



# Dispatchable Load Operating Guide

**IESO Training**

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## Dispatchable Load Operating Guide

### **AN IESO TRAINING PUBLICATION**

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## 1. Introduction

This guide outlines some specific rules and guidelines for dispatchable loads operating within the IESO-administered markets.<sup>1</sup>

You can choose to have your load facility become dispatchable. Once it becomes dispatchable, you will need to submit bids to buy energy – you cannot simply withdraw energy from the grid as you need it. You can also submit operating reserve (OR) offers, as long as your facility qualifies to supply OR.

We use these energy bids and OR offers to determine dispatch instructions for your facility.

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<sup>1</sup> For more information on dispatchable loads, please see *Quick Take 17: Dispatchable Loads* which is available on the [Training](#) web pages.

## 2. Submitting and Maintaining Accurate Dispatch Data

The information you submit as a bid or offer is collectively called “dispatch data”.<sup>2</sup> Bids and offers have three main parts:

### 1) Price-Quantity Pairs

For dispatchable loads, price-quantity pairs indicate:

- The highest price you are willing to pay for a quantity of energy. For example, (50.00,100.0) indicates that you are willing to pay up to \$50 for 100 MW of energy. You don’t want to consume the energy if the price goes above \$50. You can submit up to 20 price-quantity pairs for energy for each hour.
- The lowest price you are willing to be paid to provide OR. For example, (3.00,50.0) indicates that you are willing to provide 50 MW of OR if the price is \$3 or greater. If the price drops below \$3, you do not want to be scheduled to provide OR. You can submit up to 5 price-quantity pairs for OR for each hour.

### 2) Ramp Rates

Ramp rates tell us how quickly your facility can change the amount of energy it is consuming. We need this information to help us determine dispatch instructions that your facility can physically follow. You can enter up to five ramp rates for bids for each hour. You enter only a single ramp rate for OR.

### 3) Resource

The resource identifies where the quantity of energy bid is to be withdrawn from the grid or where the OR being offered will be provided.

It is important that your submitted dispatch data reflect your facility’s actual ability to consume. This helps us appropriately dispatch the system.

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<sup>2</sup> For more information on entering bids and offers, please see the *Introduction to Ontario’s Physical Markets* course and the *Energy Market Graphical User Interface Workspace Training Manual*. Both are available on the [Training](#) web pages.

As we will explain below, if your facility is a dispatchable load:

- You must enter dispatch data that accounts for situations where you expect to consume for only part of an hour.
- You must update your dispatch data should your ability to consume change. The process for updating data depends on how close in time it is to the dispatch hour (i.e., the hour during which the energy will actually be consumed).
- You can declare part of your load to be a minimum consumption level.
- You can temporarily declare your entire consumption to be non-dispatchable.

### Consuming for Part of an Hour

Bids and offers stand for one-hour periods. Sometimes, though, a load expects to consume at its normal level for less than a full hour. For example, you might plan to return from an outage<sup>3</sup> part way through an hour. If you expect to consume at your normal level for less than a full hour, you should submit:

- An energy bid for your expected average consumption when actually consuming during the hour, and
- If you want to provide OR, an OR offer equal to your minimum dispatchable consumption during the hour.

For example, assume that you normally consume 60 MW each five-minute interval during an hour. You intend to return from a planned outage at 7:00 a.m. and plan to consume:

- 35 MW during each of the first two intervals (i.e., for the first 10 minutes of the hour), and
- 60 MW during each interval for the rest of the hour.

In this situation, you can offer 35 MW of OR because that is your minimum dispatchable capacity during the hour. Your energy bid would be based on the average quantity you expected to consume during the hour:

$$(35 \text{ MW} \times 2 \text{ intervals} + 60 \text{ MW} \times 10 \text{ intervals}) / 12 \text{ intervals} = 55.8 \text{ MW}$$

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<sup>3</sup> In this section, the term “outage” includes a planned or forced outage to transmission or power system auxiliary equipment that forms part of, or is connected to, the IESO-controlled grid, as well as process changes or shutdowns that cause a material change to a load’s consumption pattern. See *Market Manual 4.2, Submission of Dispatch Data in the Real-Time Energy and Operating Reserve Market* on the [Rules and Manuals](#) page.

