June 28, 2021

Chair John Prescott
Vice Chair Anita Decker
Governor Valerie Fong
Governor Robert Kondziolka
Governor Carl Linvill

RE: Hybrid Resources Initiative, Phase 2 – Aggregate Capability Constraint expansion

Dear Governors:

We are writing on behalf of the Large-scale Solar Association (LSA) and the Solar Energy Industries Association (SEIA), who together represent some of the largest renewable-energy and Mixed-Fuel Resource (MFR) developers in California markets. Current projects include significant numbers of solar-storage combined MFRs, many scheduled to come on-line in the near future.

LSA and SEIA have been active participants in CAISO stakeholder processes concerning Aggregate Capability Constraints (ACCs) and were prime motivators in the Hybrid Resources Initiative where it was developed. We strongly support the CAISO's proposal to expand the ACC feature to allow multiple ACCs per Generating Facility[1].

However, we have grave concerns about the Management proposal before you today. Specifically, LSA and SEIA contend that the proposal is unduly discriminatory, and that it will seriously impair project contracting and CAISO system reliability. We ask for your support in seeking a change to the Management proposal.

BACKGROUND

Prior CAISO rules: CAISO rules have long allowed large projects to split into smaller portions (e.g., to facilitate PPA contracting), as shown in Example 1 below. The overall Project maximum output limit at the Point of Interconnection (Pmax) is split between the different PPAs as separate Resource IDs, each with its own Pmax and right to deliver only that amount to the CAISO grid.

[1] Contrary to the implications in the Management materials for this meeting, use of multiple ACCs per Generating Facility was not "recently" requested by stakeholders. This configuration was widely discussed in the Hybrid Resources, Phase 2 stakeholder process, including several LSA/SEIA written comment submittals where we repeatedly requested CAISO confirmation on implementation details for such configurations. The CAISO's own ACC Business Requirements Specification specifically allowed for multiple ACCs; the CAISO never mentioned any limitation in the stakeholder process, and no statement of limitation was included in the tariff language. Stakeholders only found out that CAISO intended to limit Generating Facilities to one ACC each in the cover note to FERC, a troubling violation of the CAISO's normal stakeholder processes. To CAISO's credit, the upcoming filing would at least reverse that violation.

Example 1: Solar Project, pre-ACC

RESOURCE ID	*MAXUMUM AT POI*	*MASTER FILE Pmax*	*PROJECT Pmax*
Solar PPA 1	70 MW	70 MW	100 MW
Solar PPA 2	30 MW	30 MW	

CAISO market results respect the Resource ID Pmax values, issuing schedules and real-time dispatches within those values for each. CAISO has the right to "breach" Resource ID boundaries only in System Emergencies. Thus, the PPA off-takers know they are entitled to sole use of their contracted capacity in non-Emergency situations.

Aggregate Capability Constraint (ACC need): Mixed-Fuel Resources (MFRs) combine different technologies into a single project (e.g., solar + storage). The two technologies share a Project Pmax, instead of dividing it between them, and combined capacity typically exceeds the overall Project Pmax. For example, the solar capacity can use the full Project Pmax in summer afternoons; when solar energy declines in the evening, the storage portion can provide additional energy to serve demand.

Example 2 shows this kind of configuration with "Co-located Resources" (separate Resource IDs for each technology), as well as the pre-ACC problem. As noted above, prior CAISO rules required the overall Project Pmax to be divided between the Resource IDs. This means CAISO market systems would not allow bids above the Resource ID Pmax share, so no schedules or dispatches would exceed those limits – effectively stranding a portion of each technology type.

Example 2: Mixed-Fuel Resource, Co-located Resources (CLRs), Pre-ACC

RESOURCE ID	*MAXUMUM AT POI*	*MASTER FILE Pmax*	*PROJECT Pmax*
Solar	100 MW	60 MW *(40 MW stranded)*	100 MW
Storage	80 MW	40 MW *(40 MW stranded)*	

ACCs allow the two Resource IDs to share the Project Pmax. Each Resource ID can offer its Must-Offer Obligation (MOO), and CAISO market algorithms will optimize between those bids to issue schedules and dispatches that respect both the Resource ID Pmax and the overall Project Pmax.

