BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

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Order Instituting Rulemaking Regarding Policies, Procedures and Rules for Development of Distribution Resources Plans Pursuant to Public Utilities Code Section 769.	Rulemaking 14-08-013 (Filed August 14, 2014)
And Related Matters	Application 15-07-002 Application 15-07-003 Application 15-07-005 Application 15-07-006 Application 15-07-007 Application 15-07-008

RESPONSE OF SOLARCITY CORPORATION TO THE ADMINISTRATIVE LAW JUDGE'S RULING INVITING LOCATIONAL NET BENEFITS PROPOSALS AND NOTICING WORKSHOPS

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SolarCity Corporation (SolarCity) respectfully submits this response to the *Administrative Law Judge's (ALJ's) Ruling Inviting Locational Net Benefits Proposals and Noticing Workshops* (Ruling) issued on January 8, 2016.

1. Description of SolarCity

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, as of September 30, 2015, has contracted to provide clean energy services to more than 300,000 customers nationwide. SolarCity offers paired solar and energy storage services to customers in California.

2. Introduction

SolarCity appreciates the opportunity to provide feedback on the scope of the Distribution Resources Planning (DRP) proceeding and the Locational Net Benefits Analysis (LNBA) proposals submitted by the Investor Owned Utilities (IOUs). SolarCity is keenly interested in the DRP proceeding given the opportunity it represents to meaningfully modify the IOUs' current distribution planning processes to recognize and take full advantage of the capabilities embodied in distributed energy resources (DERs), including rooftop solar, smart inverters, advanced energy storage, smart thermostats and other load control technologies. The LNBA is an integral part of this effort to the degree it provides a framework and methodology for understanding and quantifying the value of services and benefits offered by DERs. This quantified value specific to a location on the distribution grid is critical for the distribution planning process as envisioned in the DRP. Further, it also has important implications for sourcing of DERs.

In this response, SolarCity does not provide its own LNBA proposal, but that is not because of a lack of interest in engaging in the development of the LNBA methodologies. Through study of the value of grid services provided by DER, it has become apparent that the IOUs are in the best position to propose appropriate calculations. Other parties do not have access to or understand the data available within a utility. Proposed methods for calculating the value of some grid services based on public data may not be as accurate as methods based on other data.

SolarCity does provide feedback on the LNBA proposals submitted by the IOUs and ways in which these proposals can be further improved. As a general matter, we believe there

are a number of principles, consistent with the Guidance Ruling,[1] that SolarCity suggests should guide the LNBA development process. First, we encourage the utilities, to the greatest extent possible, to develop a common methodology. While inputs will vary from one utility to the next based on utility and system-specific circumstances, the methodologies should be consistent and transparent between them. Currently, based on the utility DRP filings, each of their LNBA methodologies appear to be distinct, and this incongruity should be resolved. Second, the evaluation of location-specific values should be comprehensive and include all of the following components and any others identified as part of the ongoing DRP proceeding and other related proceedings:

- Avoided capital and operating expenditures related to capacity
- Avoided capital and operating expenditures related to distribution voltage and power quality
- Avoided capital and operating expenditures related to reliability and resiliency
- Locational Marginal Pricing (LMP)-specific avoided energy costs
- Avoided local resource adequacy procurement

We look forward to providing additional feedback based on the presentation and dialogue that we anticipate coming out of the February 1, 2016 workshop.

3. Responses to Questions for Utilities and Parties with Alternative Proposals

Although SolarCity does not offer its own LNBA proposal for the reasons described above, we do have some feedback regarding the proposals the IOUs have put forth and therefore offer some responses to those posed in this portion of the ruling. This feedback should not be

[1] *Assigned Commissioner's Ruling on Guidance for Public Utilities Code Section 769 – Distribution Resource Planning* (Feb. 8, 2015).

construed as diminishing the considerable work the utilities have generally put forward on this topic, but it is offered in the spirit of building upon what the utilities have developed thus far.