## Declaring Your Entire Load to be Non-Dispatchable

You can temporarily declare your entire dispatchable load to be “non-dispatchable”. This allows you to manage your own consumption without following IESO dispatch instructions.<sup>4</sup> There are two ways to declare non-dispatchable status:

- Do not submit an energy bid (or withdraw your existing bid). Not having a bid in the system means that you will not receive dispatch instructions. Instead, you can consume as desired.<sup>5</sup>
- Bid your entire load at \$2000. This allows you to ignore any dispatch instructions - you don't have to reject them in the system or even call us (however, manually ordered curtailments for reliability must be followed). Please note that bidding \$2000 is not exactly the same as not bidding at all in that you are expected to consume the quantity of energy bid.

You cannot offer operating reserve when you have used either method to declare non-dispatchable status.

## Designating a Minimum Consumption Level

You can designate a minimum quantity that you wish to consume regardless of price. (e.g., you might not want to follow, or cannot follow, energy dispatches that would take your consumption below this minimum level.)

Bidding a portion of your load at \$2000 designates that portion as your minimum consumption level. For example, assume that you submitted the following price/quantity pairs:

(2000.00,0.0),(2000.00,10.0),(1500.00,30.0);

The 10 MW bid at \$2000 in this example would be your minimum consumption level.

You may not offer operating reserve from the minimum consumption portion of your load. In this example, only 20 MW out of 30 MW of total consumption is dispatchable. Therefore, you could only offer 20 MW of OR.

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<sup>4</sup> Please see *Market Manual 7.1, System Operating Procedures* on the [Rules and Manuals](#) page for information on communication requirements with the IESO for non-dispatchable loads

<sup>5</sup> You will receive a dispatch instruction of 0 MW for the first interval of the first hour for which you have no bid. Simply ignore this dispatch.



## Updating Bids and Offers

Dispatchable loads enter either standing or daily energy bids and OR offers:

- A standing bid or offer is one that remains in place until you cancel it or until a specified expiry date. Therefore, a standing bid or offer applies to multiple dispatch days.
- A daily bid or offer is one that applies to only one dispatch day.

You must enter daily bids and offers for the next day between 6:00 and 10:00 EST<sup>6</sup> if you want to operate as a dispatchable facility. You can still operate as non-dispatchable if you miss this timeline.<sup>7</sup>

You can change day-ahead bids and offers up to 2 hours before the start of the actual dispatch hour. However, changes are limited by your Availability Declaration Envelope (ADE).

Your ADE is the total energy bid day-ahead and the hours for which you bid. For example, you might bid for 100 MW of energy between hours 16 and 22. This would then be your ADE for the next day. You need our permission to:

- Bid for different hours
- Bid for more energy outside of a small deadband (the lesser of 10 MW or 2% of the original bid)

## Changes for Hours in the Mandatory Window

The period between 2 hours before the dispatch hour up until 10 minutes before the dispatch hour is called the “mandatory window”. You can make some limited changes during this window, but only with our approval.

During the mandatory window, you must update the quantity of your energy bid or OR offer if your actual ability to consume changes and is now more than 2% or 10 MW different from the quantity in your existing bid or offer.<sup>8</sup> For example:

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<sup>6</sup>Please note that the IESO-administered markets remain on Eastern Standard Time year round.

<sup>7</sup> Please see the [Dispatchable Loads](#) recorded presentation for a complete explanation of the Day-Ahead Commitment Process.

<sup>9</sup> See *Market Manual 4.2, Submission of Dispatch Data in the Real-Time Energy and Operating Reserve Markets* on the [Rules and Manuals](#) page for more detail on the criteria for making short notice changes to dispatch data.

**Example 1**

You initially submitted a bid for 100 MW and an OR offer for 60 MW. During the mandatory window, a forced outage dropped your maximum possible consumption to 50 MW. You must update your energy bid and OR offer to reflect this change.

**Example 2**

You normally consume 100 MW and you offer 60 MW as OR. However, a forced outage prior to the mandatory window reduced your maximum consumption to 50 MW. Because of this reduced ability to consume, you revised your bid to 50 MW, with no OR offer. If your facility returns unexpectedly from the forced outage (for example, one hour before the dispatch hour), you would need to change your bid to 100 MW. You could also enter a new OR offer because you are returning early from a forced outage. Returning early from a forced outage is the only time during the mandatory window when you can enter a new OR offer.

You can change your energy bid price within the mandatory window if:

- You are changing to or from non-dispatchable status.
- The change is needed to prevent your facility from operating in a way that would violate a law, endanger the safety of any person or damage property or the environment.

Price changes within the mandatory window may be referred to the Market Surveillance Panel for compliance review.

You may also withdraw your bids within the mandatory window if you are changing your entire load to non-dispatchable status.

