

Stakeholder Comments Template

Submitted by	Company	Date Submitted
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Please use this template to provide your comments on the Issue Paper & Straw Proposal posted on June 24, 2014 in the Energy Storage Interconnection initiative and as supplemented by the presentation and discussion during the stakeholder web conference held on July 1, 2014.

Submit comments to EnergyStorage@caiso.com

[Comments are due July 15, 2014 by 5:00pm](#)

The Issue Paper & Straw Proposal posted on June 24, 2014 may be found at:

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

The presentation discussed during the July 1, 2014 stakeholder web conference may be found at:

http://www.caiso.com/Documents/Agenda_Presentation-EnergyStorageInterconnectionJul1_2014.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 its proposed approach for the application of existing GIDAP rules to energy storage projects in Cluster 7 (e.g., that existing GIDAP rules can accommodate Cluster 7 storage projects that want to be treated as generators for both aspects of their operation; how reliability and deliverability studies will be performed; that GIDAP will not be utilized to assess requests to obtain a higher level of service for charging mode; and, the process for interconnection customers to seek such firm load service from the PTO through

means other than the GIDAP). Stakeholders are asked to identify any issues with this approach for Cluster 7 and to suggest potential alternatives.

Comments: SCE appreciates and commends the CAISO for undertaking an examination of how to process and study, under existing tariff provisions, the unique challenges presented by the requests in Cluster 7 to interconnect storage facilities. The CAISO and stakeholders are navigating through largely uncharted waters in the sense that storage facilities must be studied for *both* their discharging and charging functions. The resolution of storage interconnection issues for Cluster 7 should happen under the appropriate existing tariff provisions, whether the GIDAP and/or those rules applicable for charging. Any application of future rules to Cluster 7 must be fully vetted, and not result in unmanageable queue issues due to attempting to apply any new rules to Interconnection Customers (ICs) who entered into the queue under a different set of rules. As an example of how the CAISO reasonably applied rule changes retroactively as well as to prospective interconnection requests, and providing precedent, the CAISO's initiative to increase downsizing opportunities for ALL generators in the interconnection queue was addressed through a robust stakeholder process.

From a reliability standpoint, it is essential that the generator interconnection and/or charging studies take into account both the charging and discharging modes of operation for storage facilities. However, the existing deliverability requirements only consider the discharging element for deliverability studies. Changes to deliverability studies are necessary so that a charging deliverability assessment is performed to ensure the storage facility can fully charge in order to provide energy sufficient so that the amount which qualifies for Resource Adequacy is actually made available. Such changes will also address the flexible-Resource Adequacy value in the future. In addition, the assumption surrounding the interval when a storage facility would discharge during summer on-peak conditions may not properly reflect the true operating characteristics of storage facilities that may discharge during the ramp-in period, so this issue will need to be considered during the vetting of in-scope topics for the longer-term, beyond Cluster 7.

Further, SCE provides the following implications of the situations where an IC would seek additional ability to charge its storage facility at any time irrespective of system conditions, and the proposed requirement that the IC seek such higher level of service for their charging function in a manner comparable to "firm load" service from the PTO. "Firm load" with respect to interconnections to the CAISO-controlled grid is a misnomer for energy storage projects in that it does not guarantee the IC "flip-switch" ability to charge its storage facility at its time of choosing. In fact, energy storage projects will be expected to follow generation dispatch market instructions. For this reason, there will be a need to perform a

charging dispatch assessment (charging deliverability study) to identify if any Network Upgrades are needed to support energy storage projects which have requested Full Capacity Deliverability status. Analogous to a generator's full deliverability status that is still subject to curtailment by the CAISO, the charging aspects of an energy storage facility will not be immune to curtailment instructions from the CAISO. Treatment as "firm load" does not: (1) guarantee storage priority rights to transmission service; (2) exempt storage from congestion rules; and (3) exempt storage from the CAISO's scheduling rules.

Issues in scope for this initiative

Beyond Cluster 7, the ISO anticipates that it will receive further requests to interconnect energy storage projects in the Cluster 8 application window that will close April 30, 2015. Through this initiative, it may be possible to identify improvements that could be implemented prior to the Cluster 8 window so that those improvements can be applied to projects in that cluster.

Toward this goal, the ISO has identified the following three issue areas as in scope and invites stakeholders to comment on these.