1. *For utilities only: Describe any refinements you would make to your LNBA proposals in the applications based on comments received from other parties. Any other updates are also welcomed.*

Recognizing that this question was directed exclusively at the utilities, SolarCity nonetheless believes that it is important to offer feedback on what has been put forward since ultimately the impacts of these analyses will be felt most acutely by DER solution providers. In the interest of allowing more effective evaluation of the utility LNBA proposals, SolarCity suggests that the utility LNBA proposals be made more transparent to allow stakeholders to better understand the methodologies used and how these methodologies specifically translate into locational values. Example calculations would be especially helpful in communicating how the methodologies will be applied.

In addition to making the LNBA methodologies more comprehensive, SolarCity also encourages the utilities to include a number of additional value categories that were not specifically identified in the Guidance Ruling, but nonetheless represent areas where DERs offer significant value to the system. These include:

a. Conservation Voltage Reduction (CVR) – DERs allow for a greater degree of distribution voltage control, thereby enabling significant incremental CVR benefits on top of those already captured through traditional CVR approaches.
b. Equipment Life Extension – DERs can extend the life of existing equipment by reducing the periods of high and extreme load, which causes accelerated degradation of distribution equipment.

c. Market Price Suppression – In addition to DERs delivering LMP-specific avoided costs, lowering physical demand for wholesale energy on a pricing node can reduce nodal clearing prices, which benefits all loads impacted by the respective nodal price.

Question 5: Describe how LNBA, together with the integration capacity analysis (ICA) and growth scenarios, would be used to identify "optimal location." In other words, how will the combined results be used to characterize the "optimality" of a location?

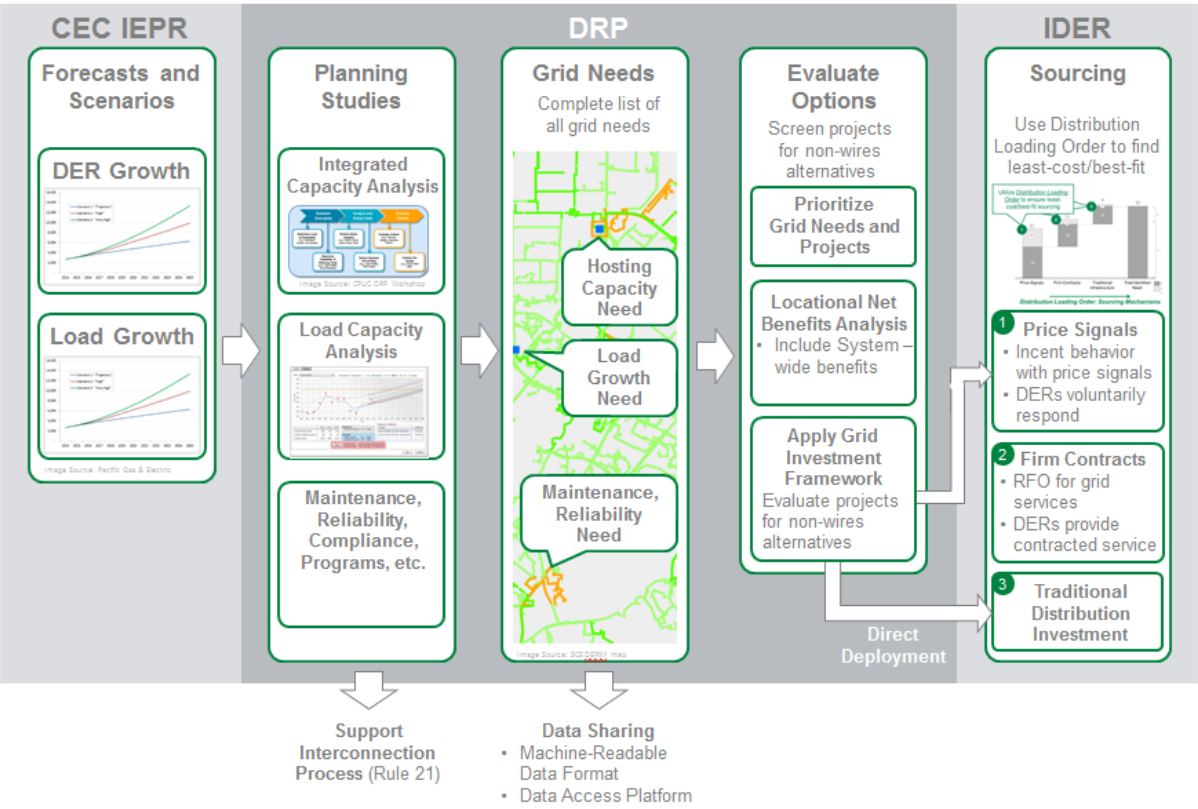
SolarCity believes the ICA and LNBA can and should be used together to identify economically attractive locations for DERs by identifying the locations with the greatest net positive benefit (as determined via the LNBA), taking into account the quantity of DER capacity that could be deployed before integration efforts are pursued (as determined by the ICA). However, it is important to note that SolarCity's position is that the ability of customers to deploy DERs should not be foreclosed or determined on the basis of where on the grid such deployments are considered "optimal." Customers must still have the ability and opportunity to deploy DERs based on their specific circumstances and desire to deploy these technologies.