If you change your energy bid quantity, please ensure that your operating reserve offer is still valid. Remember, you can't offer more operating reserve than the energy you have bid for. For example, assume that you originally bid for 20 MW of energy and offered 20 MW of OR. If your energy bid quantity changes to 10 MW, you must lower your operating reserve offer quantity accordingly.

Changes to bids and offers for hours that are within the mandatory window are subject to our approval. Therefore, we ask that you contact us regarding these changes. We will normally give our approval, unless:

- The requested change poses grid reliability issues, or
- You did not enter a 'Reason Code' with the updated submission.

Reason Codes indicate why you entered a change. The codes are:

- FO = A forced outage has occurred, i.e., all of the dispatchable portion of your load is forced out of service.
- FD = A forced derating has occurred, i.e., part of your dispatchable load is forced out of service.
- ERPO = Early return from planned outage.
- LRPO = Late return from planned outage.
- OTHER = Any other cause. Use this, for example, if you are returning early or late from a forced outage.

### **Changes During the Dispatch Hour**

Planned consumption changes (as opposed to forced changes) can happen after the mandatory window has closed (i.e., after 10 minutes to the start of the dispatch hour, or during the dispatch hour). This can happen, for example, if the start of a planned shut-down has to be delayed into a new dispatch hour. It can also happen if a planned shut-down ends early.

You cannot change your dispatch data for the current dispatch hour, but you must still contact us to get approval to change your consumption if the change was planned. In most cases, we will approve a planned consumption change. We may need a short delay in the start of the change (typically less than 5 minutes). This would happen only if we needed the time to take measures to ensure grid reliability. In rare instances, we might deny the request, but only for reliability reasons.<sup>9</sup>

A forced outage might also occur during the dispatch hour. Please see *Section 4 “Accepting and Rejecting Dispatch Instructions”* below for details on handling this type of situation.

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<sup>9</sup>Please see *Market Manual Part 4.2* on the [Rules and Manuals](#) page for more details

### 3. Outages

If you need to report an outage to us, you should complete and submit an outage request form (also called an “outage slip”). Under the market rules, dispatchable loads must enter an outage slip for:

- Any planned or forced outage to equipment that either forms part of or is connected to the IESO-controlled grid. (We let you know if any of your equipment requires outage reporting when you register your facilities with us.)
- Any planned outage that will cause a change of 20 MW or more to your normal consumption pattern.
- Any process change or forced outage that causes a change of 20 MW or more to your normal consumption pattern for a period of 8 hours or longer.<sup>10</sup>

Loads are expected to consume according to their bid quantity during a planned outage. Therefore, your dispatch data should reflect your expected consumption during planned outages. This has two main aspects:

- The outage plan should indicate if the outage includes testing or varied consumption.
- If you normally bid part of your load as a minimum consumption level and the rest as dispatchable, you must remember to ensure that your total bids reflect your actual consumption. You must ensure that your bids reflect any outage that reduces your ability to consume to below your normal minimum withdrawal level. In the event of a total outage, you must cancel all bids in the system.

Loads are expected to update their bid and offer data and to notify us if they need to make changes to an outage plan. Please note that you must notify the IESO Control Room of all changes in consumption capacity, *even if an outage slip is not required.*<sup>11</sup>

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<sup>10</sup> This is a relaxed requirement until IESO tools are enhanced to allow loads to input de-ratings to their consumption capability.

<sup>11</sup> See *Market Manual 7.3* on the [Rules and Manuals](#) for specific information on outage reporting for dispatchable loads

## 4. Accepting and Rejecting Dispatch Instructions

Dispatchable loads must be prepared to receive and respond to dispatch instructions 24 hours a day, 365 days a year.

A normal energy dispatch instruction indicates the consumption level the load is expected to match at the end of the five-minute interval during which the instruction was received. For example, an instruction you receive during the first minute after midnight indicates your expected consumption at 12:05 a.m.

There are two kinds of OR dispatch instructions:

- **OR schedule dispatch instruction:**

An OR schedule dispatch instruction indicates that you have been scheduled to provide OR if it is needed. It notifies you that you must be ready to reduce your facility's consumption by the indicated amount if called upon.

OR schedule dispatch instructions include a product code of either 10S (for 10-minute spinning reserve), 10N (for 10-minute non-spinning reserve) or 30R (for 30-minute non-spinning reserve).

For example:

- You are a 50 MW load and are scheduled to provide 20 MW of 10-minute non-spinning reserve. You receive a dispatch instruction for 50 MW of energy and an OR schedule dispatch with product code 10N for 20 MW.
- You must be prepared to reduce your consumption to 30 MW if you are called upon to actually provide the OR (i.e., 50 MW load less the 20 MW scheduled as OR).