- Interconnection request process. The objective is to ensure a one-stop, streamlined process for interconnecting energy storage to the ISO grid. Consolidation of all aspects (i.e., impacts of both discharging and charging) of energy storage interconnection under the GIDAP will be explored. Stakeholders are asked to explain where process improvements are most needed and could be most beneficial, and to suggest potential improvements.

Comments: The objective to ensure a one-stop, streamlined process for interconnecting energy storage facilities to the CAISO-controlled grid needs to be further explored to ensure that the unique combined attributes (i.e. charging and discharging) and operating characteristics of energy storage facilities are properly studied. The outcome of this exploration may be to revise the GIDAP so that all interconnection aspects of an energy storage project may be studied under its provisions or this further examination may result in two study processes, one for generation and the other for charging of energy storage facilities, as the proper solution. SCE again emphasizes the need to perform charging dispatch assessment to identify if any Network Upgrades are needed to support energy storage projects which have requested Full Capacity Deliverability status. Without such analysis, it is impossible for the IC to fully understand if the project will in fact be able to fully charge so that it can discharge and meet the Full Capacity Deliverability status requirements.

- Interconnection study process. The objectives are to: (1) examine the alignment between the methodologies used in ISO interconnection studies (e.g., reliability,

deliverability) and the energy storage configurations and use cases, and (2) determine whether any changes can or should be made to these methodologies. Although the ISO is not making any commitments as to the extent of any changes that may be made to these methodologies (again, both reliability and deliverability), the ISO is open to this examination and is inviting stakeholder input. Stakeholders are asked to explain how current interconnection study methodologies may not align with energy storage use cases and to suggest potential alternatives for how these studies could be performed. Given that the current deliverability study methodology is aligned with existing resources adequacy rules, stakeholders are asked to suggest how these studies could be performed if those rules are assumed to change.

Comments: SCE recommends that the operating characteristics of a storage facility should be evaluated for possible revisions to the modeling of deliverability studies. The situation where network upgrades are identified as needed should be driven by defining if the system is robust enough to provide for fully charging of the storage device so that it can discharge and meet the Full Capacity Deliverability status requirements. Additionally, if resource adequacy rules change to incorporate the charging abilities of the storage facility, deliverability studies of the charging elements will also be necessary. With respect to the reliability studies of storage facilities, they should include both elements – charging and discharging.

- Project modification process. The objective is to examine whether any further changes (to the two existing project modification processes discussed in the paper: the modification request process and the independent study behind-the-meter expansion process) can or should be made given that developers may want to modify projects (e.g., to add energy storage to a renewable project) either still in queue or those in commercial operation. Although the ISO is not making any commitments as to the extent of any changes that may be made to these existing project modification processes, the ISO is open to this examination and is inviting stakeholder input. Stakeholders are asked to explain how these existing processes may not provide adequate means for requesting project modifications, and are asked to describe changes that could be made or suggest potential alternatives to these processes.

Comments: The revisions and clarifications regarding the current project modification processes (i.e. Material Modification for projects in the interconnection process or the Independent Study Process for behind-the-meter expansion of existing projects) provided through the recently completed Interconnection Process Enhancements (IPE) stakeholder initiative are adequate for developers to augment their generation projects

with energy storage. There are no further changes that are needed to these two project expansion options.

A framework for differentiating between energy storage configurations

Although the ISO has identified the range of configurations that may be possible, due to time constraints the ISO is concerned that inclusion of all possible configurations in this initiative may jeopardize the goal of identifying GIDAP improvements that could be implemented prior to the Cluster 8 window. Thus, the ISO is recommending that this initiative focus solely on ISO grid connected storage configurations (and not distribution connected and customer sited). The ISO believes that solutions developed for ISO grid connected storage configurations will likely inform solutions for distribution connected and customer sited configurations (e.g., where appropriate, conforming changes could be made to distribution utility WDATs). Consistent with this approach, the ISO asks stakeholders to identify energy storage interconnection issues or challenges associated with ISO grid connected configurations (e.g., where the current interconnection rules may either fail to address or conflict with the needs of storage projects) and to make proposals for addressing these issues.

Comments: SCE supports limiting the focus of this energy storage stakeholder initiative to the CAISO grid connected configurations in order to have a manageable set of issues to resolve for their implementation with energy storage interconnection requests in Cluster 8.