Attachment A – Clean Tariff

Tariff Amendment – Energy Storage Enhancements Phase 2

California Independent System Operator Corporation

August 1, 2023
Appendix A

- Charging Constraint

A constraint that reflects a storage resource’s election not to charge beyond the output of its co-located Variable Energy Resource.

Section 27

27.13 Aggregate Capability Constraint

At the request of the Interconnection Customer or Pseudo-Tie Generating Facility, the CAISO may enforce an Aggregate Capability Constraint for Generating Facilities with Co-located Resources that reflects a Generating Facility’s maximum and minimum capability or a portion of that capability for purposes of Day-Ahead Market Awards, Real-Time Market Awards, and Real-Time Dispatch as described in the CAISO’s Business Practice Manuals. If the combined PMax of Co-located Resources associated with a single Generating Facility would exceed the Interconnection Service Capacity of that Generating Facility, the Interconnection Customer may request that the CAISO enforce an Aggregate Capability Constraint or multiple Aggregate Capability Constraints at the Generating Facility as described in the CAISO’s Business Practice Manuals. If the Interconnection Customer requests that the CAISO enforce multiple Aggregate Capability Constraints, the CAISO will enforce an Aggregate Capability Constraint at the Generating Facility level and subordinate Aggregate Capability Constraints at the level of Resource IDs.

If the Interconnection Customer does not elect an Aggregate Capability Constraint(s), the combined PMax of the Co-located Resources registered in the Master File for that Generating Facility may not exceed the Generating Facility’s Interconnection Service Capacity. EIM Participating Resource Scheduling Coordinators also may request that the CAISO enforce an Aggregate Capability Constraint or
multiple Aggregate Capability Constraints for Co-located Resources, subject to the prior written approval of the applicable EIM Entity Balancing Authority that enforcing an Aggregate Capability Constraint(s) for Co-located Resources does not create a threat to safety or reliability.

As described in the CAISO’s Business Practice Manuals the CAISO may relax enforcement of subordinate Aggregate Capability Constraints in its Real-Time Market prior to relaxing enforcement of the system energy-balance constraint specified in Sections 27.4.3.3.4 to ensure there is sufficient Supply to meet the CAISO Forecast of CAISO Demand.

Notwithstanding Section 34.13, a Generating Facility whose Co-located Resources, including Variable Energy Resources, do not comply with Dispatch Instructions such that their output exceeds the Interconnection Service Capacity of the Generating Facility, will be ineligible for the Aggregate Capability Constraint. In such cases, the CAISO will adjust the PMaxes of those Co-located Resources proportionate to each Generating Unit’s capacity such that the sum of the PMax values equals the Interconnection Service Capacity of the Generating Facility, or as requested by the Interconnection Customer so long as the total value does not exceed the Interconnection Service Capacity of the Generating Facility.

Similar to other Generating Facilities with multiple Resource IDs, the CAISO will have no liability with respect to Co-located Resources or their Scheduling Coordinators if Co-located Resources do not comply with Dispatch Instructions and infringe on Interconnection Service Capability used by other Co-located Resources at a Generating Facility.

In the event that Co-located Resources in an EIM Entity Balancing Authority area do not comply with Dispatch Instructions such that their output exceeds the interconnection service capacity for the Co-located Resources, the CAISO will ask the applicable EIM Entity Balancing Authority whether it will revoke its prior approval of enforcing the Aggregate Capability Constraint for such Co-located Resources.

The following resources are not eligible to use the Aggregate Capability Constraint: Multi-Stage Generators, Proxy Demand Response, Pumped Storage Hydro Units, Metered Subsystems, and Use-Limited Resources.

Scheduling Coordinators may not offer or self-provide Ancillary Services into the CAISO’s Markets or receive Uncertainty Awards from Generating Units that are subject to Aggregate Capability Constraints.
until the CAISO issues a Market Notice stating this restriction will no longer apply. The Pricing Node for
the Generating Units or EIM Participating Resources subject to an Aggregate Capability Constraint will be
their Point of Interconnection.

