



Stakeholder Comments Template

Submitted by	Company	Date Submitted
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Please use this template to provide your comments
in the Energy Storage Interconnection stakeholder initiative.

Submit comments to EnergyStorage@caiso.com

[Comments are due April 14, 2014 by 5:00pm](#)

The presentation discussed during the April 7 stakeholder meeting may be found at:

http://www.caiso.com/Documents/Agenda-Presentation-EnergyStorageInterconnectionApr7_2014.pdf

The ISO is requesting that stakeholders provide comments in one or both of the following two subject areas:

1. Issues and/or questions of more immediate concern relating to the submission of interconnection requests in the Cluster 7 application window. To the extent possible, the ISO will seek to address such issues/questions prior to the close of the Cluster 7 application window (i.e., prior to April 30).
2. Policy issues that may require more comprehensive examination through this initiative. As a reminder, policy issues relating to interconnection of energy storage to the ISO

controlled grid are within the scope of this initiative. In contrast, interconnection below the ISO controlled grid, and market and rate issues, are examples of subject areas not within the scope of this initiative.

To aid the ISO in differentiating between comments in these two subject areas, please insert your comments under the appropriate heading below. Thank you.

CESA commends CAISO management and its policy experts for taking such a proactive response to addressing the variety of regulatory challenges associated with storage interconnection. CESA also thanks SCE, PG&E, and SDG&E for their participation in the April 7 webinar and for their commitment to work with the CAISO and its stakeholders to shed clarity on how the study process for storage will work as governed by current interconnection practices. CESA recognizes that many of the issues associated with studying storage for interconnection are complex and require engagement from a broad set of stakeholders. We look forward to working constructively with the CAISO, the PTOs and industry throughout the course of this initiative.

Issues/questions of more immediate concern relating to the submission of interconnection requests in the Cluster 7 application window:

Study Assumptions

CESA acknowledges that the overarching need for the generation interconnection study process is to ensure that resources can be interconnected reliably. This has historically driven the study of “worst case” system impacts during the study process. Storage, however, has a very different use case than traditional or renewable generation. The intended use of transmission-connected storage – and the purpose of the recent CPUC Storage Order – is to help solve a range of system issues, not to cause them. Storage functions in the market as an energy shifting resource in alignment with system conditions, and to provide other transmission/system benefits via market mechanisms (ancillary services, for example), unlike traditional (unidirectional) generation.

CESA therefore proposes that resources applying in the current cluster be given option during the Phase 1 scoping meeting to be studied both for worst case impacts under an unconstrained use scenario and for grid optimized impacts assuming dispatch constraints as subjectively identified by the CAISO and/or PTOs. Interconnection customers would then have choice at the Phase 1 results meeting as to which dispatch assumptions to lock into. CESA recognizes that running additional studies would have an

additional cost impact, and understands that projects requesting this additional analysis at the scoping meeting should be responsible for covering all incremental costs.

CESA recommends that operational constraints be available for use in both the reliability and deliverability studies. CESA also recommends CAISO establish how a constrained dispatch scenario would impact the NQC of a resource applying as full capacity. For example, generation with operational restrictions during certain times might have reduced net qualifying capacity (“NQC”) versus projects opting for unconstrained interconnection; but could it still qualify as “full capacity deliverability status” (“FCDS”)? Such a methodology should be published by the CAISO and vetted by stakeholders before ICs are forced to lock into constrained or unconstrained operational scenarios at the Phase 1 results meeting.

Material Modification Process

CESA understands the unique nature of the material modification process for each project wishing to evaluate the impact of potential changes. CESA currently understands that the addition of storage to an existing generation facility would be evaluated on a case-by-case basis for impacts to lower queued projects and for the need to substantially restudy the modification’s impacts. Assuming the modification wouldn’t have either impact, such a change would be deemed not material and therefore would be accepted. CESA recognizes this policy is purposefully designed to provide flexibility, and supports that objective.

