Changes/additions to Market Operations BPM related to Export, load and wheeling scheduling priorities.

Pending FERC approval (expected June 27, 2021)

# Scheduling Priorities for Exports and Load

#### PT export scheduling priority

In the day-ahead market, the scheduling priority of exports relative to load depends on whether the exporting scheduling coordinator designates an internal-to-CAISO resource with non-RA capacity as supporting the export. If a scheduling coordinator identifies an export self-schedule as supported by non-RA capacity, that export receives equal scheduling priority as CAISO self-scheduled load in IFM and the CAISO load forecast in RUC. These exports are referred to as Price Taker (PT) exports. Any export self-schedules that do not identify non-RA capacity supporting the export will still be price takers, but they will have lower scheduling priority than CAISO self-scheduled load in IFM and demand forecast in RUC. These exports are referred to as Lower Price Taker (LPT) exports. This means that if there is insufficient supply or binding transmission constraints, these LPT exports will only clear if there is sufficient supply to first serve self-scheduled CAISO load or demand forecast, and PT exports. This ensures CAISO resource adequacy capacity cannot be used to support exports when it is needed to serve CAISO load. Finally, if there is sufficient supply to clear all self-scheduled day-ahead export and load self-schedules, economic load and export bids will be considered.

In the real-time market, the scheduling coordinator for a PT export that receives a day-ahead schedule must re-declare a supporting resource to support the high-priority export. If a supporting resource is not designated in the real-time market bid, the export will be assigned lower real-time market priority than PT exports but higher priority than the LPT exports submitted in the real-time market.

#### LPT and Economic Export Priorities

Lower priority exports (i.e., exports not backed by non-RA supply) that receive a day-ahead market schedule will have a lower priority than CAISO load, and will be appropriately curtailed in the day-ahead market to minimize the export of RA capacity dedicated to CAISO load during tight system conditions. LPT and economic exports must secure capacity from a non-RA resource in order to receive high priority in the real-time market.

LPT exports and economic exports that are deemed feasible in RUC and are self-scheduled into the real-time market will receive higher priority than LPT exports and economic exports bidding in the real-time market.

##### 2.5.5.2.1 Identify Resource that can support Export

A Master File flag, through the Resource Data Template (RDT) submitted by scheduling coordinator, will define a generating resource or a non-generator resource to indicate whether the resource can be designated to support a high priority export. To qualify as a designated resource for an export self-schedule, the resource must meet the following qualifications:

* The designated resource must be a generating resource or a non-generator resource that is only internal to the CAISO BAA.
* The Scheduling Coordinator of the designated resource must attest that the resource is capable of supporting a PT export from its non-RA capacity bid in the market and has been forward contracted with an external load serving entity.
* The ISO will notify a scheduling coordinator hourly that its resource is supporting a PT Export.
* The designated capacity must be the deliverable capacity of a resource with Full Capacity Deliverability Status, Partial Capacity Deliverability Status, or Interim Deliverability Status that is shown on the CAISO’s NQC list, because these resources have not completed a deliverability assessment in the generator interconnection process and thus cannot ensure deliverability. Because such resources cannot sustain an hourly block schedule if there is local congestion, these type of resources cannot be designated to support a high priority export.
* The supporting resource will be assigned a $0/MW RUC availability bid equal to the PT export self-scheduled quantity.
* If the supporting resource for a PT export does not receive a RUC schedule, the scheduling coordinator must rebid the resource in the real-time market for the export to maintain PT priority. If the export does not rebid in real-time with a designated resource, the export’s real-time scheduling priority will be equivalent to a day-ahead LPT export (i.e., lower priority than CAISO load but higher priority than LPT exports) up to its RUC award.

##### PT status in RTM

PT status in real-time market can be provided through two means;

1. If the same designated resource is specified in the real-time market bid as it was specified in the day-ahead market bid: The lower of the designated resource’s RUC schedule or day-ahead export RUC schedule will receive the PT scheduling priority.