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Section 30

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30.5.6 Non-Generator Resource Bids

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30.5.6.3 Co-Located Charging Constraints

For an Aggregate Capability Constraint, the Interconnection Customer for Co-Located Resources may
designate to the CAISO which storage resource will include Charging Constraints in its Bids. The
Charging Constraint will apply to all storage resources under the Aggregate Capability Constraint.
Charging Constraints will reflect an election not to charge beyond the output of the co-located Variable
Energy Resource(s) in a given hour. When a Scheduling Coordinator for a Co-Located storage resource
includes a Charging Constraint in its Bid, the CAISO will not issue (a) Day-Ahead Schedules for Energy
less than the negative value of the co-located Variable Energy Resource’s Day-Ahead Schedules; or (b)
FMM Schedules or RTD Schedules for Energy that are less than the negative value of the co-located
Variable Energy Resources’ Dispatch Operating Targets, in the same Operating Intervals in the
designated hour. Charging Constraints will not apply in Operating Intervals where the storage resources
receive an Ancillary Service Award to provide Regulation, where the storage resources elect to use
Regulation Energy Management, or where the CAISO must issue an Exceptional Dispatch pursuant to
Section 34.11.

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Section 34

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34.13.3 Co-located Resources and Dispatch Instructions

Co-located Resources that are Non-Generator Resources may deviate from Dispatch Instructions only pursuant to this Section. A Co-located Resource that is a Non-Generator Resource may deviate from a Dispatch Instruction where a co-located Eligible Intermittent Resource at the same Generating Facility is producing above its Dispatch Operating Target due to meteorological conditions such that the Co-located Resources’ combined output would exceed the Interconnection Service Capacity of the Co-located Resources, or otherwise threaten reliability or safety. Such deviations may only occur through proper control technologies that ensure the combined output of all Co-located Resources does not exceed the Generating Facility’s Interconnection Service Capacity. Co-located Resources that are Non-Generator Resources may deviate from Dispatch Instructions to observe their registered Charging Constraints consistent with Section 30.5.6.3. All deviations from Dispatch Instructions will be subject to Uninstructed Imbalance Energy.

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Attachment B – Marked Tariff
Tariff Amendment – Energy Storage Enhancements Phase 2
California Independent System Operator Corporation
August 1, 2023
Appendix A

- Charging Constraint

A constraint that reflects a storage resource’s election not to charge beyond the output of its co-located Variable Energy Resource.

Section 27

27.13 Aggregate Capability Constraint

At the request of the Interconnection Customer or Pseudo-Tie Generating Facility, the CAISO may enforce an Aggregate Capability Constraint for Generating Facilities with Co-located Resources that reflects a Generating Facility’s maximum and minimum capability or a portion of that capability for purposes of Day-Ahead Market Awards, Real-Time Market Awards, and Real-Time Dispatch as described in the CAISO’s Business Practice Manuals. If the combined PMax of Co-located Resources associated with a single Generating Facility would exceed the Interconnection Service Capacity of that Generating Facility, the Interconnection Customer may request that the CAISO enforce an Aggregate Capability Constraint or multiple Aggregate Capability Constraints at the Generating Facility as described in the CAISO’s Business Practice Manuals. If the Interconnection Customer requests that the CAISO enforce multiple Aggregate Capability Constraints, the CAISO will enforce an Aggregate Capability Constraint at the Generating Facility level and subordinate Aggregate Capability Constraints at the level of Resource IDs.

If the Interconnection Customer does not elect an Aggregate Capability Constraint(s), the combined PMax of the Co-located Resources registered in the Master File for that Generating Facility may not exceed the Generating Facility’s Interconnection Service Capacity. EIM Participating Resource Scheduling Coordinators also may request that the CAISO enforce an Aggregate Capability Constraint or
multiple Aggregate Capability Constraints for Co-located Resources, subject to the prior written approval of the applicable EIM Entity Balancing Authority that enforcing an Aggregate Capability Constraint(s) for Co-located Resources does not create a threat to safety or reliability.

As described in the CAISO’s Business Practice Manuals the CAISO may relax enforcement of subordinate Aggregate Capability Constraints in its Real-Time Market prior to relaxing enforcement of the system energy-balance constraint specified in Sections 27.4.3.3.4 to ensure there is sufficient Supply to meet the CAISO Forecast of CAISO Demand.

