BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

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COMMENTS OF SOLARCITY CORPORATION ON THE ENERGY DIVISION PROPOSAL ON SENATE BILL 861 MODIFICATIONS TO THE SELF-GENERATION INCENTIVE PROGRAM

Jason B. Keyes
Keyes, Fox & Wiedman LLP
436 14th Street, Suite 1305
Oakland, CA 94612
Telephone: (510) 314-8203
Email: jkeyes@kfwlaw.com

Counsel for SolarCity Corporation

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In accordance with the *Assigned Commissioner's Ruling (1) Issuing an Energy Division Proposal on Senate Bill 861 Modifications to the Self-Generation Incentive Program (2) Entering the Staff Proposal into the Record* (Ruling) issued November 23, 2015, SolarCity Corporation (SolarCity) submits the following comments on the *Energy Division Staff Proposal to Modify the Self-Generation Incentive Program* (Staff Proposal or Proposal).

1. Introduction

SolarCity is California's leading full service solar power provider for homeowners and businesses, a single source for engineering, design, financing, installation, monitoring and support. At present, the company has more than 6,000 California employees based at more than 35 facilities around the state and has provided or contracted to provide clean energy services to nearly 300,000 customers nationwide. SolarCity offers paired solar and energy storage services to customers in California.

SolarCity generally is very supportive of the Staff Proposal and is grateful to the Energy Division Staff for the extensive work and analysis that clearly went into the Proposal. SolarCity agrees with the Proposal's use of the societal cost test, in the form of the of the Societal Total

Resource Cost (STRC) to determine technology eligibility in the program. SolarCity also supports the Staff's proposed 75% storage / 25% generation allocation split and step-down structure. SolarCity recommends that the current manufacturer cap be replaced with an installer/developer cap and that certain measures be taken to reduce project attrition, prevent a full sweep of funds as soon as the program opens, and also allow for a more efficient and transparent administration of the program. Finally, SolarCity opposes the proposed $2.40/Watt rebate for 6-hour storage and believes the maximum project size for storage should be reduced to 2 MWs.

2. SolarCity Supports Reliance on the Societal Total Resource Cost Test to Assess Project Cost Effectiveness and Believes Technologies Receiving SGIP Incentives Should Reduce Green House Gas Emissions.

SolarCity supports the Staff Proposal's approach to determining what technologies are eligible in the program, which includes a test of cost-effectiveness in addition to the list of other requirements and preferences for technology eligibility.[1] The Societal Total Resource Cost (STRC) provides an objective basis for determining technology eligibility.[2] Additionally, we support California's goal to reduce carbon emissions and believe it is appropriate to provide incentives to technologies that help achieve this goal.

California is taking deliberate and aggressive steps to decarbonize its energy sector, including recently passing SB 350, which increases the state's Renewable Portfolio Standard (RPS) from 33% to 50%.[3] Given the increasing role of zero emission renewable resources in the state's energy portfolio, it is vitally important that the Commission ensure that SGIP

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1 Staff Proposal at pp. 8-9.
2 Staff Proposal at pp. 12-15.
3 *See* SB 350, *available at* http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201520160SB350.

technologies are no dirtier than what would otherwise be sourced from the grid. Additionally, given limited program funding, it is equally important that the Commission not deploy ratepayer monies toward technologies that fail to meet a reasonable cost-effectiveness threshold.

The STRC test is the most fitting test to address the program goals of the SGIP. As stated by the Legislature, the SGIP's goals are to:

> Increase deployment of distributed generation and energy storage systems to facilitate the integration of those resources into the electrical grid, improve efficiency and reliability of the distribution and transmission system, and reduce emissions of greenhouse gases, peak demand, and ratepayer costs. It is the further intent of the Legislature that the commission, in future proceedings, provide for an equitable distribution of the costs and benefits of the program.[4]

Added to these overarching goals is a requirement that program eligibility be limited to technologies that improve air quality by reducing criteria air pollutants.[5]

The Staff Proposal states that the STRC test "looks at the overall cost effectiveness of SGIP technologies to society at large,"[6] and the STRC test, similar to the Total Resource Cost (TRC) test, assesses the combined effects of a program on both participating and non-participating customers.[7] Unlike the TRC, the STRC, accounts for externalities and uses a societal discount rate that is lower than the utility discount rate.[8] In this way, the STRC test is the most fitting cost-effectiveness test for an analysis of benefits that accrue to society as a whole, such as greenhouse gas (GHG) emission reductions and improving overall grid reliability. The application of a lower discount rate under the STRC test is appropriate because society accounts for long-term benefits using a lower discount rate than it uses for relatively shorter term returns on investments.

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4 Cal. Pub. Util. Code § 379.6(a)(1).
5 *See* Cal. Pub. Util. Code § 379.6(e)(4); Staff Proposal at pp. 9, 11-12.
6 Staff Proposal at p. 13, note 28.
7 California Standard Practice Manual at p. 18.
8 Staff Proposal at p. 13, note 28; California Standard Practice Manual at p. 18.

It is important that decisions regarding SGIP adhere to reasonable STRC results. The Staff Proposal based much of its recommendation on a robust analysis including the report provided by Itron.[9] The program administrators (PAs) and Commission worked closely with Itron to develop the cost-effectiveness test based on program data. Itron's cost-effectiveness analysis revealed that total societal costs of certain technologies exceed their benefits. It is important to note that, in evaluating the cost effectiveness of SGIP technologies, Itron accounted for potential uncertainty by basing its determinations regarding what technologies are cost effective by applying a threshold of .80 rather than a strict benefit-cost ratio of 1.0 – allowing for a significant degree of uncertainty regarding modeling inputs.[10] This approach ensures that the recommendations err on the side of inclusiveness. In fact, 18 out of 26 of the evaluated SGIP technologies pass the lower STRC benefit-cost ratio of 0.8 by 2020.