2. If a different designated resource is specified in the real-time market bid from the one that was specified in the day-ahead market bid: The portion of the export self-schedule supported by the designated resource bid into the real-time market with available non-RA capacity above the resource’s RUC schedule will receive the PT scheduling priority.

The same scheduling priority in real-time applies in both situations.

**Example:**

Export A1 is a 100MW export self-schedule with Generator A as a designated supporting resource. Generator A bids 80MW in the day-ahead market. Therefore, the export A1 receives the PT scheduling priority for 80 MW and the LPT scheduling priority for the remaining 40MW. Generator A receives an 80MW schedule in IFM but is curtailed to 60MW in RUC. That means Export A1 can only receive 60MW of day-ahead PT priority; however, the scheduling coordinator may bid another export A2 specifying Generator A as a Supporting Resource. Generator A bids 30MW in real time above its RUC schedule supporting A1 for up to 30MW for the PT scheduling priority. The remaining 30MW of A2 receive the real-time LPT priority. The other examples follow a similar logic.

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| --- | --- | --- | --- | --- | --- | --- | --- |
| Resource | DAM Bid | Supporting Resource | DAM Priority | RUC Schedule | RTM Bid | Supporting Resource | RTM Priority |
| Export A1 | 100 PT 20 LPT | Generator A | 80 DAPT 40 DALPT | 120 | 60 PT | Generator A | 60 DAPT |
| Export A2 |  |  |  |  | 30 PT 30 LPT | Generator A | 30 RTPT 30 RTLPT |
| Generator A | 80 |  |  | 60 | 90 |  |  |
| Export B1 | 100 PT 20 LPT | Generator B | 80 DAPT 40 DALPT | 100 | 60 PT 50 LPT | Generator B | 60 DAPT 40 DALPT 10 RTLPT |
| Export B2 |  |  |  |  | 10 PT 10 LPT | Generator B | 10 RTPT 10 RTLPT |
| Generator B | 80 |  |  | 60 | 70 |  |  |
| Export C | 100 PT 20 LPT | Generator C | 80 DAPT 40 DALPT | 100 |  |  | 100 DALPT |
| Generator C | 80 |  |  | 60 | 70 |  |  |
| Export D | 100 PT 20 LPT | Generator D | 80 DAPT 40 DALPT | 100 |  |  | 80 DAPT 20 DALPT |
| Generator D | 80 |  |  | 80 | 80 |  |  |
|  |  |  |  |  |  |  |  |
| DAPT = RTPT = Load/Demand > DALPT > RTLPT | | | |  |  |  |  |

##### Scheduling Priorities for Wheels

* **High priority and low priority self-scheduled wheel-through**
* The Low priority wheels have the penalty price for their import leg set to $0/MWh and the penalty price for the export leg set the same as LPT exports.
* The high priority wheels have the penalty price for their import leg of the wheel set the same as self-scheduled imports and the export leg of the wheel bid the same as PT exports.
* In order to qualify as a high priority wheel, the Scheduling Coordinator must provide such information to the CAISO (1) by June 29, 2021 for the months of July and August 2021, and (2) by 45 days prior to the applicable month for all months thereafter.
* The Scheduling coordinator must notify the CAISO 45 days ahead of the month the MW quantity of the wheel and confirm that it has procured monthly firm transmission for the hours of delivery of the contract to the CAISO boundary from an external balancing authority area.
* The scheduling coordinator needs to register an export system resource in the Master File prior to the start of the month, so that the wheel can receive high priority in the market. This is done by processing the scheduling coordinator submitted Intertie Resource Data Template based on the normal Master File timeline.
* **Administrative process before the HASP schedules are published.**

In the post-HASP process, when HASP uneconomic adjustment takes place (either under-generation relaxation of the power balance constraint and/or PT Wheel self-schedule cuts) and intertie scheduling limits are binding in the import direction, all low priority wheel through transactions will be curtailed to 0 MW prior to allocating available transmission capacity between Priority Wheeling Through transactions and CAISO load.