Notwithstanding Section 34.13, a Generating Facility whose Co-located Resources, including Variable Energy Resources, do not comply with Dispatch Instructions such that their output exceeds the Interconnection Service Capacity of the Generating Facility, will be ineligible for the Aggregate Capability Constraint. In such cases, the CAISO will adjust the PMaxes of those Co-located Resources proportionate to each Generating Unit’s capacity such that the sum of the PMax values equals the Interconnection Service Capacity of the Generating Facility, or as requested by the Interconnection Customer so long as the total value does not exceed the Interconnection Service Capacity of the Generating Facility.

Similar to other Generating Facilities with multiple Resource IDs, the CAISO will have no liability with respect to Co-located Resources or their Scheduling Coordinators if Co-located Resources do not comply with Dispatch Instructions and infringe on Interconnection Service Capability used by other Co-located Resources at a Generating Facility.

In the event that Co-located Resources in an EIM Entity Balancing Authority area do not comply with Dispatch Instructions such that their output exceeds the interconnection service capacity for the Co-located Resources, the CAISO will ask the applicable EIM Entity Balancing Authority whether it will revoke its prior approval of enforcing the Aggregate Capability Constraint for such Co-located Resources. The following resources are not eligible to use the Aggregate Capability Constraint: Multi-Stage Generators, Pseudo-Tie Resources, Proxy Demand Response, Pumped Storage Hydro Units, Metered Subsystems, and Use-Limited Resources.

Scheduling Coordinators may not offer or self-provide Ancillary Services into the CAISO’s Markets or receive Uncertainty Awards from Generating Units that are subject to Aggregate Capability Constraints.
until the CAISO issues a Market Notice stating this restriction will no longer apply. The Pricing Node for the Generating Units or EIM Participating Resources subject to an Aggregate Capability Constraint will be their Point of Interconnection.

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Section 30

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30.5.6 Non-Generator Resource Bids

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30.5.6.3 Co-Located Charging Constraints

For an Aggregate Capability Constraint, the Interconnection Customer for Co-Located Resources may designate to the CAISO which storage resource will include Charging Constraints in its Bids. The Charging Constraint will apply to all storage resources under the Aggregate Capability Constraint. Charging Constraints will reflect an election not to charge beyond the output of the co-located Variable Energy Resource(s) in a given hour. When a Scheduling Coordinator for a Co-Located storage resource includes a Charging Constraint in its Bid, the CAISO will not issue (a) Day-Ahead Schedules for Energy less than the negative value of the co-located Variable Energy Resource’s Day-Ahead Schedules; or (b) FMM Schedules or RTD Schedules for Energy that are less than the negative value of the co-located Variable Energy Resources’ Dispatch Operating Targets, in the same Operating Intervals in the designated hour. Charging Constraints will not apply in Operating Intervals where the storage resources receive an Ancillary Service Award to provide Regulation, where the storage resources elect to use Regulation Energy Management, or where the CAISO must issue an Exceptional Dispatch pursuant to Section 34.11.

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Section 34

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34.13.3 Co-located Resources and Dispatch Instructions

Co-located Resources that are Non-Generator Resources may deviate from Dispatch Instructions only pursuant to this Section. A Co-located Resource that is a Non-Generator Resource may deviate from a Dispatch Instruction where a co-located Eligible Intermittent Resource at the same Generating Facility is producing above its Dispatch Operating Target due to meteorological conditions such that the Co-located Resources’ combined output would exceed the Interconnection Service Capacity of the Co-located Resources, or otherwise threaten reliability or safety. Such deviations may only occur through proper control technologies that ensure the combined output of all Co-located Resources does not exceed the Generating Facility’s Interconnection Service Capacity. Co-located Resources that are Non-Generator Resources may deviate from Dispatch Instructions to observe their registered Charging Constraints consistent with Section 30.5.6.3. All deviations from Dispatch Instructions will be subject to Uninstructed Imbalance Energy. A Co-located Resource that is a Non-Generator Resource may not deviate from a Dispatch Instruction pursuant to this section if it is providing Ancillary Services in the same Dispatch Interval.

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