Finally, the Commission has approved the use of the STRC for evaluating DG resources and considers societal value important in other proceedings.[11] In fact, the Commission specified that its overarching goal for the integration of distributed energy resources is "To deploy distributed energy resources that provide optimal customer and grid benefits, while enabling California to reach its climate objectives."[12] This policy goal is likewise focused on achieving beneficial outcomes for California citizens as a whole, and has prompted the Commission to

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9 Itron, 2015 Self-Generation Incentive Program Cost Effectiveness Study (Oct. 5, 2015), [hereinafter Itron Report], *available at* http://capabilities.itron.com/sgipce/Documents/Itron_SGIP-CER_2015-11-19.pdf.

10 Staff Proposal at p. 13.

11 *See, e.g.*, D.09-08-025, R.08-03-008 (Aug. 21, 2009) at p. 28 ("The purpose of our inquiry here is to develop a model for DG programs and facilities that best reflects the value of DG to society and ratepayers. To achieve this goal, we will use both the TRC and the Societal variant to assess costs and benefits of DG to both participants and non-participants, i.e., to Californians at large.").

12 D.15-09-022, R.14-10-003 (Sep. 22, 2015), at p. 2.

investigate the use of a societal cost test for all demand-side resources through a working group process.[13]

3. SolarCity Supports Energy Division Staff's Budget Allocation and Framework.

While SolarCity believes the budget allocation framework to be conservative for energy storage (as exemplified below), we support the Staff Proposal's budget framework that recommends a 75% storage / 25% generation division. This allows for robust participation in both categories based on historical program participation.

a. The 75% Storage / 25% Generation Division is Reasonable Given Market Trends and Program Eligibility

Energy Division Staff proposes a 75% storage / 25% generation budget allocation split based on historical program enrollment trends and the staff proposal to remove natural gas-based pure electric fuel cells from the program.[14] SolarCity supports this proposed budget allocation and believes that using historical program enrollment, adjusted for technology eligibility changes, is a reasonable basis for establishing future funding targets. Society is best served when available funding is used sooner rather than later to deploy new technologies that have societal benefits. Allowing development of the most beneficial technologies to stagnate prevents society and ratepayers from receiving the benefits that these technologies can provide. We believe that using past funding reservations as a benchmark for relative demand is the best way to ensure that all eligible technologies retain the opportunity to receive incentives while not needlessly encumbering deployment of those with higher customer demand.

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[13] *See* R.14-10-003, Ruling Establishing a Working Group for Creating a Consensus Proposal (Oct. 9, 2015).

[14] Staff Proposal at pp. 22-23.

Based on the December 9, 2015 Weekly Report, historical trends support the budget allocations as proposed by Energy Division Staff and, in fact, indicate that that the split may be conservative in its storage allocation:

- Since 2011, 39% of active Advanced Energy Storage (AES) projects were paired with photovoltaics (PV), while only 18% of gas fueled projects (of any technology) were fueled with a renewable gas resource, supporting the emission-related benefits that comes with technologies paired with a zero carbon resource and also renewable integration.[15]
- Since 2011, AES accounts for 78% of active projects and 35% of active MWs of projects.[16]
- Since 2011, without Fuel Cell Electric projects, AES would have accounted for 92% of active projects and 50% of active MWs of projects.[17]
- Since 2011, storage projects are the most cost-efficient on a $/kW basis, averaging $3.30/W versus $8.00/W for all other technologies.[18]
- Since 2012, AES "eligible costs ($)" per kW and "current incentive ($)" per kW have decreased by over 35%, which is on par with or better than most other eligible technologies, showing technological improvements possibly benefiting from previous rounds of SGIP funding.
- Since 2011, 36% of active "current incentive" dollars have been allocated to AES. Without Fuel Cell Electric projects, that amount would have been 61%.[19]

b. California Has a Pressing Need for Fast Responding Resources such as Energy Storage.

In addition to the appropriate basis for the 75% allocation to storage using program participation, energy storage will continue to play a pivotal role in California energy policy. As described in more detail below, the California Independent System Operator's (CAISO) one-

[15] Based on SolarCity's analysis of December 9, 2016 Weekly Projects Report data. *See* SGIP Weekly Projects Report (Dec. 9, 2016), *available at* http://www.cpuc.ca.gov/PUC/energy/DistGen/sgip/.
[16] *See id.*
[17] *See id.*
[18] *See id.*
[19] *See id.*

hour ramping needs are increasing with higher penetrations of distributed PV and other renewables on the system. Storage resources are especially well equipped to provide the flexible, fast-responding ramping capability and charging during periods of low load and low (even negative) market prices further supporting the budget allocation framework as proposed.

The CAISO has noted that, beyond the overall changes in net load shape on the system, system imbalances on a much smaller minute-to-minute scale will require greater regulation services. The graphic below (an April 2020 forecast) from the CAISO's Flexible Ramping Product initiative shows how the variability of wind and solar (green and yellow lines) modifies the somewhat smooth total load profile (blue line), making the net load (red line) more choppy from minute to minute.[20] Small distributed energy storage facilities that can migrate quickly from charge to discharge provide a good fit for this need.

