# Dispatchable Loads

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### Introduction

This Quick Take provides a high-level description of the implications of becoming a dispatchable load (DL). It provides basic information that non-dispatchable loads (NDL) considering becoming dispatchable can use as a starting point.

### Background

Below is a table that summarizes the main differences between dispatchable and non- dispatchable loads in the IESO-administered markets:

| | **Dispatchable** | **Non-Dispatchable** |
|---|---|---|
| Responding to Price | • Submits bids to buy energy<br>• IESO instructs load to adjust operations based on submitted bid price | • Consumes energy as required<br>• May adjust operations based on their own analysis of pre-dispatch or real-time prices |
| Operating Reserve | • Can offer 10-minute spinning, 10-minute non-spinning, and 30-minute operating reserve | • Cannot offer operating reserve |
| Settlement Price | • Locational Marginal Price (LMP) | • DAM OZP + LFDA |

In order for an NDL to become dispatchable, it must be capable of changing at least a portion of its consumption within five minutes if instructed by the IESO.

The primary reasons that NDL's choose to become dispatchable are:

- NDL's can't offer operating reserve (OR)—which is stand-by power or demand reduction that can be called on with short notice to deal with unexpected mismatches between generation and loads. OR allows DL's to receive an additional revenue stream.
- The IESO will direct the load's operations based on the price of energy and the load's bid. This leads to accurate response to real-time prices in comparison to the load attempting to respond on their own to pre-dispatch or real-time uniform price signals.
- Allows load to manage costs by participating in the DAM.

## Bids and Offers

DL facilities enter bids to purchase electricity, and, if desired, offers to supply operating reserve. Bids and offers are submitted via the web-based Electricity Market Interface (EMI)[1] or the Market Information Management (MIM) API[2]. DL's also have the option to designate all or a portion of their load as non-dispatchable by either pricing Megawatts (MW) at the Maximum Market Clearing Pricing (MMCP) or not entering a bid for those hours they wish to be non-dispatchable.

Bids and offers can be of two types:

- Normal
- Standing

Daily bids and offers must be entered between 6:00 and 10:00 EPT the day before the dispatch day in order to fulfill the requirements of the Day-Ahead Market. For more information, see *Introduction to Ontario's Physical Markets* on the IESO Training webpage.

Standing bids and offers are appropriate if a load's price sensitivity is unlikely to change over a period of time. Standing bids and offers remain in effect either indefinitely or until a specified expiry date.

DLs submit dispatch data into the markets. Daily and hourly dispatch data are submitted into the markets. This includes financial bids which indicate what energy the DL wants to consume, when it wants to consume it, and the price it is willing to pay for it. DLs also submit daily and hourly ramp rate information. This data tells the IESO how quickly a load can increase or decrease its consumption. Submitted hourly ramp rates are used to determine dispatch instructions, while daily ramp rates are used by the DAM and pre-dispatch to ensure schedules from one hour to the next can be achieved. For a complete explanation of the process of entering energy bids and OR offers, please see the guides available on the Participant Tool Training webpage.

[1] Please see the Participant Tool Training section of the IESO webpage for more information in the EMI Interface.
[2] Please see the technical interfaces page on the IESO webpage for more API information.

## Dispatch Instruction Process

In order to receive dispatch instructions from the IESO, a dispatchable facility must set up a dispatch workstation. This is a dedicated computer with internet access. The dispatch workstation can either receive dispatches via Web Based Dispatch Service GUI[3] or the Dispatch Notification Service Web Service API[4].

The IESO issues dispatch instructions only if there is a change required in the quantity of energy withdrawn or operating reserve scheduled or activated relative to the facility's most recent dispatch instruction. If no dispatch instruction is received for an interval, no action is required.

There are circumstances under which a dispatch instruction can be rejected by a facility. Compliance with a dispatch is not required if doing so would:

- Endanger the safety of any person
- Damage equipment, or
- Violate any law

If a dispatch instruction has been accepted, it must be complied with, within a certain range. Non-compliance with dispatch instructions is considered a breach of the market rules. An exemption from the market rules can be applied for if a facility would have difficulty complying with dispatch instructions due to its physical operating characteristics. For additional information on dispatch instructions, see *Introduction to Ontario's Physical Markets* on the IESO Training webpage.

## Ramp Rates

When determining dispatch instructions, the IESO takes the submitted hourly ramp rate for the facility and the facility's current operating point into consideration. For example, assume that Facility A bids for 150 MW at $250 per MW and is currently consuming 150 MWs and has a ramp rate of 10 MW/minute. Assume that the market price rises in the next interval to $260. Facility A does not wish to consume at this price level. However, it can only ramp 10 MW/minute. Therefore, it cannot reduce its consumption fast enough to move to 0 MW in the next 5-minute interval. The lowest consumption point it can reach by the end of the next interval is 100 MW. Therefore, the facility will be dispatched to 100 MW by the IESO.

## Joint Optimization

The IESO simultaneously sets prices and schedules in both the energy and operating reserve markets. As a result, the dispatch of facilities is affected by the interplay of the requirements of the two markets.

[3] Please see the Participant Tool Training section of the IESO webpage for more information in the web based Dispatch Service GUI.

[4] Please see the technical interfaces webpage on the IESO webpage for more API information

## Process to Become Dispatchable

Once the decision has been made to become dispatchable, there are a number of potential activities required. The most common tasks include:

- Arranging for required access to systems
- Setting up a dispatch workstation to receive web-based dispatch instructions
- Updating metering and telemetry, if required
- Taking additional training

The entire process normally 180 days to complete. Most of this time is required to install circuits and equipment needed for telemetry, to set up the dispatch workstation and to update the IESO real-time database and system model. If you are considering becoming dispatchable, send an email to market.registration@ieso.ca.

## Summary

If a load can adjust some portion of its consumption based on 5-minute dispatch, it can choose to register as dispatchable within the IESO-administered markets. While requiring some additional upfront costs and ongoing effort, dispatchability has the advantages of allowing a market participant to:

- Receive an ongoing revenue stream by participating in the operating reserve market
- Manage costs by locking in prices day-ahead, reducing the risk of real-time price volatility s
- Much more effectively respond to price in real-time

If a load becomes dispatchable and later determines that they would prefer to return to a non-dispatchable status, this can be accommodated.

## Additional Resources

Available on the IESO Marketplace Training webpages:

- Introduction to Ontario's Physical Markets
- Communicating with the IESO: Dispatchable Loads

## Contact Us

For additional information, please contact us at:

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