Example 3: One Generating Facility, single ACC

RESOURCE ID	*MAXUMUM AT POI*	*MASTER FILE Pmax*	*PROJECT Pmax*	*Sample 1-2pm Schedule*	*Sample 7-8pm Schedule*
Solar	100 MW	100 MW	100 MW	85 MW	20 MW
Storage	80 MW	80 MW		15 MW	80 MW

As with Figure 1, the CAISO market results will respect the Resource ID Pmax values, issuing schedules and real-time dispatches within those values for each. CAISO has the right to "breach" the Resource ID boundaries only in System Emergencies.

UPCOMING FILING

The CAISO is proposing to allow multiple ACCs for a single Generating Facility. This change is needed to accommodate multiple mixed-fuel PPAs per Generating Facility, a configuration with increased need as the procurement market has fragmented in more, smaller off-takers. Example 4 below shows this configuration, for two PPAs.

Example 4: One Generating Facility, Two ACCs

ACC	RESOURCE ID	MAXIMUM AT POI	MASTER FILE Pmax	PROJECT Pmax
ACC 1 (Off-Taker #1)	Project 1 – Solar	100 MW	100 MW	175 MW
	Project 1 – Storage	80 MW		
ACC 2 (Off-Taker #2)	Project 2 – Solar	75 MW	75 MW	
	Project 2 – Storage	65 MW		

However, the CAISO is proposing a major market change with this modification. CAISO market algorithms would not respect the Master File Pmaxes for these Resource IDs in certain non-Emergency situations, i.e., will not respect the "boundaries" between the ACCs.

Instead, CAISO market algorithms would "relax" ACC boundaries "just before" relaxing the "power balance constraint." The result could be schedules and/or dispatches that effectively allow resources contracted to Off-Taker #1 to "use" capacity contracted to Off-Taker #2.

The CAISO has said this condition would be "rare," but it has provided no information whatsoever about when or how often this condition might occur, how long it might persist, or how or when Market Participants would be notified. The CAISO appears to have done no assessment at all of the potential operational and economic impacts on the parties involved.

The CAISO justifies this proposal by expressing concern that, otherwise, some capacity in an ACC could be "stranded" when conditions are "tight," e.g., if the PPA 1 Resource IDs in Example 4 are not using all their capacity but the PPA 2 Resource IDs could produce more.

However, this is the exact same situation operationally as one Project not using all its POI capacity when another Project at the same POI substation could produce more. However, the CAISO cannot use one project's capacity for output from another short of a System Emergency.

This proposal would obviously make the capacity contracted to each off-taker less valuable. There are two likely ways that developers will avoid this problem:

- **Install software or hardware limiting output from each ACC to contracted amounts.** Developers are already planning such limitations in response to the CAISO proposal. This means CAISO might not be able to access cross-ACC capability even in Emergencies.
- **Submit smaller, multiple Interconnection Requests for the same capacity**, potentially greatly increasing the number of IRs and multiplying the workload of the CAISO and PTOs – see Example 5 below. (The average Cluster 14 project size was 200 MW; imagine around four times the 300+ Interconnection Requests received if smaller projects are seen as more valuable.) Since CAISO will respect boundaries between Projects, off-takers could be sure they receive exclusive rights to their contract capacity in non-Emergency conditions.

Example 5: Two Generating Facilities, each with an ACC

PROJECT	RESOURCE ID	MAXIMUM AT POI	MASTER FILE Pmax	PROJECT Pmax
Project #1 (Off-Taker #1)	Project 1 – Solar	100 MW	100 MW	100 MW
	Project 1 – Storage	80 MW		
Project #2 (Off-Taker #2)	Project 2 – Solar	75 MW	75 MW	75 MW
	Project 2 – Storage	65 MW		

Conclusion

LSA and SEIA strongly support the CAISO's proposal to allow multiple ACCs per Generating Facility. We also support CAISO ability to take whatever actions are needed to prevent or mitigate System Emergencies projects with those configurations.

However, the CAISO should maintain the same market separation between ACCs at a single Generating Facility as it does for other Generating Facilities, including separate Generating Facilities, single-technology multiple Resource ID projects, and for MFRs with only one ACC. Treating MFRs with multiple ACCs differently would be counter-productive, as well as unduly discriminatory.

Thus, we ask that the EIM Governing Body support, at the upcoming CAISO Board meeting, our position that Generating Facilities with multiple ACCs receive just and reasonable treatment, i.e., that they should be treated like separate projects in the CAISO's market algorithms.

Sincerely,

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