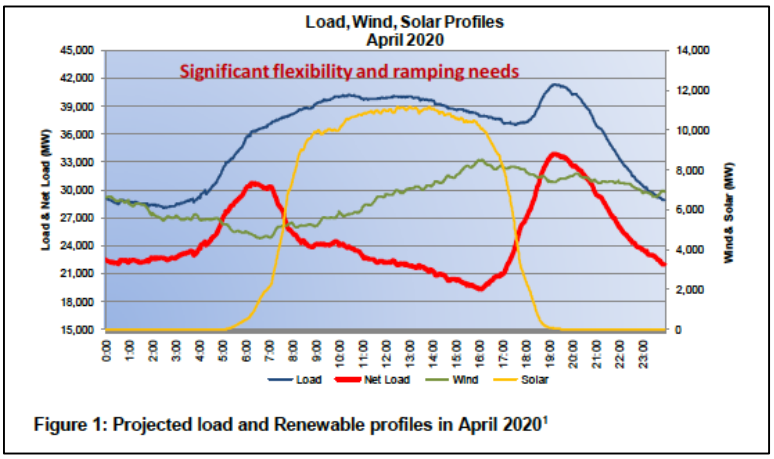

Figure 1: Projected load and Renewable profiles in April 2020[1]

4. The Manufacturing Cap Should Be Removed and Replaced With a Lower "Installer/Developer" Cap for the Energy Storage Budget Category.

The manufacturer cap is problematic and should be replaced with a developer/installer cap. The dynamics of the SGIP have evolved over time where many developers are competing

[20] CAISO, *Flexible Ramping Product – Revised Draft Final Proposal* (Dec. 17, 2015), at p. 3-4, *available at* http://www.caiso.com/Documents/RevisedDraftFinalProposal-FlexibleRampingProduct-2015.pdf.

for limited energy storage funds. The program should adapt to current market conditions by removing the manufacturer cap and replacing it with a developer/installer cap.

a. A Manufacturer Cap is Not Well Suited for SGIP

Manufacturer caps are best suited for supporting the development of technologies that are *not* yet commercially available. This is not the case with the SGIP, which in fact requires that technologies be commercially available to participate in the program. The current requirement would be akin to, in the context of the California Solar Initiative (CSI) program, limiting the share of incentive dollars available to support projects that utilize a given panel technology. The Commission established no such requirement despite the fact that there were a range of solar technologies that the program could support (e.g., thin film-solar, building integrated solar, etc.). Rather than force market outcomes, the Commission appropriately left technology decisions in the hands of developers and by extension customers. This allowed the solar industry to achieve market transformation and should be similarly adopted for storage.

b. A Manufacturer Cap Results in Uncertainty and Risk to Project Development

In the SGIP, it is the developers/installers who apply for program funding not the manufacturer. SGIP needs to provide developers/installers with sufficient flexibility to choose the best products for customers and projects, allowing for the most economic value for the customer and further reducing technology costs over time. A manufacturer cap creates incredible difficulties for developers and installers – as well as their prospective customers – in terms of incentive and pricing certainty and often results in project stagnation or cancellation.[21] There are many developers/installers in the program and therefore it is necessary to provide an allowance in choice of manufacturer. Without this choice, developers are put in the position of

[21] *See, e.g.*, Tesla Comments on Proposed Decision (Dec. 7, 2015) at pp. 6-7.

providing pricing and signing contracts with customers when it is not clear if a storage system will actually qualify for an SGIP incentive due to a manufacturing cap being hit. It is important to note that for developers, whether the cap is hit or not is completely out of their control as it is determined by the decisions of others and the relative popularity of a given storage technology. Developers have no insight into whether the signed projects will ultimately be rejected due to rules and circumstances that are out of their control.

These challenges lead to unnecessary marketplace ambiguity, customer confusion, and ultimately can result in projection cancellation. Developers should not be prohibited from choosing the best product for a project due to an unnecessarily restrictive manufacturer cap structure that is not relevant to current market conditions. Presently, as a result of the manufacturer cap, developers are often forced to look at higher cost manufacturers that have lower functionality and less reliability simply due to SGIP rules.

c. The Manufacturer Cap Incentivizes Program Gaming

The manufacturer cap can incentivize inefficient behavior and gamesmanship by developers. For example, SolarCity has been made aware of the fact that, in March 2015, a third-party developer reserved over $5M in SGIP funding for projects using technology manufactured by Tesla Motors, Inc. (Tesla). However, at the time, none of the projects had a signed contract, and the developer was using the Tesla technology merely as a placeholder for reservation purposes. Afterwards, the developer took over 8 months to conduct a request for proposals, and it was not until *December* 2015 that the applicant finally selected a vendor and requested to change technologies on the majority of their sites – in effect, a "bait and switch." As a result of this developer locking up a significant portion of Tesla's manufacturer cap in

2015, other developers were prevented from utilizing the Tesla technology made in California.[22] Moreover, the rules around the waitlist for the manufacturing cap have created difficulties for providers and installers and, most importantly, prospective customers.

d. There is no Statutory basis for a Manufacturing Cap

A manufacturing cap, however well intentioned, has no basis in statute and is ultimately frustrating the achievement of SGIP goals, such as deployment of carbon reducing DERs and market transformation.[23] In fact, D.11-09-015, which implemented the manufacturer cap, provided little guidance as to why a manufacturer cap was preferable to a developer/installer cap and simply selected a manufacturer cap based on it appropriateness for that market condition.[24] In 2011, SGIP had one large manufacturer that was also the developer of the projects and therefore a manufacturer cap was adopted based on 2011 market conditions. However, the SGIP should adapt to current conditions, where there are now an array of technology solutions and ranges of installer/developers available, and remove the manufacturer cap. In lieu of this, SolarCity suggests that the diversity goals that staff is interested in realizing could be achieved with a developer/installer cap, as discussed below.

