Stakeholder Comments Template

Submitted by	Company	Date Submitted
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Please use this template to provide your comments on the presentation and discussion from the stakeholder meeting held on August 13, 2014.

Submit comments to EnergyStorage@caiso.com

Comments are due August 20, 2014 by 5:00pm

The presentation discussed during the August 13, 2014 stakeholder meeting may be found at:

http://www.caiso.com/Documents/AgendaPresentation-EnergyStorageInterconnection.pdf

Please provide your comments in each of the topic areas listed below.

Applying the GIDAP to Cluster 7 energy storage projects

The ISO invites stakeholders to comment on the framework developed under existing GIDAP rules for accommodating Queue Cluster 7 energy storage interconnection requests (see slide 7 and slides 11-18) and its future application to subsequent queue clusters.

> Comments: SCE supports the CAISO's proposal to utilize the GIDAP provisions to process interconnection requests from energy storage developers in Queue Cluster 7. Given FERC's Order 792 in the Small Generating Facility NOPR, it is logical for the CAISO to expand the definition of a "Generating Facility" in its tariff by adding the clause "*and/or storage for later injection*" to accommodate energy storage projects. SCE understands the current tariff restrictions, and therefore, understands the rationale for treating energizing load for energy storage as negative output from an interconnection study standpoint in Queue Cluster 7. However, SCE recommends that the CAISO revisit

this issue to discern whether such a treatment is sustainable in the longer run (i.e. Queue Cluster 8, and beyond) or whether tariff modifications are warranted.

Are changes to the GIDAP needed?

Given the framework developed under existing GIDAP rules for accommodating energy storage interconnection requests (i.e., without requiring modification to the GIDAP tariff), the ISO invites stakeholders to comment on whether changes to the GIDAP tariff are still needed. Stakeholders are asked to be specific and describe any changes they believe are needed despite this framework and explain why they are needed. (see slide 9)

Comments: Although a construct has been designed under the existing GIDAP in which energy storage projects may have technical studies performed in order to be interconnected to the CAISO-controlled grid, there still exists the opportunity for further streamlining of the interconnection process for Queue Cluster 8. Under the proposal for Queue Cluster 7, there is still the possibility that an energy storage project may need to be technically evaluated under two separate study process (i.e. GIDAP and a separate "firm load study") if the storage developer seeks a higher degree of freedom in terms of when/time-of-day it would like to charge its storage device and not be subject to CAISO instructions and operating restrictions, including curtailment. For energy storage projects seeking to interconnect in Queue Cluster 8 and beyond, the CAISO should consider revising its GIDAP so that there would be a more holistic and streamlined approach to the interconnection of energy storage projects.

Consistent with the CAISO's overarching treatment of energy projects as *generation* under the GIDAP, ALL network upgrades needed to reliably interconnect the storage project and to achieve its desired MW level of deliverability for BOTH the discharging and charging aspects of an energy storage project should be identified through the GIDAP. The deliverability of both functions – discharging and charging- should be fully evaluated through the GIDAP.

If the CAISO is unwilling to identify network upgrades that would be needed to mitigate such potential congestion scenarios, SCE requests the CAISO to confirm that the storage developer could propose, in consultation with the CAISO and PTO if necessary, network upgrades as Merchant Transmission Facilities under Section 24.4.6.1 of the CAISO Tariff. While this approach is not ideal because it would not be integrated with generator interconnection process, at least this approach would offer greater optionality to storage developers, which could find it economical to have a lower probability of curtailment of its energy storage project.

Resource Adequacy

The ISO invites stakeholders to comment on whether they favor "unbundling" flexible capacity from system/local capacity as a means of facilitating energy storage in California and explain why or why not. (see slides 22-30)

Comments: The CAISO's currently proposed Flexible Capacity construct meets a very different need (maximum continuous 3-hour ramp) from the generic RA need (meeting system peak load plus a reserve margin). As a result, a resource's ability to meet the Flexible Capacity need may be different than its ability to meet the traditional RA need.