- **OR activation instruction (ORA)**

An OR activation is a dispatch instruction telling you that you are now required to actually reduce your facility's consumption. An OR activation includes a product code of 'ORA' and indicates the reduced level of consumption that you are to achieve.

In our example:

- The ORA dispatch instructs you to reduce your consumption to 30 MW. This provides the 20 MW of OR that had been scheduled.

You must let us know whether or not you will follow a dispatch instruction. You must accept or reject the instruction within 60 seconds of when we sent the instruction. (It normally takes less than 10 seconds for an instruction to leave the IESO and be received by a participant).

We expect dispatchable loads operating under their normal withdrawal pattern to accept all dispatch instructions.<sup>12</sup> However, a dispatchable load may reject a dispatch instruction if:

- An equipment malfunction prevents it from following the instruction.
- Following the instruction would endanger worker or public safety.
- Legal requirements prevent following the instruction.
- Equipment or other property damage would occur if it followed the instruction.
- Environmental regulations prevent following the instruction.

You must let us know if you can't follow an energy dispatch instruction because of a forced outage or other process problem.

You must keep your dispatch data up-to-date. However, you cannot change dispatch data for the current hour. If you expect the problem that caused you to reject a dispatch instruction to continue beyond the current hour, you must change your dispatch data for future hours. For hours in the mandatory window, follow the procedure in the "Updating Bids and Offers" section above.

If you determine that you will be unable to actually activate the quantity of OR indicated in an OR schedule dispatch instruction, you must notify us:

- If the OR schedule dispatch instruction was for 10 minute OR, and your inability to follow dispatch is expected to last longer than 10 minutes.
- If the OR schedule dispatch instruction was for 30 minute OR, and your inability to follow dispatch is expected to last longer than 30 minutes.

For both energy and OR dispatch instructions, you can use automated voice messaging to notify us as long as we assessed, tested and approved the voice messaging process when you registered your facility as dispatchable. Once you have notified us, you will not need to reject any dispatch instructions you receive during the period when you are unable to follow instructions. You need to update us if there is a change to the length of time during which you will be unable to follow dispatch instructions<sup>13</sup>.

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<sup>12</sup> A load that has an exemption allowing it to deviate from dispatch instructions for part of an hour should follow the procedures outlined in its exemption.

<sup>13</sup> Many dispatchable loads receive dispatch instructions infrequently, and , therefore, often do not even have a dispatch instruction that they must reject.

## OR Activation

In the course of operation, a dispatchable load that has been scheduled for OR might receive an OR activation. An OR activation is a dispatch instruction calling upon the load to actually provide the OR that had been scheduled. An OR activation indicates the consumption level the load must meet within either 10 or 30 minutes, depending upon the type of OR activated.

If you receive an OR activation, you must reduce consumption either to *or below* the dispatch level indicated in the OR activation. You may not consume more than the dispatch level. For example, if you receive an OR activation telling you to withdraw 10 MW, you must reduce your load to 10 MW *or less*. If you consume more than 10 MW, you will be considered non-compliant.

OR activations do not follow the normal dispatch schedule timing. They can appear at any time during an interval, not just at the beginning.

## Loads That Consume Cyclically

Some loads consume cyclically. They either do not normally consume during some parts of an hour, or they consume at a much reduced level. An arc furnace is an example of this type of load. Loads that consume cyclically may have a market rules exemption that does not require them to follow their dispatch instruction at all times. For example, the exemption might recognize their down periods.<sup>14</sup> These loads may still qualify to provide OR. If such a load receives an OR activation during a period when its consumption is low as allowed by its exemption, it is still expected to accept the dispatch. To comply with its OR activation, it must then stay at or below the OR dispatch level until it receives a dispatch allowing it to consume more.

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<sup>14</sup> For more information on exemptions please see the [Exemptions](#) web pages.

## 5. Summary

In summary, the main points to remember are:

- A dispatchable load is expected to keep its dispatch data up-to-date and in line with its ability to consume. If its ability to consume changes:
  - More than two hours before the dispatch hour, the load must change its dispatch data.
  - Within two hours before and up until 10 minutes before the dispatch hour, the load must change its dispatch data and call us to receive approval.
  - During the dispatch hour, the load must call us.
- Loads can declare a minimum consumption level. This allows them to reject dispatch instructions that would take them below this level.
- Loads can temporarily declare all of their consumption to be non-dispatchable.
- OR activations can occur at any time and must be complied with by consuming either at or below the new dispatch level.