e. The Commission Should Adopt an Installer/Developer Cap

In contrast to a manufacturer cap, an installer/developer cap allows the market to determine customer demand for a given technology while ensuring that one provider does not disproportionately benefit from the program. Developers are applying and competing for SGIP funds, and SolarCity therefore supports the Staff Proposal's recommendation that a

22 *See* Tesla Comments (Dec. 7, 2015) at pp. 4-7.
23 *See* D.11-09-015, R.10-05-004 (Sep. 16, 2011), at pp. 47-49.
24 *See id.* at pp. 48-49.

developer/installer cap should be implemented. However, we strongly urge the Commission to implement *only* a developer's cap and remove the manufacturer's cap.

i. A Developer/Installer Cap Provides Appropriate Signals

A developer/installer cap better aligns with energy storage SGIP participation. First, a developer/installer cap will promote robust participation by many developers/installers in the program. SolarCity appreciates Staff's interest in promoting program diversity, and SolarCity believes a lower developer/installer cap will ensure a wide range of developers. Second, a developer/installer cap will allow for better planning. Since the developers/installers are applying and competing for funds, it makes more sense to cap the actual receipt of the funding. Under the current manufacturer cap, developers/installers have no visibility if a project will be rejected. With a developer/manufacturer cap, applicants can plan and also provide clear guidance to customers regarding project deployment and availability of funds. Third, a developer/installer cap will reduce applications for speculative projects. In light of PG&E's 2015 project attrition, wherein the program was closed for nearly 10 months and then reopened only after so many projects dropped out that the waitlist was cancelled, it is clear that developers need appropriate rules to limit speculative projects.[25] By capping fund availability, developers/installers will apply for the higher likelihood projects first. Finally, and perhaps most important, by capping each developer's eligibility for a finite amount of SGIP funding, all developers will be encouraged to reduce their costs, thus increasing the number of projects that would be eligible for SGIP funding under their cap.

ii. The Developer/Installer Cap Should be Decreased

[25] *See* Center for Sustainable Energy (CSE) Comments on Proposed Decision Partially Suspending Disbursement of 2016 Program Year Funds and Acceptance of New Applications for the Self-Generation Incentive Program (Dec. 07, 2015), at p. 2.

SolarCity submits that the installer/developer cap would be reasonably set at 20% – no single developer would be allowed to reserve in excess of 20% of the funding available within a given step within a PA's service territory for the energy storage category (this recommendation is contingent upon the current budget allocation as proposed by Staff). Although SolarCity is strongly opposed to the manufacturer's cap because it limits developer and ultimately customer choice regarding what technology is best suited for their needs, price point and application, SolarCity understands and is comfortable with encouraging developer/installer diversification through the program to ensure robust competition and drive innovation in retail offerings. Diversification at the installer level can also facilitate technology diversification to the extent customers and developers prefer different technologies. Given the relatively limited funds available in the SGIP, SolarCity believes that an installer cap set at 20% would enable, in the most concentrated scenario, fice companies to use 100% of the funds in the program. However, currently our sense is that there are only three to four market participants that would approach the volumes that would hit this cap (again assuming the budget allocation as proposed is adopted). Were those developers to hit their respective caps, it would still reserve 20-40% of funds available for other, lower volume developers. SolarCity believes an installer cap of 20% would ensure the program supports the diversification goals that staff has identified as important while also providing a reasonable amount of headroom for larger volume developers.

Related to this, should the Commission move forward with establishing a cap, SolarCity strongly supports scheduled increases to the cap in each step to ensure incentive dollars are not sitting idle. This will be a very important programmatic feature. As proposed in the Staff Proposal, "a Program Administrator may request that four months after the beginning of any step

the cap be raised from 40% to 70%, and after two more months to 100%."[26] SolarCity supports this concept but suggests a few modifications. First, after the initial four months, the cap should be raised automatically, rather than requiring an advice letter filing. SolarCity is concerned about the time consuming nature of relying on an advice letter process to do this. Additionally, SolarCity suggests that the cap be raised in 10% increments, again beginning automatically after 4 months with the cap increasing each subsequent month by an additional 10% until the funds are depleted in that step. This would allow sufficient time for all participants to apply while reducing the risk of the program stalling..

f. Definition for a Developer/Installer Cap

Based on concerns regarding the potential "gaming" of a developer/installer cap, SolarCity suggests the definition offered below. The proposed language is based on existing rule language modified to reflect language used in New Jersey's Solar Renewable Energy Certificate (SREC) long-term contracting programs, which employ a developer cap. This proposed language eliminates the manufacturer cap and replaces it with a developer/installer cap. It also requires the collection of information on the developer/installer's parent company. The proposed language would also makes a simple change to the application process by requiring additional information such as the direct parent and ultimate parent company of the developer/installer. The parent company tie-in is the only way we see to address the potential "gaming" issue with shadow companies. With respect to customer "gaming," this language provides that the installer and the developer are functionally the same entity. That is, the developer/installer and the parent company would need to be listed on all applications, and the cap could be implemented at the

[26] Staff Proposal at p. 31.

parent company level. SolarCity therefore offers the following language creating a developer/installer cap:

> 3.3.9 Developer/Installer Concentration Limit
>
> Any single developer/installer (or any combination of affiliated developer/installer under the same majority ownership) is limited to the percentage as described in that step of a technology category's total. The SGIP shall not issue conditional reservations to a project using a technology installed by a developer (or combination of affiliated installers/developers under the same majority ownership) that has already received reservations for active projects in a given step such that the total exceeds the percentage allocation for a given utility territory, for that step. Each reservation application shall include the name and address of the customer; the customer's account number; the name and address of the developer/installer; the name and address of the developer/installer's parent company, defined as an entity with a majority ownership interest in the developer/installer (direct parent and ultimate parent, if applicable); the identity of the owner; and the identity of the host.