SCE's asks the CAISO to clarify what is means by "unbundling", and how the CAISO's definition of "unbundling" differs from simply determining different NQC and Flexible QC values for the resource.

Is a "charging deliverability assessment" needed?

The ISO invites stakeholders to comment on whether a test is needed to ensure that a storage resource is able to fully charge during each 24-hour day in order to be able to discharge to provide its full RA value. If you believe such a test is needed, how would you propose such a test be performed? Please be specific. (see slide 31)

> Comments: Yes, a charging deliverability assessment is necessary to ensure the storage facility can fully charge in order to provide energy sufficient so that the amount which qualifies for RA is actually made available.   The CAISO should ensure that its grid can sufficiently transfer energy from the "non-charging" generation resources to the "charging" resources in a manner that enables such resources to be made fully available for "discharging" in a manner that result in satisfying RA purposes.
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> "Charging" of storage resources is expected to occur at a time when price signals for energy are low which is concurrent with the time that local area generation resources may not be dispatched (due to the same price signals). As a consequence, the resiliency of the system to move additional power from outside the local area in order to provide for such "charging" aspects under a minimal local area generation dispatch condition will be tested.   To ensure the system can provide for such "charging" requirement, a "charging deliverability assessment" is necessary. Conceptually, the "charging deliverability assessment" would model minimal local area generation at various local area load demand conditions and evaluate if the incremental "charging" requirements drives the need for congestion management. The assessment should ascertain if sufficient hours are available to fully charge every single storage resource seeking interconnection which has also sought out Full Capacity Deliverability Status. If the

studies do not identify sufficient hours available to fully charge every single storage resource seeking Full Capacity Deliverability Status due to transmission limitations, then a Delivery Network Upgrade should be identified to address such transmission limitation(s) and such upgrade should be classified as a Delivery Network Upgrade since it would be necessary to ensure every single storage resource seeking interconnection which has also sought out Full Capacity Deliverability Status are fully charged.

Other issues

The ISO invites stakeholders to comment on any other issues within the scope of this energy storage interconnection initiative.

Comments: SCE acknowledges that it is the CAISO's position that cost responsibility for network upgrades and rate treatment for energy storage projects (e.g., applicability of CAISO TAC and wheeling charges for energy storage projects) are not "in-scope" in this Energy Storage Interconnection stakeholder initiative. However, cost responsibility and rate treatment are critically important issues that require urgent resolution in order to assist developers to reach their determination of whether or not their energy storage projects are economically viable. Further, interconnection and rate structure are interdependent issues given that the designation of upgrade cost responsibility in the interconnection process may affect whether ongoing system charges are appropriate. In a market where conventional generation project developers sought and obtained greater certainty regarding cost responsibility for network upgrades (established as the lesser of Phase I or Phase II study results under the GIDAP), it would only seem reasonable to also, as soon as possible, reduce the uncertainty of costs associated with all the network upgrades for an energy storage project as well as its monthly recurring charges related to its use of the transmission and distribution systems.

The CAISO's position that cost responsibility for network upgrades and rate treatment for energy storage projects will be handled through the Storage Roadmap process is impractical.   As has been conveyed by the CAISO, the Storage Roadmap process is intended only to identify by year-end 2014 both the energy storage-related issues/challenges beyond those linked to interconnection and the appropriate forum/venue for addressing those issues. Under this timeline, cost responsibility and rate treatment issues will likely not be resolved prior to the second or third quarter of 2015, at the earliest. In the interim, Phase I study results for Queue Cluster 7 are expected to be completed by November/December 2014, with the interconnection customer required to post interconnection financial security (IFS) during the first quarter of 2015, if the developer would like to proceed to Phase II. SCE believes that energy storage developers would not post the IFS without knowing all of the cost

responsibility for the triggered network upgrades (including for the charging element of storage) and rate treatment for the energy consumed during charging. SCE proposes that these costs and rate treatment issues be taken-up immediately and not wait for the Storage Roadmap process to unfold.

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