13/business/energy-environment/brooklyn-solar-grid-energy-trading.html?_r=0
[5] Cal. Pub. Util. Code § 454.51
[6] Slide 41; available at: http://docketpublic.energy.ca.gov/PublicDocuments/17-EPIC-01/TN216519_20170310T163615_20182020_EPIC_Investment_Plan_Draft_Funding_Initiatives.pdf
[7] Slide 42; available at: http://docketpublic.energy.ca.gov/PublicDocuments/17-EPIC-01/TN216519_20170310T163615_20182020_EPIC_Investment_Plan_Draft_Funding_Initiatives.pdf
[8] Slide 43; available at: http://docketpublic.energy.ca.gov/PublicDocuments/17-EPIC-01/TN216519_20170310T163615_20182020_EPIC_Investment_Plan_Draft_Funding_Initiatives.pdf

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design toward traditional infrastructure rather than distributed alternatives, even if distributed solutions better meet grid needs.[9]

Project Areas Missing from Draft Funding Initiatives

In previous comments SolarCity submitted on the investment plan we suggested the following project categories that were not explicitly included in the draft funding initiatives provided by the CEC at the workshop: electric water heating, time dependent valuation (TDV) for energy storage and load modifying technologies, grid data access and an open solicitation category.[10]

One potential funding initiative the electric water heating study could be included under is S7.1.1, which currently focuses on electrification and achieving long term system decarbonization goals.[11] Additionally, grid data access could be included in theme 3 as customers and utilities would benefit from making this data more accessible and transparent in order to realize a modernized grid. Creating an enabling platform that hosts this type of data for investor owned utilities (IOUs) and publicly owned utilities (POUs) is also critical for enabling aggregation of distributed energy resources (DERs) to provide grid services in optimal locations.[12]

Further, while several of the themes outlined in the draft plan focus on grid integration of DERs and there is some reference to ZNE goals in the proposed funding initiatives, we continue to recommend developing a study that evaluates and recommends a mechanism(s) to credit load shifting and energy storage technologies for the value they can provide for Title 24 building code compliance to meet ZNE goals. Finally, we reiterate the importance of considering an open solicitation funding category within the 2018-2020 EPIC investment plan. This would enable qualified applicants to submit a grant proposal rather than having to submit against the specific guidelines and programs outlined in the current investment plan.[13]

## Conclusion

SolarCity thanks the CEC for the opportunity to participate in the EPIC workshops and provide comments on the draft 2018-2020 EPIC investment plan.We look forward to continuing to provide input as the plan in finalized and would be happy to further discuss the importance of including all of our previously proposed projects within the final investment plan.

Respectfully submitted,

Damon Franz

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[9] SolarCity, "Pathway to a Distributed Grid," p.21, available at: http://www.solarcity.com/sites/default/files/SolarCity_Distributed_Grid-021016.pdf

[10] SolarCity Comments, Feb. 13, 2017. Comment sets 1-7 available at: https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=17-EPIC-01

[11] Slide 79; available at: http://docketpublic.energy.ca.gov/PublicDocuments/17-EPIC-01/TN216519_20170310T163615_20182020_EPIC_Investment_Plan_Draft_Funding_Initiatives.pdf

[12] Paper available at https://sunspec.org/wp-content/uploads/2016/12/DataTransparencyandAccess-2016-12-14final.pdf

[13] SolarCity Comments, Feb. 13, 2017. Comment sets 1-7 available at: https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=17-EPIC-01