The existing language in Section 7 of the SGIP Rules on Infractions, which addresses circumstances where someone negligently or intentionally submits false information in an attempt to collect greater incentives, could be left as is. Since that section applies to "all parties involved in the project and is not limited to the Host Customer," it seems adequate to assess the penalty (minimum six month suspension) up to the parent company level. The penalty seems severe enough to prevent bad behavior by any major provider, especially since it gives the program administrator a great deal of discretion to determine whether a violation has occurred.

The existing 2015 SGIP Language on Infractions (Section 7) reads:

> Infractions are any actions that intentionally circumvent program policy or have the intent to do so. The Program Administrators will exercise their judgment in assessing program infractions, which may include gross negligence or intentional submission of inaccurate project information in an attempt to collect more incentive dollars. Program infractions may be determined at any stage of the SGIP process. If it is determined that a program infraction has been committed, a reasonable sanction shall be imposed at the discretion of the Program Administrator, and may result in a suspension from the SGIP Program for a

minimum of six months. The sanction maybe applicable to all parties involved in the project and is not limited to the Host Customer.

5. SolarCity Support a Step-Down Structure Incentive Program.

SolarCity strongly supports the Proposal's rebate step-down structure.[27] Presently, SGIP funds are generally allocated within moments of opening, after which, participants are forced to wait nearly a year to access funds. As a result, the program undergoes significant stops and starts and fails to offer sufficient continuity or consistency. For example, as the Center for Sustainable Energy (CSE) noted in comments, PG&E's 2015 funds were fully subscribed within the first day of the program, leaving many projects waiting for available funds.[28] When PG&E reopened the program on December 1, 2015, the available funds were fully subscribed in less than one minute, "leaving the majority of applications unfunded and further increasing anxiety and uncertainty for project developers."[29] As the Staff Proposal notes, the proposed dollar-based rebate decline structure is desirable because it "has no program interruptions, unlike the current calendar-based scheme; it avoids all opening day stampedes, except the first one; [and] it eliminates all waitlists."[30] It also appropriately steps down for technologies that are implementing projects more quickly while allowing technologies that require longer lead times to remain at a higher incentive level.

In addition to the CSI program, many states have recognized that the certainty provided by pre-defined incentive step-down structures is crucial for supporting emerging technologies, and the step-down approach has been used successfully in some of the largest state and utility incentive programs. The examples below highlight a number of recent incentive programs that

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27 *See* Staff Proposal at pp. 21-22, 26-28.
28 CSE, Comments (Dec. 7, 2015) at p. 2.
29 *Id.*
30 Staff Proposal at p. 21.

have adopted a step-down structure of some type, supplemented in some cases with the observations of regulators on the merits of a step-down structure that avoids boom-and-bust cycles and contributes to the type of market transformation California is seeking to create through the SGIP program. On the opposite end of the spectrum are the widely-criticized solar incentive programs offered by utilities in Florida, which have been plagued by application glitches and instances where total annual funding has been reserved in a single day.[31]

For example, in 2014 New York transitioned its incentives for customer-sited solar installations from an opaque, periodic administrative adjustment process for small systems and a competitive solicitation process for larger systems to a universal capacity-based step-down protocol (the "MW-Block Incentive Structure"). The MW Block program utilizes a series of incentive steps (depending on system location and size) intended to achieve a statewide capacity goal of 3,000 MW.[32] As the New York Public Service Commission (NYPSC) noted in its December 2013 Order approving the program redesign, "The vast majority of comments supported transitioning both the standard-offer solar PV and the competitive solar PV program to a MW Block structure with declining incentives."[33] In its discussion, the NYPSC further stated:

> We believe that restructuring these programs, as proposed by NYSERDA, aligns with our efforts to assist technologies, such as solar PV, to achieve scale and *ultimately rely on market based solutions*…The program, while taking into consideration some of the design criteria suggested in comments regarding regional and customer distinctions, should remain *simple, transparent, and predictable*.[34]

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[31] *See, e.g.*, Kyle Swenson, Broward Palm Beach New Times, "Florida utility prematurely yanked a solar rebate program, trade group claims" (Sep. 2, 2014), *available at* http://www.browardpalmbeach.com/news/florida-utility-prematurely-yanked-a-solar-rebate-program-trade-group-claims-6453164.

[32] The individual incentive steps and current achievement status can be viewed at: http://ny-sun.ny.gov/For-Installers/Megawatt-Block-Incentive-Dashboard.

[33] NYPSC. Docket No. 03-E-0188, *Order Authorizing the Redesign of the Solar Photovoltaic Programs and the Reallocation of Main-Tier Unencumbered Funds*, (Dec. 19, 2013), at p. 8, *available at* http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId={A7911C12-4EF1-410A-9060-165EE2423D52}.

[34] *Id.* at pp. 13-14 (emphasis added).

Thus the goals espoused by the NYPSC in authorizing the single largest customer-sited distributed generation incentive program other than the CSI are substantially similar to the SGIP goal of encouraging market transformation and technology self-sufficiency. Additional programs that have adopted a step-down approach have been implemented in South Carolina (South Carolina Electric & Gas Solar DG Incentive, 2015),[35] Minnesota (Xcel SolarRewards, 2014),[36] Nevada (Renewable Generations Program, 2014),[37] and Connecticut (Residential Solar Investment Program, 2015).[38]

6. Additional Measures Should be Developed to Reduce Project Attrition

SolarCity also recommends measures to reduce project attrition and eliminate the practice of developing speculative projects that do not have a clear path forward. As stated above, project attrition creates problems in SGIP and further measures should be adopted to prevent project drop out:

a. Private sector clients should be required to submit the application fee and signed customer contract within five days of application and application fees should be increased to 5% from 1%.

