

101 DISPATCHING ENERGY MARKET MERIT ORDER AND DDS MERIT ORDER

1. Purpose

To define the methodology used by the System Controller (SC) when dispatching bids and offers in the energy market merit order and the dispatch down service (DDS) merit order under normal operating conditions.

2. Background

The energy market merit order is the list of all valid energy offers and bids submitted by pool participants, sorted in order of offer and bid price blocks. The energy offers and bids are dispatched to maintain a balance between energy supply and demand.

Also included in this OPP are operating policies and procedures for dispatching the DDS merit order with respect to Transmission Must Run (TMR) dispatches or long lead time energy (LLTE) directives.

3. Policy

- The energy market merit order is sorted by descending order of price (\$/MW).
- Bids priced above the current system marginal price (SMP) are fully dispatched on.
- Bids priced equal to the current SMP are either dispatched off or dispatched on for partial block volumes.
- Bids priced below the current SMP are dispatched off except for inflexible blocks.
- Offers priced above the current SMP are dispatched off.
- Offers priced equal to the current SMP are dispatched on for either their full or partial volumes.
- Offers priced below the current SMP are fully dispatched on except for inflexible blocks.
- In dispatching a block of energy in the energy market merit order, consideration must be given to the constraints of the asset submitted in the bid or offer, except:
 - If an energy block is already dispatched on for partial block volume, it must be dispatched on for the full block volume, regardless of its asset constraints, before another higher priced energy block is dispatched.
 - If an asset's first non-zero block is in merit, an energy market dispatch must be issued to it, regardless of whether the minimum on/off time or start up/shutdown time constraint has been met.
- Dispatch volumes must be determined on a pro rata basis when dispatching multiple equally-priced bids and offers, except for imports and exports which must follow the procedures described in [OPP 301](#) and [OPP 302](#) and dispatching equally priced \$0 offers as described in [OPP 103](#). In the event that one or more of the equal-priced blocks is inflexible, efforts must be

made to accommodate the inflexible block(s) and to minimize dispatching higher blocks in the energy merit order.

4. Responsibilities

4.1 ISO

- The ISO must update the ISO Rules and the OPPs as required.

System Controller

- The SC must, in accordance with this OPP, dispatching the energy market merit order and DDS merit order.

4.2 Pool Participants

- A pool participant with a generating asset that has a start up time greater than 1 hour must enter a start time in the automated dispatch and messaging system (ADAMS) in order for it to appear in the energy market merit order and be eligible for dispatch. The start time entered in ADAMS must allow for the complete period of the generating asset start up time (i.e., start time – time of ADAMS submission \geq generating asset start up time) and be submitted at least 2 hours before the start of the settlement interval.
- In accordance with the immediately preceding bulleted section, pool participants must also enter a start time in ADAMS if their start up time is greater than 1 hour for generating assets that have been dispatched for TMR.

5. System Controller Procedures

5.1 Advance energy market dispatch for imports and exports

The SC must:

1. Verify that all imports are priced at \$0.00 and all exports are priced at \$999.99. If an import block price is higher than \$0.00 or an export block price is lower than \$999.99, notify the pool participant who submitted such price and only dispatch the block when the price is corrected.
2. Issue an energy dispatch to the import and export blocks at least 25 minutes before the next scheduling hour. The dispatch time must be the start of the next scheduling hour.

5.2 Dispatching on the next higher non-zero block of energy

The SC must:

1. If the next higher operating block available is an offer that is a flexible block:
 - a. And the block size is greater than or equal to the increase in demand, dispatch on the partial or entire block.
 - b. And the block size is less than the increase in demand, dispatch on the block.
2. If the next higher operating block available is an offer that is an inflexible block:
 - a. And the block size is greater than the increase in demand, skip over this block. Consider the next higher block in the energy market merit order for dispatch. When the total volume of the inflexible block can be accommodated, dispatch off the higher block and dispatch on the inflexible block.

