

Information documents are not authoritative. Information documents are for information purposes only and are intended to provide guidance. In the event of any discrepancy between an information document and any authoritative document¹ in effect, the authoritative document governs.

1 Purpose

This information document relates to the following authoritative documents:

- Section 203.1 of the ISO rules, *Offers and Bids for Energy* (“Section 203.1”);
- Section 203.3 of the ISO rules, *Energy Restatements* (“Section 203.3”);
- Section 203.4 of the ISO rules, *Delivery Requirements for Energy* (“Section 203.4”); and
- Section 306.5 of the ISO rules, *Source Asset Outage Reporting and Coordination* (“Section 306.5”).

The purpose of this information document is to describe how available capability, price, and MW restatements are applied to an energy offer or bid. This information document is likely of most interest to pool participants submitting restatements for energy offers or bids.

2 Must Offer Requirement

Subsection 5 of Section 203.1 requires pool participants that submit an offer for a source asset to offer the maximum capability of the asset in all hours of the submission period regardless of the asset's capability to actually produce that energy. Restatement of the available capability requires pool participants to declare what is expected to be available from the source asset when the asset is physically unable to produce its full output. See the CADG definition of acceptable operating reason, Information Document #2009-003R, *Acceptable Operational Reasons*, and the examples provided below to better understand the exercise of an acceptable restatement of the available capability.

3 Available Capability Restatements

Subsection 2(2) of Section 203.3 sets out a requirement for pool participants to restate the available capability of a source assets for the applicable hour(s) where there is an offer. An asset's available capability must reflect any expected or realized physical constraint(s) for each applicable hour given the best available information. As this information changes, the available capability must be updated in the Energy Trading System as soon as reasonably practicable.

For example, if an asset's available capability is impacted by ambient temperature, the AESO would expect the available capability for future settlement intervals to be restated to reflect a reasonable assumption of expected temperature information. Historical climate data or weather forecast may provide a reasonable expectation of available capability, and changes resulting from updated historical or forecast data should be restated for the applicable hours as soon as practicable.

Pool participants that submit an offer for a source asset can have offers in the Energy Trading System 7 days prior to the date the offer is effective. For further information on the procedures to restate available capability in the Energy Trading System using the energy submission tab for the 7-day period, or to restate available capability for any periods in the next two years using the outage scheduling tab, refer to sections 5 and 7 of Information Document #2013-001R, *Energy Trading System Pool Participant Manual*, respectively.

¹ “Authoritative documents” is the general name given by the AESO to categories of documents made by the AESO under the authority of the *Electric Utilities Act* and regulations, and that contain binding legal requirements for either market participants or the AESO, or both. Authoritative documents include: the ISO rules, the reliability standards, and the ISO tariff.

Note that subsection 2 of Section 306.5 also sets out a requirement to change the available capability for source assets to reflect any outages within the next 24 months.

4 Available Capability Restatement Impacts on the Energy Market Merit Order

Restating available capability up or down to a level where available capability is less than the source asset's maximum capability causes the Energy Trading System to remove portions of the offer from the merit order, as outlined below.

When a pool participant has restated their available capability to a level below their maximum capability, their offers must still total the maximum capability of the source asset. However, the only operating blocks for that source asset that appear in the merit order for dispatch by the AESO are those which contain the energy up to the current available capability value. Table 1 below shows hypothetical offer structures for a source asset with maximum capability equal to 150 MW.

Table 1 – Offer Operating Blocks

Block	MW	Price
0	40	\$0.00
1	60	\$25.00
2	80	\$49.00
3	100	\$60.00
4	130	\$700.00
5	140	\$900.00
6	150	\$990.00

The total MW in the highest priced operating block is equal to the maximum capability of the source asset and as long as available capability equals maximum capability, all 7 operating blocks would appear in the merit order in full.

As an example, assume the pool participant has to restate the available capability of the source asset down to 100 MW for an acceptable operational reason. Restatements of available capability to a lower level are applied first to the highest priced operating blocks. In this case therefore, only operating blocks 0 through 3 would appear in the merit order.