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[35] *See* SCPSC Docket No. 2015-54-E, *Joint Proposed Order on Distributed Energy Resource Program and Approving Settlement Agreement* (Jun. 30, 2015), *available at* https://dms.psc.sc.gov/Attachments/Matter/ed1b3862-8842-4fc2-a3aa-e4af08b1c833. The Joint Proposed Order was adopted by a Commission Directive on July 8, 2015.

[36] *See*, Xcel Energy, SolarRewards for Residences, http://www.xcelenergy.com/Energy_Solutions/Residential_Solutions/Renewable_Energy_Solutions/SolarRewards_for_Residences.

[37] *See, e.g.*, NV Energy, SolarGenerations Program Handbook, at pp. 10-11, *available at* https://www.nvenergy.com/renewablesenvironment/renewablegenerations/documents/handbooks/SolarGenerationsHandbook_7.1.2015.pdf.

[38] *See* Conn. Pub. Act. No. 11-80, Sec. 106(a).

b. Public sector clients should be required to submit proof of RFP within 30 days of their RRF and submit and executed contract within 90 days of RRF and that application fees should be increased to 5% from 1%

c. Clear guidance and rules should be developed to prevent the submission of multiple applications and clogging the queue for the same project. It recently came to light that certain potential SGIP recipients were submitting an extremely high number of applications for the same project(s) to better ensure these projects receive funding. Applicants should be restricted to submit one application per project (unless there is a reason to submit multiple applications such as the system being down). For example, a simple addition to the handbook can include: "It is expressly prohibited to submit multiple applications for the same project(s) unless the applicant can clearly demonstrate a reason for submitting an additional application (such as communication that the application did not go through and/or communication that the application was rejected), upon submitting multiple applications, the application(s) will be rejected and the applicant we need to reapply at the beginning of the queue."

7. Program Rules Should Implement Additional Measures to Prevent the Sweeping of Funds as Soon as the Program Opens

a. Project Size Limits for Energy Storage Should Be Lowered to 2 MWs

SolarCity believes that measures should be put in place to prevent the sweep of the funds as soon as the program opens as has historically been the case in SGIP. The program was closed in under one minute for a December 1, 2015 $10M solicitation in PG&E territory. It would be problematic for a step to open and be completely consumed in minutes by only a handful of projects. Therefore, in order to better ensure incentives are available to support a diversity of

projects and developers, incentives should only be provided up to 2 MWs for energy storage and should certainly not be increased to 5 MWs as Staff proposed. In fact, based on the SGIP weekly program report from January 4, 2016, there are no energy storage projects to date that have applied for incentive over 2.5 MWs. In fact, the median project size for all storage projects since becoming eligible is 20 kW. Only ten storage projects 2 MW or greater applied for SGIP funding out of over 2,000 storage project applications since becoming eligible. Of those, only five are still active. Projects should see decreased cost with scale, and the incentives provided under a 2 MW cap should be spread out over the project for larger capacity deployments. We support lower incentives generally as provided in the Staff Proposal and believe, in keeping with cost reduction and allowing robust participation, the size limitation should be reduced to 2 MWs for the storage category.

b. 6-Hour Storage should be capped at $2/Watt

SolarCity does not support the Staff Proposal's recommended $2.40/Watt rebate for 6-hour duration storage.[39] This proposal is problematic because a single project could sweep up nearly all funds for a step. Additionally, storage was introduced in 2011 at $2.00/Watt and we do not believe it is appropriate for any technologies to receive an incentive over $2/Watt in the storage category based on the current pace at which funds are depleted.

i. Enhanced 6-Hour Incentives Reduce Availability for Shorter Duration Resources and may Diminish Overall Cost Effectiveness.

Richer incentives for longer duration storage will unavoidably reduce the total amount of incentives available for shorter duration storage. The end result will be less short-duration peak shifting capability for a perceived benefit that does not have a readily identifiable added value.

[39] *See, e.g.*, Staff Proposal at pp. 25-26.

At the proposed incentive rates, each 1 MW of 6-hour duration storage will replace 2 MW of 2-hour duration storage.

The 2015 SGIP Cost-Effectiveness Report models only systems designed to discharge at their rated power output for 2 hours for the reference 30 kW commercial system and 4 hours for the reference 5 MW industrial-scale system (a flow battery).[40] Nothing in the report addresses a potential 6-hour duration resource. The report does however forecast that the larger, longer duration battery system is *less* cost-effective than the smaller commercial scale system, at a cost-benefit ratio in 2020 of 0.77 versus 0.83.[41] It is unclear how this assessment would differ if a 6-hour duration storage resource were modeled, but it suggests that the longer duration resources are less cost-effective.

