

Guide to the Day-Ahead Commitment Process



Marketplace Training

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Guide to the Day-Ahead Commitment Process

AN IESO MARKETPLACE TRAINING PUBLICATION

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1. Introduction

Ontario's power system faces significant reliability challenges. These challenges were clearly seen during the summer of 2005, when the system was routinely stressed. Analysis reveals two major contributors to the situation:

- Energy imports do not flow reliably in real-time, and
- We,¹ and market participants, have no way to accurately foresee and manage next-day energy shortfalls.

This guide explains the design of the day-ahead commitment process with reliability guarantees – an initiative to address these concerns. We will continue to work with stakeholders to refine the details and implementation of this design and will update this document as changes occur.

¹ In this document 'we' and 'us' refer to the IESO

2. Overview

What is the Day-Ahead Commitment Process With Reliability Guarantees? ²

The Process allows the commitment of certain dispatchable generators and the economic scheduling of imports in the day-ahead time frame in return for a financial guarantee. This day-ahead commitment and scheduling, and other steps within the Process address our two major reliability concerns.

The Process provides:

- A dependable view of the next day's available supply (capacity and energy) and anticipated demand
- An opportunity for participants to use their energy-limited resources to most effectively meet reliability needs
- An incentive to imports that have been scheduled day-ahead to flow in real-time
- An incentive to ensure sufficient internal generation resources are on-line in real-time
- A way to mitigate the financial risk of commitment for importers and generators
- A mechanism for us to commit generators, with the participant's agreement, when market-driven attempts don't meet reliability needs

Scheduling imports day-ahead gives us more certainty that they will deliver in real-time. It gives participants more time to navigate adjacent markets and coordinate with neighbouring jurisdictions. With the guarantee, they will not risk being settled at a loss if their real-time price-based revenues turn out to be less than their day-ahead as-offered cost.

For generators, the Process removes the financial risk associated with commitment by paying the generators if they do not recover their commitment costs through real-time market revenues. It also allows them to use energy-limited resources to help solve reliability issues, and ensures that we will respect their submitted operating restrictions. (Please note that only dispatchable generators that are not quick-start³ and have minimum loading points greater than 0 MW and minimum run times greater than 1 hour are eligible for a reliability guarantee.)

² In this document, we call the 'Day-Ahead Commitment Process With Reliability Guarantees' the 'Process'.

³ Quick-start generators can synchronize and meet a dispatch instruction within a 5-minute dispatch interval.

When Will the Process Be Used?

The Process will be in place before the summer of 2006 and will not be used past November 30, 2006 without IESO Board direction. The IESO Chief Executive Officer (CEO) will have the authority to adjust when the Process is used - for example, specifying on which days it will apply. The decision on when to use the Process will consider impacts to the IESO-administered markets and the IESO-controlled grid.

We will notify participants at least five days in advance of:

- The first time we use the Process, and
- The day that any changes to when we would use the Process would come into effect.

What Does This Process Mean to You?

This Process uses the existing pre-dispatch process, with some additional manual procedures. We expect it to have only limited impact on market prices and uplifts, and on your systems and procedures. Its success depends on the participation of more than just dispatchable generators and importers – new obligations and opportunities are outlined below. All data submission is via existing processes and tools unless otherwise noted.

Non-Dispatchable Generators

- Self-scheduling, intermittent, and transitional scheduling generators must submit dispatch data by 11:00 a.m. on the pre-dispatch day (i.e., the day before the trade day).

Dispatchable Generators

You must:

- If you want to participate in real-time, submit dispatch data by 11:00 a.m. on the pre-dispatch day, i.e., there is no obligation to participate in the day-ahead per se, but you must do so if you want to participate in real-time.
- Submit daily energy limits for generators with water, fuel or environmental limitations that restrict the total energy they can produce in a day.
- If you're an eligible generator (non quick-start with a minimum loading point greater than 0 MW and minimum run-time is greater than 1 hour):
 - Send us minimum loading point and minimum run-time information (via the facility registration process).
 - Submit combined guaranteed cost information (using a process similar to the Spare Generation On-Line program).

Dispatchable Generators (cont.)

You may:

- Submit operational data that reflects restrictions on your generator, i.e., start-up time, minimum down time, and maximum number of starts per day (via a yet-to-be developed process).
- If you are an eligible generator, accept a day-ahead cost guarantee. If you accept the guarantee, and you do not recover certain costs through other market revenues, you will be compensated.
- Re-submit offers of energy-limited resources during the commitment process to help resolve energy shortfalls.

Dispatchable Loads

- You must submit your dispatch data by 11:00 a.m. on the pre-dispatch day if you want any part of your load to participate as dispatchable in real-time.
- You will pay your share of the uplift associated with the cost of the day-ahead guarantees.

Non-dispatchable Loads

- You will pay your share of the uplift associated with the cost of the day-ahead guarantees.