Table 2 – Offer Operating Blocks with Available Capability = 100MW

Block	MW	Price
0	40	\$0.00
1	60	\$25.00
2	80	\$49.00
3	100	\$60.00
4	130	\$700.00
5	140	\$900.00
6	150	\$990.00

When the source asset is able to be restated to a higher available capability (e.g. an increase of 35 MW) but not all the way to 150 MW, the pool participant would submit an available capability restatement to 135 MW. Restatements of available capability are applied to blocks in ascending order of price. In this example, blocks 0 through 4 would appear in the merit order for their full amounts and block 5 would appear in the merit order as 135 MW instead of 140 MW.

Table 3 – Offer Operating Blocks with Available Capability = 135MW

Block	MW	Price
0	40	\$0.00
1	60	\$25.00
2	80	\$49.00
3	100	\$60.00
4	130	\$700.00
5	140	\$900.00
6	150	\$990.00

5 Energy Storage Resource Available Capability Restatements

For a source asset that is (or includes) an energy storage resource, an available capability restatement to manage the state of charge² is not considered an acceptable operational reason unless the state of charge is at relative 0% or relative 100% (for example, a battery is fully charged or fully discharged). Like all other pool assets, the AESO expects that the pool participant will manage its operation through offers submitted at least 2 hours before the start of a settlement interval. See the following stand-alone energy storage resource restatement example in Figure 1. In this example the participant has not bid the charging consumption into the energy market.

² State of charge is described in Information Document 2020-013, *Energy Storage Guidance Document*.

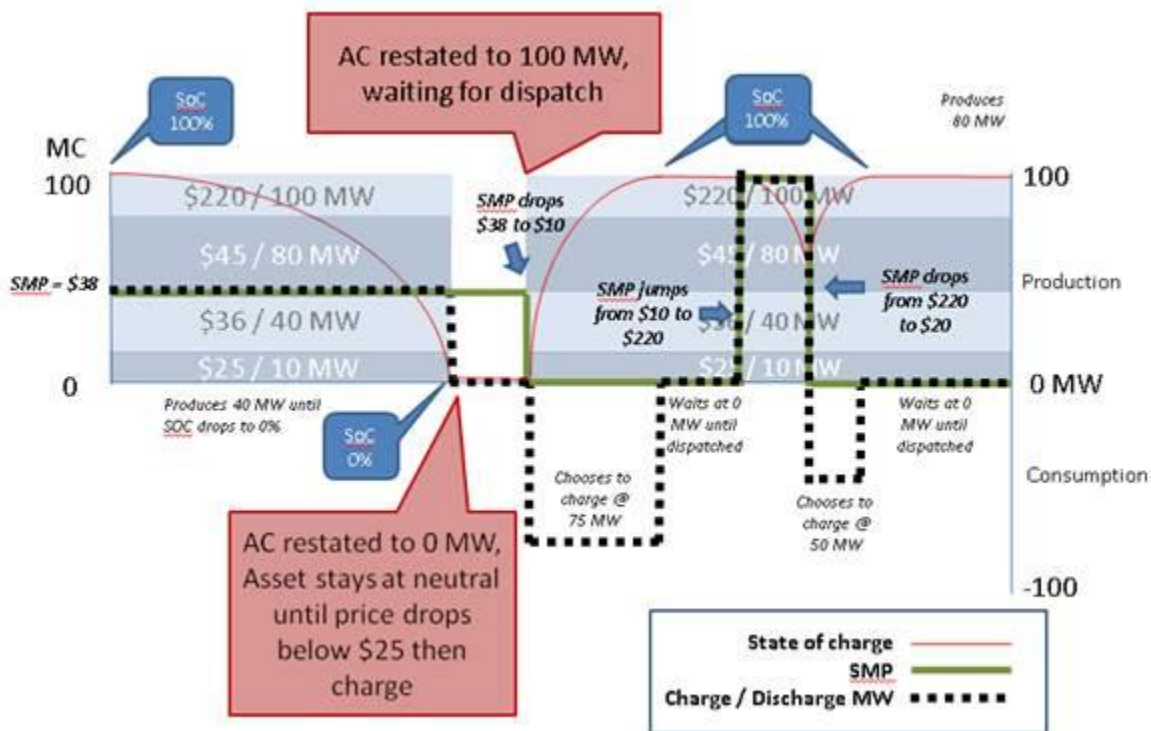


Figure 1 – Energy Storage AC Restatement Example

Figure 1 provides an example where a pool participant has submitted an offer to the energy market for a 100 MW source asset that is a stand-alone energy storage resource. The starting point of this example has the system marginal price at \$38. At this price, the AESO issues a dispatch for the energy storage resource (with a fully charged resource) of 40 MW. The AESO expects that the resource will continue to provide 40 MW of energy production until the energy storage resource receives a dispatch for another level or is incapable of maintaining the original level. For energy storage resources, physical incapability occurs when the state of charge³ of the resource drops to 0%. When the energy storage resource state of charge is at 0%, the source asset is no longer available and may submit restatements to the AESO via the energy trading system to represent the change in available capability and operating state. Figure 1 outlines an example where the pool participant submits an available capacity restatement when the state of charge drops to 0%.