Moreover, the 5 MW 4-hour battery storage system has a very similar participant cost test score in 2014 (without incentives) compared to the 30 kW 2-hour commercial system.[42] Yet under the Staff Proposal the 4-hour system would receive an incentive that is 66% higher than that available for the 2-hour system, and a 6-hour system would receive an incentive that is 100% higher.

ii. The Need for 6-hour Duration Storage Requires Further Examination

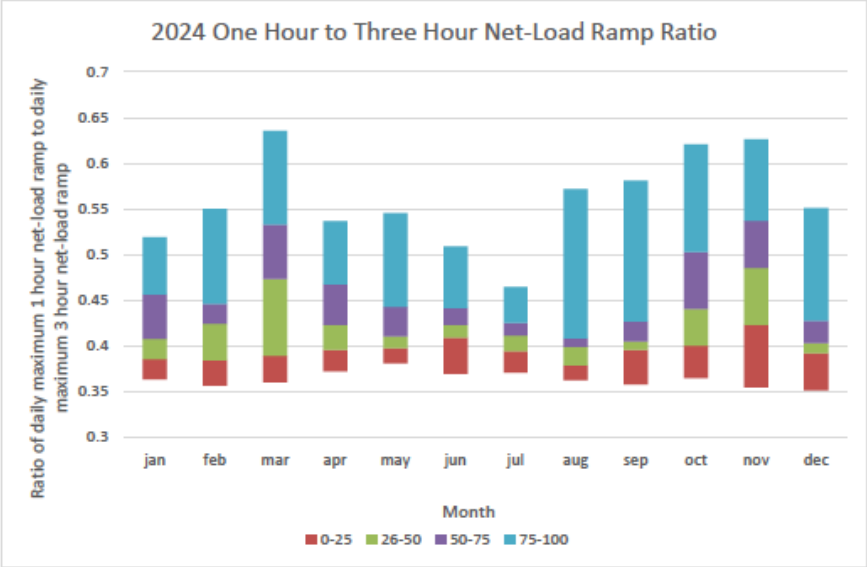
Staff justifies the establishment of enhanced incentives for longer-duration storage on the additional value that could be created by peak shifting of a longer duration. While SolarCity supports a $2/Watt incentive rate for 6 hour duration storage to better cover potential higher costs, there is limited data to suggest that a 6 hour resource will be needed in the reasonably

40 Itron Report at p. 6-19.
41 Itron Report at p. 6-13, Table 6-1.
42 Itron Report at p. 6-56, Table 6-6.

foreseeable future further calling into question the need to additionally promote systems of this duration with a $2.40/Watt incentive level.

For instance, in June 2015 the CAISO released its Issue Paper for Phase II of its Flexible Resource Adequacy Criteria and Must Offer Obligations (FRACMOO) initiative which, to a large degree, is focused on the need for upward ramping speed and downward flexible capacity needed to address issues associated with renewable over-generation and increasingly steep ramps in capacity needs (e.g., as solar resources decline in the late afternoon and evening). Among other things it notes that it is increasingly seeing single-hour ramps that comprise a growing portion of three-hour ramps. It notes that by March 2018 it anticipates that the largest one-hour ramp will be 50% or more of the daily three-hour ramp on 25% of days, and some instances where 65% of the three-hour ramp occurs within a single hour.[43] The increased ramping need is similar and perhaps greater in 2024, as shown below. In both graphics, the columns show the maximum percentage of the 3-hour ramp that is represented by the 1-hour ramp. The different colors show the frequency of occurrence, such that the light blue and purple portions (the top two sections) show, during a given month, the ratio that is expected to occur on 50% of the days.

[43] CAISO. *Reliability Services – Phase 2 and Flexible Resource Adequacy Criteria and Must Offer Obligation – Phase 2: Issue Paper* (Jun. 25, 2015), at p. 9-11. *available at* http://www.browardpalmbeach.com/news/florida-utility-prematurely-yanked-a-solar-rebate-program-trade-group-claims-6453164.

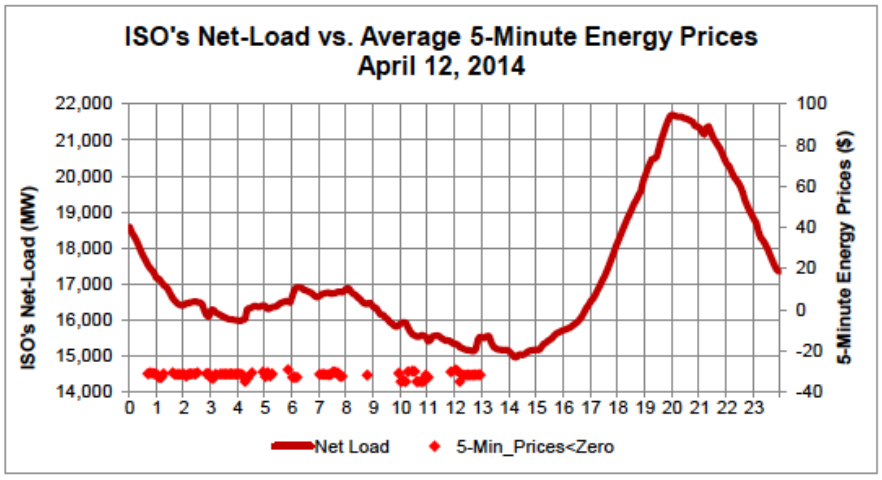


As shown in Figure 2 of the CAISO's analysis below, even during the month of April, which shows a more gradual, longer duration ramp than some other months, the ramp from minimum net load to maximum net load lasts only three to four hours, from roughly 4-5 p.m. to 8 p.m., and then gradually falls off.

Market mechanisms put in place to procure flexible ramping, as discussed in CAISO's Flexible Ramping draft final proposal[44], are procured in real-time market such as Fifteen Minute Market (FMM) and Real-Time Dispatch (RTD) which have optimization horizons below four hours. This proves that to optimize ramping needs a horizon of four hours is deemed to be sufficient and longer duration storage resources are not necessarily superior to address ramping needs.

[44] CAISO, Flexible Ramping Produce Revised Draft Final Proposal (Dec. 17, 2015), *available at* https://www.caiso.com/Documents/RevisedDraftFinalProposal-FlexibleRampingProduct-2015.pdf.