Routine Energy Market Operations

OPP 101 Dispatching Energy Market Merit Order and DDS Merit Order

- b. And the block size is equal to the increase in demand, dispatch on the block.
- c. And the block size is less than the increase in demand, dispatch on the block.
3. If the next higher operating block available is a bid that is a flexible block:
 - a. And the block size is equal to the increase in demand, dispatch off the block, which will set the SMP provided it is not an export block. In the case when it is an export block, the SMP will be set by the next lower intra Alberta non-zero energy block.
 - b. And the block size is greater than the increase in demand, dispatch on the block for partial block volume, which will set the SMP provided it is not an export block. If it is an export block, the SMP will be set by the next lower intra Alberta non-zero energy block.
 - c. And the block size is less than the increase in demand, dispatch off the block.
4. If the next higher operating block available is a bid that is an inflexible block:
 - a. And the block size is greater than the increase in demand, dispatch off the block until the full block can be served. Consider the next lower block in the energy market merit order to dispatch on in order to maintain supply and demand balance.
 - b. And the block size is equal to the increase in demand, dispatch off the block, which will set the SMP provided it is not an export block. If it is an export block, the SMP will be set by the next lower intra Alberta non-zero energy block.
 - c. And the block size is less than the increase in demand, dispatch off the block.
5. If the next higher operating block is the reference price block and DDS is dispatched on for TMR:
 - a. And the volume of DDS dispatched on for TMR is greater than or equal to the increase in demand, dispatch off DDS up to the volume of TMR, from the highest to the lowest DDS offer price.
 - b. And the volume of DDS dispatched on for TMR is less than the increase in demand, dispatch off the DDS volume, from the highest to the lowest DDS offer price; consider the next higher price operating block in the energy market merit order for dispatch.
 - c. And if no source assets were DDS dispatched on for TMR, consider the next higher block in the energy market merit order for dispatch.
6. If all the highest price operating blocks in the energy market merit order have been dispatched on and DDS is dispatched on for LLTE:
 - a. And the volume of DDS dispatched on for LLTE is greater than or equal to the increase in demand, dispatch off DDS up to the volume of LLTE, from the highest to the lowest DDS offer price.
 - b. And the volume of DDS dispatched on for LLTE is less than the increase in demand, dispatch on the volume of the energy that was dispatched off for DDS, consider implementing the Supply Shortfall procedures in OPP 801.

5.3 Dispatching off the next lower non-zero block of energy

The SC must:

Routine Energy Market Operations

OPP 101 Dispatching Energy Market Merit Order and DDS Merit Order

1. If all the highest price operating blocks have been dispatched on and consideration is being given to dispatching off the next lower price operating block, and LLTE is used:
 - a. And the volume of LLTE is greater than or equal to the decrease in demand, dispatch on DDS for a volume up to the volume of LLTE, from the lowest to the highest DDS offer price.
 - b. And the volume of LLTE is less than the decrease in demand, dispatch on DDS for the volume of the LLTE, from the lowest to the highest DDS offer price. Then, consider the next lower price operating block in the energy market merit order to dispatch off.
2. If the next lower price operating block is the reference price block and TMR is used:
 - a. And the volume of TMR is greater than or equal to the decrease in demand, dispatch on DDS for a volume up to the volume of TMR, from the lowest to the highest DDS offer price.
 - b. And the volume of TMR is less than the decrease in demand, dispatch on DDS for the volume of TMR, from the lowest to the highest DDS offer price.
3. If the next lower operating block available is an offer that is a flexible block:
 - a. And the block size is greater than the decrease in demand, dispatch on the block for its partial volume.
 - b. And the block size is equal to the decrease in demand, dispatch off the block.
 - c. And the block size is less than the decrease in demand, dispatch off the block, and consider the next lower block in the energy market merit order for dispatch.
4. If the next lower operating block available is an offer that is an inflexible block:
 - a. And the block size is greater than the decrease in demand, dispatch off the block. Consider the next higher block in the energy market merit order for dispatch in order to maintain supply and demand balance.
 - b. And the block size is equal to the decrease in demand, dispatch off the block.
 - c. And the block size is less than the decrease in demand, dispatch off the block, and consider the next lower block in the energy market merit order for dispatch.
5. If the next lower operating block available is a bid that is a flexible block:
 - a. And the block size is greater than the decrease in demand, dispatch on the block for its partial volume, which will set the SMP provided it is not an export block. If it is an export block, the SMP will be set by the next lower intra Alberta non-zero energy block.
 - b. And the block size is equal to the decrease in demand, dispatch on the block.
 - c. And the block size is less than the decrease in demand, dispatch on the block, and consider the next lower block in the energy market merit order for dispatch.
6. If the next lower operating block available is a bid that is an inflexible block:
 - a. And the block size is greater than the decrease in demand; do not dispatch the block on until the block can be fully dispatched. Consider the next lower block in the energy market merit order for dispatch.

OPP 101 Dispatching Energy Market Merit Order and DDS Merit Order

- b. And the block size is equal to the decrease in demand, dispatch on the block.
- c. And the block size is less than the decrease in demand, dispatch on the block.