In this example, once the state of charge drops to 0%, the pool participant restates the available capacity to 0 MW and declares an acceptable operational reason as “0% State of charge”. The pool participant may wish to recharge the energy storage resource when system marginal price has dropped to levels that are below submitted offers.⁴

Recharging the energy storage resource while the system marginal price is higher than any block offer will start to restore the state of charge above 0% indicating the energy storage resource will no longer have an available capability of 0 MW and an available capability restatement is required to set the available capability back to the maximum capability of the asset, assuming no other physical derate exists. In Figure 1, when the system marginal price drops below \$25, the pool participant charges the energy storage resource at any desired MW level and restores the available capability to 100 MW. In this

³ Further information on state of charge is described in Information Document 2020-013, *Energy Storage Guidance Document*.

⁴ See Figure 2 for offers that have block 0 priced at \$0.00/MWh.



example, charging is at 75 MW and the pool participant can continue to charge the energy storage resource until the system marginal price rises to or above \$25. In the example, the state of charge restores to 100%, however the pool participant must wait for the system controller to issue a dispatch for a level above 0 MW in order to discharge.

In Figure 1, when the system marginal price jumps from \$10 to \$220, the system controller issues a dispatch for the energy storage resource to provide 100 MW of energy. This price excursion only lasts a short while and the system marginal price drops back down to \$20, at which point the system controller issues a dispatch for the energy storage resource to reduce its output to 0 MW and the pool participant takes that opportunity to recharge the energy storage resource at 50 MW. While remaining at the 0 MW dispatch level, the pool participant continues to charge the energy storage resource until it reaches a state of charge of 100%. Once again, the energy storage resource is fully charged and out of merit, so the energy storage resource remains at the 0 MW dispatch level until the system controller issues a new dispatch.

6 Price Restatements

Section 203.3 gives pool participants the ability to restate the price associated with an offer or bid for a pool asset. To make a price restatement, pool participants may change the price associated with a bid or offer prior to 2 hours before the start of a settlement interval. Price restatements do not require an acceptable operational reason.

As an example, see Table 4 below. Since this offer has been submitted for hour ending 12 (HE12), at any time prior to 9:00 am, the pool participant changes the prices of some of the offer blocks of the offer shown in table 1, as follows:

Table 4 – Offer Operating Blocks for HE12

Block	MW	Price
0	40	\$0.00
1	60	\$40.00
2	80	\$55.00
3	100	\$60.00
4	130	\$800.00
5	140	\$900.00
6	150	\$990.00

For a source asset that is (or includes) an energy storage resource, a pool participant can manage the state of charge by restating the price associated with an offer. As noted above, price restatements may be changed prior to 2 hours before the start of the settlement interval.

7 MW Restatements

Section 203.3 gives pool participants the ability to submit a MW restatement, redistributing the MW associated with an offer or bid for a pool asset. MW restatements are required under certain operating conditions, as set out in subsection 4(2) or 7(2) of Section 203.3.

As an example, see Table 5 below. Assume that Table 1 reflected the original offer for this pool asset.

Table 5 shows the new offer after making a MW restatement where operating conditions required the pool asset to produce a minimum of 55 MW.

Table 5 – Offer Operating Blocks

Block	MW	Price
0	55	\$0.00
1	60	\$25.00
2	80	\$49.00
3	100	\$60.00
4	130	\$700.00
5	140	\$900.00
6	150	\$990.00

15 MW have been moved from Block 1 into Block 0, the \$0.00 offer block.

Note, that when submitting a MW restatement, prices remain fixed for each block.

For a source asset that is (or includes) an energy storage resource, if a pool participant cannot comply with a dispatch because the state of charge is at relative 0% or relative 100% (for example, a battery is fully charged or fully discharged), the AESO expects a pool participant to submit a MW restatement and declare the acceptable operating reason as the state of charge being the physical limitation.