Figure 2: Negative real-time prices at low net-load levels



Based on these observations, there again appears to be a much greater need for resources that can provide shorter duration higher output to meet ramping needs over a three to four hour period, than for resources that are capable of operating for longer periods of time. In addition, the demand bidding programs offered by SCE and PG&E only require a 2-hour minimum run time, while the capacity bidding programs offered by the IOUs each permit enrollments that are limited to 4 hours.

SolarCity is not opposed to a longer duration increased incentive, but we believe that $2.40/Watt is simply too high based on the current program rate at which funds are depleted. SolarCity believes that 6-hour duration storage should receive $2/Watt initially in the program.

10. SGIP should consider a More Customer Friendly Energy Efficiency (EE) Audit Protocol

A strong precedent for the EE audit process was developed in the CSI rebate program. Similar to SGIP, CSI required the completion of a customer EE audit to qualify for the CSI rebate. For customers interested in CSI rebates, a website was created (cited below and used by utilities/approved by the Commission) that allowed customers to easily complete an EE audit

prior to receiving rebates (link below) without incurring additional costs for the customer. EE audits were complete using this system and results were provided to customers along with a clear path to implement EE measures by the utility. This process allowed customer to complete the audit and be educated as to the benefits of potential EE measures. However, CSI did not require EE implementation for customers that ultimately decided not to implement EE measures. This standard is more appropriate since customers should ultimately be allowed to choose the best energy path without being forced to adopt measures that may not be aligned with the their energy needs or goals. The IOUs have robust EE programs with total annual budgets in excess of $1billion, and it seems strange to force SGIP to implement these measures, rather than educating customers about the advantages of EE measures, but ultimately leaving the choice for the customer. In addition, the current EE audits in SGIP have adverse implications for projects such as:

- Increase in project expense (this results in increased SGIP costs as SGIP pays 60% of all projects costs), this is especially notable since utilities have already developed a process and website to effectively complete EE audits that is free (to SolarCity's knowledge).
- Project delays (SolarCity has experiences up to 4 months of delay in trying to complete an EE audit).
- Does not necessarily impact non-baseload applications, such as energy storage. For example, energy storage is effective at reducing peak load, which may only be a small portion of overall customer load.
- SGIP Business models usually do not require up-front costs, forcing customers to then pay and implement EE is counter to why a customer is choosing the product.

While it is important to educate customers about EE measures and SolarCity fully supports this effort, the choice to deploy on-site generation should not be contingent on EE implementation and customers should have the freedom to choose.

The link to the site developed for CSI is below. Not all zip codes are currently available on the website (as CSI has closed down):

https://www.energyguide.com/audit/baintro.asp

Go Solar Example:

http://www.gosolarcalifornia.ca.gov/csi/step1.

11. Additional Areas of Support and Clarification

a. The Staff Proposal also notes an ambiguity in the SGIP Handbook as to the size requirements for storage paired with photovoltaic generation and recommends that the size of a paired SGIP storage system should only be limited by the customer's load.[45] SolarCity supports this proposal as it provides important clarity on allowable system sizing.

b. SolarCity would also like to support the Staff Proposal of 260 hours for Performance Based Incentives (PBI). SolarCity agrees with the Staff Proposal's reduction of PBI hours to better correspond with peak load reduction. Certainly, some sites will run for the 520 hours, however, lowering to 260 hours will better ensure that storage devices are dis-charged based on grid need and also prevent degrading the storage device without benefit.

c. SolarCity believes the Federal Investment Tax Credit (ITC) should be addressed by the Proposal, and specifically requests that the ITC should not be subtracted from a project's

[45] Staff Proposal at pp. 33-34.

cost basis.[46] By using various measures, including the ITC, projects can more quickly reduce costs and thereby more effectively contribute to the State's energy and climate goals. SolarCity therefore believes that, except for cases in which total incentives would exceed total costs, the ITC subtraction should be eliminated.

12. The Commission Should Create a More Transparent Program and Process for Providing Feedback with the Program Administrators (PAs) under Commission Supervision.

The SGIP could benefit from additional measures to enhance the transparency of the program and provide opportunity for feedback with Commission supervision. Presently, there is no effective means for SGIP participants to provide feedback to PAs on a scheduled basis. SGIP should encourage transparent communications. SolarCity therefore recommends that quarterly meetings be hosted at the Commission to allow participants to provide such feedback on the program. SolarCity recommends the Commission seek to emulate the successful feedback process that was developed as part of the CSI.[47]

Moreover, SolarCity believes that greater data transparency is important. SolarCity, therefore, agrees with Energy Division Staff that the performance data for SGIP applicants on PBI schedules – including energy (kWh) generated, amount and type of fuel consumed, amount of heat recovered, gross and net GHG emissions, number of charging and discharging events and total amount of energy charged and discharged – should be made publicly available.[48] As the

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46 *See* SGIP Handbook at pp. 96-97.

47 *See* CPUC, California Solar Initiative (CSI) Program Forum, http://www.cpuc.ca.gov/PUC/energy/Solar/forum.htm.

48 *See* Staff Proposal at p. 39.

Proposal recommends, the Commission should seek to emulate the successful measurement and evaluation (M&E) regime adopted for the CSI[49] and make useful data available to the public.

13. Conclusion

SolarCity appreciates the opportunity to comment on the Energy Division Staff Proposal and looks forward to continuing to actively participate in this proceeding.

Respectfully submitted,

/s/ Jason B. Keyes
Jason B. Keyes
Keyes, Fox & Wiedman LLP
436 14th Street, Suite 1305
Oakland, CA 94612
Telephone: (510) 314-8203
Email: jkeyes@kfwlaw.com

Counsel for SolarCity Corporation

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[49] *See id.*