SolarCity notes that the best way to guarantee that DERs are used to the benefit of the grid is by identifying and sourcing DER solutions to address specific grid needs. This is achieved through integration of the ICA and LNBA analyses into holistic distribution planning and sourcing processes. SolarCity believes that these planning and sourcing processes are the best mechanism for using the ICA and LNBA tools to achieve the goals of the DRP and IDER proceedings.

Question 8: How should your approach be used in distribution system planning?

The tools and insights created in the DRP and IDER proceedings, including the ICA and the LNBA (inclusive of system-level benefits), can and should be used in a recurring, standard utility planning and sourcing process for maintenance and modernization of the distribution

system. SolarCity has been working with other parties to develop such a framework for this process. The effort to develop the framework is ongoing and the work is not final, but a working draft of the framework is included below to help describe the potential role of the LNBA within a distribution planning process.



The LNBA, including locational benefits and system wide benefits, can play a central role in the distribution planning and sourcing process, as illustrated in the image above. The first role for LNBA is in evaluating options for addressing grid needs. Grid needs would come out of the periodic utility planning studies. After those needs are prioritized by the grid planner, the LNBA can be used to identify which projects have the potential to be offset or deferred via the use of DERs. Using the LNBA in this capacity mirrors some calls for a *DER Deferral Framework*, in that it is used as a screen to identify projects that are good candidates for deferral

or offset by DERs. The LNBA may need to consider a variety of DER portfolio compositions in order to ensure that good project candidates are not mistakenly dismissed by not considering an innovative application of DER portfolios. Tangential to the LNBA discussion, it will be useful for utilities to regularly poll the marketplace to understand the innovative ways in which DER portfolios can be utilized. Projects that are an economically attractive alternative to traditional investment would flow directly to the distribution sourcing process. That process would presumably be closely examined in the IDER proceeding.

Utilizing LNBA to quantify the locational and system level benefits of DERs will be critical for identifying projects that can be deferred or offset by DERs, as well as funneling appropriate projects to the distribution sourcing process.

2. Responses to Questions for All Parties

Question 1. As discussed in Section 2 (Scope) of this Ruling above, the DRP Roadmap staff proposal (at p. 18) categorizes certain LNBA components as either non-location-specific (specifically: ancillary services, avoided GHG adder, avoided RPS purchases, renewables integration adder) or location-specific (specifically: line loss factor, avoided transmission and distribution capital and operating costs to provide capacity, voltage support, and power quality). Per the staff proposal, the non-location-specific components should be reviewed in the IDER proceeding, not the DRP.

a. Do you agree with this general proposal?
b. Why or why not?
c. What modifications or clarifications would you make to the specific components staff has proposed to assign to one or the other category? Please explain.