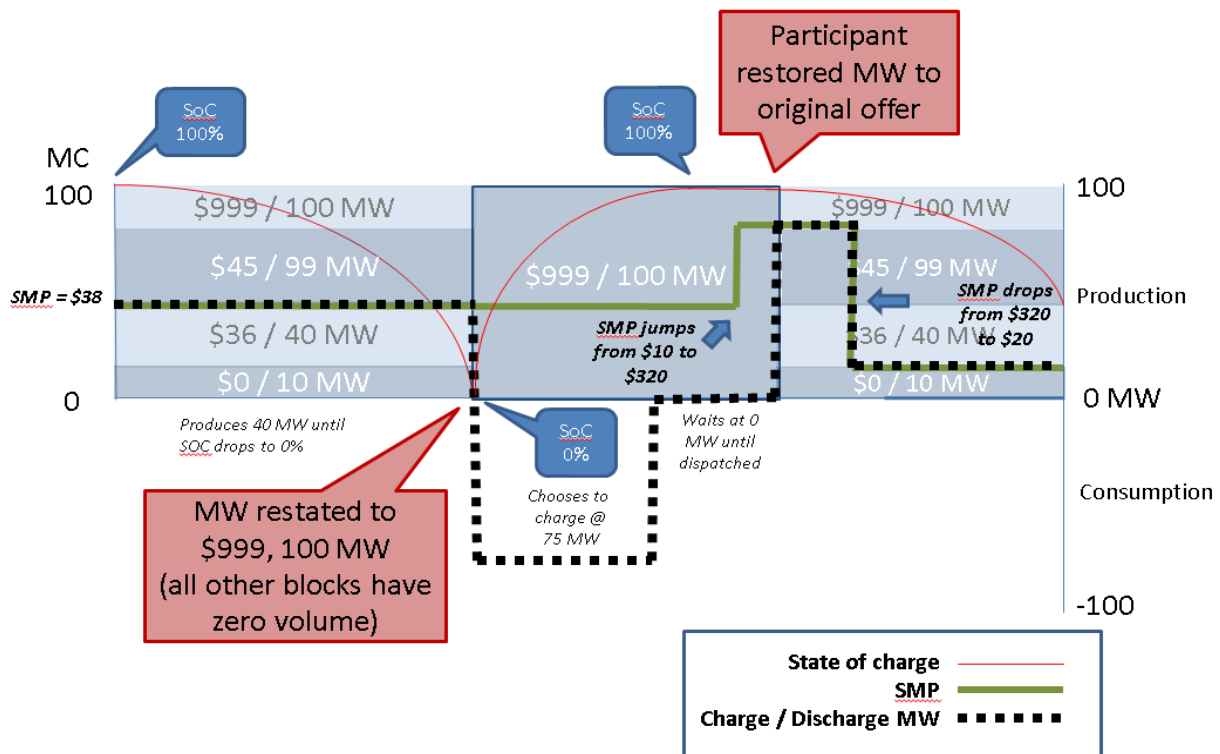


Figure 2 – Energy Storage MW Restatement Example

Figure 2 provides an example of a situation where a pool participant with a source asset that is an energy storage resource submits a MW restatement when the energy storage resource's state of charge drops to 0%. Ensuring the dispatchable volume of an energy storage resource is priced above the system marginal price enables the pool participant to restore the energy storage resource's state of charge without receiving a dispatch to provide energy. In this example, the pool participant moves all of its MW volume into a \$999 block and leaves it there until the energy storage resource's state of charge is restored. The pool participant then chooses to submit a MW restatement, reverting to the original day-ahead offer, and the system controller issues a dispatch for the energy storage facility.

Revision History

Posting Date	Description of Changes
2024-11-05	Revised section 3 to clarify available capability restatement purpose, time frame, and scope. Administrative amendments.
2024-04-25	Revised section 4 discussing available capability restatements for Energy Storage Resources. Administrative amendments to align with ISO Energy Storage Rules and new definitions.
2020-06-19	Removal of subsection 5 Addition of information regarding energy storage facilities incorporated into subsections 2, 3 and 4
2017-05-11	Addition of section 5
2014-06-13	ISO rule reference amendment
2013-11-12	Administrative updates
2013-01-08	Initial release