However, CESA encourages the CAISO to provide as many indicative scenarios as possible in order to provide guidance what might or might not be allowed. Developers look to such guidance to help shape their project development decisions, such as bids in utility competitive solicitations, and transparency of outcomes will help developers and the utilities avoid misalignment in procurement decisions with what is achievable in the interconnection process. Specifically, CESA recommends the following additional guidance from the CAISO:

- The process and implications for queued (e.g. not yet online) generation to modify an interconnection request to accommodate a behind-the-meter expansion in addition to storage (e.g., adding solar panels and storage for generation shifting, while preserving the facility pMax)
- Whether material modifications to include storage to queued generation must have designs that charge exclusively from the generation resource for the change to be allowable, or whether storage could charge from the grid as needed, provided any (currently separate) load interconnection studies are also completed

- CESA understands that the material modification process is not an option for online generation. Therefore, CESA requests that the CAISO clarify the process for operational generation wishing to add behind-the-meter storage. Would such projects automatically qualify for the independent study process, similar to the automatic qualifications for behind-the-meter expansion?

Interaction of Generation and Load Interconnection Processes

CESA understands the CAISO and PTOs are currently planning to study generation and load separately, but in a coordinated manner. While we appreciate CAISO and the PTOs' efforts to coordinate these studies, CESA is very concerned about this approach due to the inherently different nature of the studies (cluster for generation, serial for load), and the likely different base case assumptions that could drive divergent study results and upgrade costs for similar project impacts. While CESA recognizes it is too late to change course prior to closing the Cluster 7 application window, CESA encourages further open communication with stakeholders about whether the CAISO and PTOs plan to unify base case and generation portfolio assumptions for the interconnection studies.

CESA also wishes to note that there are existing resources on the grid (e.g., synchronous condensers, pumped hydro) which behave very much like storage in shifting between load and generation, but that were not required to go through the study process that storage is being asked to go through. CESA recognizes that these assets may not always be "market" assets, however, this distinction is somewhat arbitrary. CESA requests that the CAISO consider, as part of this year's transmission planning process studies on "Demand Response and Storage," that storage may have system or locational benefits (reliability, economic or policy, insofar as facilitating renewables integration) – including an evaluation of whether pairing storage on-site with existing generation resources might provide these benefits.

More critically, CESA urges CAISO to seek FERC approval of a permanent GIDAP solution prior to the opening of Queue Cluster 8; CESA's comments on this are below.

Policy issues that may require more comprehensive examination through this initiative:

Storage should be Studied Exclusively through the GIDAP

CESA believes that the most important tariff change that needs to occur prior to Cluster 8 is to fully establish authority to study both the charging and discharging of storage through the GIDAP.

In addition to the above identified issues with the current bifurcated study approach, CESA is concerned with both the known and unknown study process and cost allocation challenges associated with studying load and generation under two separate jurisdictional tariffs by multiple entities (CAISO GIDAP and PTO load interconnection tariffs), and with conflicting cost allocation provisions for network upgrades. These different study processes may result in different base case assumptions and significant conflicts over identified results due to the fundamentally different nature of the cluster study process for generation versus the serial study process of load interconnection studies.

CESA is not aware of any precedent for cost allocation in cases where generation and load both trigger the same upgrade. It's possible that such treatment may even be inconsistent between PTOs. CESA believes this unprecedented situation is ripe for gaming by all parties - both ICs and PTOs - and is likely to be a source of future disputes between parties. Moreover, the situation is likely to create pricing uncertainty in upcoming competitive solicitations.

Further, it's unclear whether PTO load interconnection tariffs can even be extended to the transmission system without new tariffs, given that existing load interconnection tariffs are generally designed for load interconnecting to PTO-controlled distribution systems. CESA doesn't believe it is any cleaner or easier to extend PTO load interconnection tariffs to transmission-connected storage than to simply modify the GIDAP to better accommodate studying charging activities under a unified process.