The Ruling asks parties to provide feedback on Commission staff's suggestions regarding the appropriate scope of the DRP vs. the IDER proceeding, specifically with regard to where system level avoided costs will be calculated. Staff proposes that these system level values will be addressed in the IDER proceeding, rather than the DRP proceeding. SolarCity is agnostic as to where these system level avoided cost values are calculated, provided they are at some point recognized and incorporated into both the IOUs' distribution planning efforts and the sourcing

mechanisms to be developed in the IDERs. We are somewhat concerned with the language in the Ruling which states, "the IDER proceeding is likely to be the forum for modifying discussing and developing new models and policies associated with system level avoided costs,"[2] as we believe the combination of locational values and system level values need to be fully incorporated into the utilities' distribution planning activities. If these values are structurally separated, it may prove challenging to consider them both in a holistic distribution planning and sourcing process. Again, although SolarCity is agnostic as to where system level avoided costs are quantified in regulatory proceedings, it will be important for these DER benefit values to feed back into the utilities' planning and sourcing decisions. Accomplishing this would require effective coordination between the DRP and IDER proceedings to ensure that utilities utilize the comprehensive set of DER benefits and costs, both locational and system level, regardless of where those values are discussed in the regulatory process.

Question 2: Regarding the potential use of proprietary data and models:
a. Is it acceptable for the LNBA to use proprietary data and models?
b. If not, why not?

SolarCity strongly supports greater transparency in the sharing of data to improve distribution planning and investments. However, SolarCity also recognizes the need to balance transparency, protection of sensitive data, and LNBA accuracy. Therefore, SolarCity believes that it is acceptable for the LNBA to use proprietary data and models with the aim to improve LNBA accuracy, provided that: 1) the LNBA results can be publicly shared in a useful form, and 2) analysis methods are transparent, shared, and understood well enough that other parties can duplicate the analysis to achieve similar results. Without the ability for industry stakeholders to readily replicate these analyses, the LNBAs will suffer from a lack of accountability and may be subject to significant industry resistance. Note also that a significant portion of the LNBA data

[2] Ruling at p. 3.

inputs should be able to be readily shared publically, since most LNBA will practically focus at a higher level of the distribution grid (e.g., substation or feeder level) where relevant data is aggregated. Specifically, sharing substation-level data does not require the dissemination of more sensitive customer data, mitigating the concerns related to customer privacy.

c. What feasible modifications (e.g., data aggregation), if any, should be made to the methodology?

Data aggregation is an appropriate method for avoiding the dissemination of proprietary utility or customer data in an analysis which is to be publicly shared. Most of the insights of the LNBA are still realized when the analysis is performed at the substation level, while concerns about the privacy of customer data are mitigated since only aggregated data would be relevant to the analysis.

d. What feasible alternatives (i.e., new LNBA proposals) by parties should the Commission consider to ensure that LNBA data sources and methods are made (wholly or in large part) available publicly to stakeholders and market participants?

SolarCity is interested in better understanding existing LNBA proposals and to learn about alternatives. Data, assumptions, methods and results should all be made available publicly to the degree possible. SolarCity believes that an accurate and useful LNBA can be achieved at an appropriate level of aggregation.

e. How can the desirable goals of accuracy and transparency best be balanced?

It is in the interest of all stakeholders that the LNBA represent DER values as accurately as possible. Transparency of LNBA methodology and assumptions are of critical importance, so that industry participants may understand the way that their offerings are evaluated and react accordingly. Transparency of fundamental data is less critical an issue which can be handled through aggregation.

Question3: What specific grid services (quantifiable or currently nonquantifiable) should the LNBA method include, as distinct from valuation methods that may be used in sourcing or procurement of grid services? To the extent possible, please provide a list of grid services and rationale for why each grid service should be a) valued in the LNBA and/or b) compensated (or alternatively, required without compensation) in a potential DER sourcing mechanism.

The precise intended use of the LNBA in utility planning and sourcing has not yet been defined, however, it likely has a role to play in both. Without the more developed framework for both distribution planning and DER sourcing that will result from the DRP and IDER proceedings, it is not possible to categorize certain grid services as being more appropriate for valuation or compensation. Indeed, SolarCity believes that at this stage in the process, the LNBA should include a comprehensive set of methods for assigning value to all the grid services offered by DERs. The appropriate application of these methods can be determined during the course of development of the initial planning and sourcing frameworks. It should be noted that the situation is likely to change over time as markets for grid services mature and penetration / ubiquity of DERs capable of grid services grows.

3. Conclusion

SolarCity appreciates the opportunity to provide these responses to the questions posed in the January 8 ruling and looks forward to participating in the upcoming workshop.

Respectfully submitted,

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