5.4 Dispatching the DDS Merit Order

5.4.1 When SMP is less than or equal to the reference price the SC must carry out the following steps:

1. Determine the eligibility of source assets to provide DDS according to the following:
 - Source assets that are in an area where generation is constrained down by a directive from the SC are not eligible to be dispatched to provide DDS.
 - If the dispatch of a source asset to provide DDS will result in TMR being required, the source asset is not eligible to be dispatched to provide DDS.
2. If the criteria in step 1 in this section 5.4.1 are met, determine the volume of energy to dispatch to provide DDS in accordance with the following:
$$\text{DDS volume (MW)} = \text{Volume of out of merit energy for TMR (MW)} + \text{Volume of out of merit energy directed on for LLTE (MW)} - \text{Constrained down directive volume (MW)}$$
3. Dispatch the volume of energy to provide DDS from source assets in the DDS merit order that satisfies the requirements in steps 1 and 2 of this section 5.4.1, starting with the lowest DDS offer price and going up the DDS merit order.
4. If all the energy eligible to be dispatched to provide DDS (in accordance with step 1 in this section 5.4.1) is less than the volume of DDS required (in accordance with step 2 in this section 5.4.1), dispatch all the eligible energy from source assets in the DDS merit order to provide DDS and continue to dispatch TMR as required.

5.4.2 When SMP is greater than the reference price, the SC must carry out the following steps:

1. Determine the eligibility of source assets to provide DDS according to the following:
 - Source assets that are in an area where generation is constrained down by a directive from the SC are not eligible to be dispatched to provide DDS.
 - Source assets cannot be dispatched to provide DDS with respect to TMR..
 - If the dispatch of a source asset to provide DDS will result in TMR being required, the source asset is not eligible to be dispatched to provide DDS.
2. Determine the eligibility of DDS for a long lead time energy directive according to the conditions set out in ISO rule 6.3.6.2 (b).
3. If the criteria in step 1 and 2 in this section 5.4.2 are met, determine the volume of energy to dispatch to provide DDS according to the following:
$$\text{DDS volume (MW)} = \text{Volume of out of merit energy directed on for LLTE (MW)} - \text{Constrained down directive volume (MW)}$$
4. Dispatch the volume of energy to provide DDS from source assets in the DDS merit order that satisfies the requirements in steps 1 and 2 in this section 5.4.2, starting with the lowest DDS offer price and going up the DDS merit order.

OPP 101 Dispatching Energy Market Merit Order and DDS Merit Order

5. If all the energy eligible to be dispatched to provide DDS (in accordance with step 1 of this section 5.4.2) is less than the volume of DDS required (in accordance with step 2 of this section 5.4.2), dispatch all the eligible energy from source assets in the DDS merit order to provide DDS.

5.5 Dispatching the DDS merit order when TMR/LLTE is dispatched off

5.5.1 When SMP is less than or equal to the reference price, the SC must carry out the following steps:

1. Re-calculate DDS volume (refer to section 5.4.1 (2)) and determine the DDS energy to be dispatched off.
2. Dispatch off the DDS determined above (if value is negative use 0 MW) starting with the highest DDS offer price and going down the DDS merit order.

5.5.2 When SMP is greater than the reference price, the SC must carry out the following steps:

1. Re-calculate DDS volume (refer to section 5.4.2 (3)) and determine the DDS energy to be dispatched off.
2. Dispatch off the DDS determined above (if value is negative use 0 MW) starting with the highest DDS offer price and going down the DDS merit order.

5.6 Dispatching an equally priced offer and reference price block

If an offer is priced equally with the reference price block, the SC must:

1. If dispatching up the energy market merit order, dispatch on the offer before releasing source assets from providing DDS.
2. If dispatching down the energy market merit order, dispatch source assets to provide DDS before dispatching off the offer.

5.7 Dispatching an equally priced bid and reference price block

If a bid is priced equally with the reference price block, the SC must:

1. If dispatching up the energy market merit order, dispatch off the bid before releasing source assets from providing DDS.
2. If dispatching down the energy market merit order, dispatch source assets to provide DDS as required before dispatching on the bid.

5A. Effective Date

The specified amendments cited in Application No 1605243 for Operating Policy and Procedure will be effective 30 calendar days after the date to be determined by the Commission for, collectively, ISO rules consisting of G1 definitions, 6.3.5.1, 6.3.5.2, 6.3.6.2, 6.3.6.3 and Appendix 7 (collectively the "LLTD Rule")

6. Revision History

Issued	Description
2010-03-03	Supersedes 2007-12-03
2007-12-03	Supersedes 2004-08-04
2004-08-04	Supersedes 2003-07-28
2003-07-28	Revised to ISO Operating Policies and Procedures