The CAISO will apply a pro rata allocation for transmission capacity on an intertie that is constrained in the import direction by a scheduling limit between import -schedules, and high priority wheeling self-schedules, as follows:

***D*** *= min (PT Wheel SS, Import Limit) + min (RA Import Bid/SS, Import Limit)*

***Adjusted Import Schedule*** *= min (RA Import Bid/SS, Import Limit) \* Import Limit / D*

***Adjusted PT Wheel Schedule*** *= min (PT Wheel SS, Import Limit) \* Import Limit / D*

The individual schedules in each of the two allocated totals are determined in merit order. The Import Limit is reduced by any TOR/ETC self-schedules that have higher scheduling priority and are not subject to this pro rata allocation.

The CAISO also applies a similar pro rata allocation method for allocating southbound transmission capacity on Path 26, between supply schedules, north of Path 26 and high priority southbound wheeling self-schedules through Path 26 when Path 26 is constrained in the north-south direction, and when the HASP optimal solution shows uneconomic adjustments among said schedules and/or load.

The pro-rata allocation formula is as follows;

***D*** *= min (PT Wheel SS, Path26 N-S Limit) + min (RA Bid/SS – PG&E TAC Demand Forecast, Path26 N-S Limit)*

***Adjusted Gen/Import Schedule*** *= min (RA Bid/SS – PG&E TAC Demand Forecast, Path26 N-S Limit) \* Path26 N-S Limit / D*

***Adjusted PT Wheel Schedule*** *= min (PT Wheel SS, Path26 N-S Limit) \* Path26 N-S Limit / D*

The individual internal supply schedules are kept at their optimal HASP schedules, whereas the individual import and PT wheeling schedules in each of the two allocated totals are determined in merit order. The Path 26 N-S Limit is reduced by any TOR/ETC self-schedules on Path 26 North-South that have higher scheduling priority and are not subject to this pro rata allocation.

**Examples:**

**Example1:** Pro rata allocation of import capability between RA Imports and PT Wheel schedules at the intertie scheduling point.

Import limit: 300MW

RA Import bid: 200MW

PT Wheel: 200MW

HASP Solution is uneconomic (under-generation by more than 100MW): Import: 100MW, PT Wheel: 200 MW

Pro rata allocation of 300MW import capacity between the RA Import and PT Wheel:

Adjusted Import Schedule = 200\*[300/(200+200)] = 150MW

Adjusted PT Wheel Schedule = 200\*[300/(200+200)] = 150MW

**Example 2:** It builds upon the previous example, but introduces non-RA import RUC schedules. The result of the pro rata allocation between total Import and PT Wheel schedules is the same.

Import limit: 300MW

Non-RA Import (RUC Schedule): 100MW

RA Import Bid: 200MW

PT Wheel: 200MW

HASP Solution is uneconomic (under-generation by more than 100MW): Non-RA Import: 100MW, RA Import: 0MW, PT Wheel: 200 MW

Pro rata allocation of 300MW import capacity between the Imports and PT Wheel:

Adjusted Import Schedule = 200\*[300/(200+200)] = 150MW

Adjusted Non-RA Import Schedule: 100MW

Adjusted RA Import Schedule: 50MW

Adjusted PT Wheel Schedule = 200\*[300/(200+200)] = 150MW

**Example 3:** It builds upon the previous examples, but the Import and PT Wheel pro rata shares are limited by the import limit.

Import limit: 300MW

Non-RA Import (RUC Schedule): 100MW

RA Import Bid: 400MW

PT Wheel: 400MW

HASP Solution is uneconomic (under-generation by more than 100MW): Non-RA Import: 60MW, RA Import: 0MW, PT Wheel: 240 MW

Pro rata allocation of 300MW import capacity between the Imports and PT Wheel:

Adjusted Import Schedule = min(400,300)\*[300/((min(400,300)+min(400,300))] = 150MW

Adjusted Non-RA Import Schedule: 100MW

Adjusted RA Import Schedule: 50MW

Adjusted PT Wheel Schedule = min(400,300)\*[300/((min(400,300)+min(400,300))] = 150MW