More fundamentally, CESA questions whether the definition a 'load' customer even applies to storage charging under PTO tariffs. Transmission-connected storage is primarily a generation-shifting asset providing wholesale market products, e.g. reselling electricity and ancillary services. However, the major PTOs all define applicable "customers" (i.e., "load") as those that consume and do not resell electricity:

- PG&E: The definition of "Customer" states that "A customer may take Bundled Service or Direct Access Service or Community Choice Aggregation Service, **but must take final delivery of electric power, and not resell that power.**"
- SCE: An "End-Use Customer" is defined as "A customer that **takes final delivery of electric power and does not resell the power.**"
- SDG&E: "Customer" means "Generally, **the end-users of electricity**, who may be served either by the UDC or retail electric service providers."

Other points to consider:

- FERC Order 792 defines energy storage resources as “generation.”
- If storage charging is dealt with separately as ‘load,’ then current rules might actually require LSEs to procure resource adequacy capacity to cover such ‘load,’ which is completely counter to the intended function of transmission-connected storage.
- It would benefit CAISO markets to treat both charging and discharging as positive and negative generation, as it assures that the CAISO can access all market attributes of storage, such as the full range of up and down regulation capabilities.
- Utility-owned storage (e.g., Helms) is already operationally treated as positive and negative generation.

CESA therefore requests that this Storage Interconnection stakeholder initiative consider what tariff changes, if any, are required to accommodate the study of both charging and discharging of storage under the GIDAP. The goal should be to eliminate the need for a separate load interconnection study process by PTOs. CAISO should also ask FERC for retroactive treatment for Cluster 7 interconnections – or, minimally, an “opt-in” option for the Phase 2 study of Cluster 7.

CESA understands this may require coordination with the CPUC, PTOs and possibly with FERC to fully resolve, but believes that complete resolution to this currently very awkward process is necessary now to eliminate regulatory and process uncertainty, and to ensure the fair and equitable treatment of this new technology as it interconnects to the CAISO-controlled grid.

CAISO processes should enable “dual use” assets

Due to the current nature of the CAISO’s transmission planning process (generally, to address NERC and WECC defined reliability violations, with separate economic and policy studies), single use storage assets would be grossly underutilized and therefore are unlikely to be selected in the TPP. This is an arbitrary firewall – both between reliability, economic and policy studies in the TPP, and between the TPP and the GIDAP – that is bad for ratepayers because it results in an inefficient use of storage assets.

FERC Order 784 established a framework allowing assets with both transmission and market functions to recover costs and participate in the market. CAISO should develop a TPP process that enables the following:

- A more comprehensive study process for storage solutions in the TPP that consider reliability, policy, and economic benefits cohesively. Such a process could be modeled after the Central California Special Reliability Study that the CAISO completed in the 2012-2013 Transmission Planning Process and that resulted in approval of the Gates-Gregg 230kV line. That study considered the reliability benefits of the line, as well as the economic benefits of the line and the policy benefits that the line brought due to increased use of Helms for renewables integration purposes.
- Partial TAC recovery for storage meeting an identified transmission need but that isn't a cost effective solution absent partial market participation. Current barriers are bad for ratepayers because they result in inefficient utilization of storage assets, and present an artificial market entry barrier to new technology. CESA recognizes that enabling dual use assets might present operational concerns (primarily due to lack of experience operationalizing dual use assets). Therefore, CESA suggests that this initiative consider development of a "pilot protocol" that is perhaps more restrictive in the short term than what may be possible in the long term. CESA recommends that the CAISO commit to re-evaluation of any process that comes out of this topic once there is institutional experience in managing dual use assets.

Again, CESA commends the CAISO for its proactive consideration of the myriad regulatory and process issues that need to be addressed in order to enable the transparent and fair treatment of storage resources in the CAISO interconnection study process. CESA looks forward to actively participating in this and future initiatives, and to constructively working with the CAISO management and its stakeholders to develop forward-thinking, flexible, and fair policies for all resources interconnecting to the CAISO controlled grid.