Imports

- You may submit your offers by 11:00 a.m. on the pre-dispatch day if you want to participate in the day-ahead process, and if scheduled, you will automatically receive a day-ahead intertie offer guarantee. This assures you that you will recover at least 'day-ahead as-offered costs' if you perform in real-time in a manner consistent with your day-ahead commitment.
- You will pay a charge, based on real-time price, if you fail to flow at least the quantity that was scheduled day-ahead. This charge may be waived if the reason for failure was bona fide.

Exports

- Your bids are not part of the Process. Either a procedural or software mechanism will be used to prevent export bids from being considered for the next day's pre-dispatch until the Process is completed. You will continue to submit bids into the real-time market as you have been doing except that you cannot use standing bids.
- You will pay your share of the uplift for the cost of day-ahead guarantees.

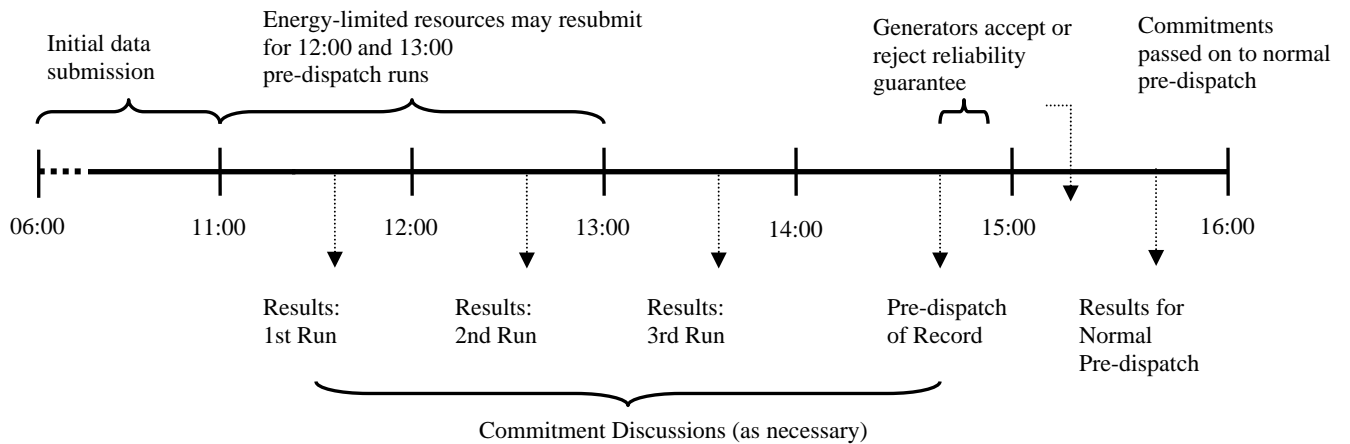
3. The Process

The Process uses the existing pre-dispatch algorithm. The current day’s pre-dispatch occurs in parallel with the commitment process for the next day – that is, the 11:00 a.m. pre-dispatch calculates the rest of the day (using commitment results from yesterday) at the same time as it determines tomorrow’s commitment. Schedules created during the Process do not consider exports.

The window for the initial set of data opens at 6:00 a.m. on the pre-dispatch day, and all data must be submitted by 11:00 a.m. on the pre-dispatch day. We need these submissions so that we can make a meaningful assessment of the next day’s capacity and energy situation. The submissions provide a declaration of participant ability and intent. This helps to ensure that we take the appropriate actions, i.e., that we do not over-commit.

The first four runs of the pre-dispatch algorithm for the next day are used for the commitment process. Except for energy-limited generators, no changes⁴ are allowed to the initial data submissions until the commitment runs are complete.

By using a series of sequential runs, we can refine the solution. Energy-limited generators have an opportunity to change their offers to help solve energy shortfalls, and we have time to confer with participants about the commitment of their generators.



Because the pre-dispatch algorithm does not optimize over the entire day, it will schedule energy-limited resources in the first hours of the day that they are economical. This can lead to shortfalls later in the day. To alleviate this problem, energy-limited generators can change their offers for the second and third runs of the commitment pre-dispatch. They may change any of their offer parameters, i.e., price, quantity, applicable hours, and total energy.

⁴ Changes are allowed if they are due to unexpected (forced) deratings or outages or because of a change to an existing outage, e.g., early return to service.

By 13:00, energy-limited resources are frozen at their declared capability, just as other participants were at 11:00. The next run gives us one more chance to confer with participants on committing the necessary resources before the final run at 14:00. This final run results in the Pre-dispatch of Record, which we expect to publish by 15:00. The Pre-dispatch of Record is the basis of all reliability guarantees.

Impact on Eligible⁵ Generators

The pre-dispatch algorithm creates schedules each time it runs during the Process. There are two possible results: either the schedule respects a generator's submitted operating restrictions or it does not. If the restrictions are respected in all the pre-dispatch runs, a viable schedule will appear in the Pre-dispatch of Record.

There may be times when the Process produces a schedule that does not respect a generator's submitted operating restrictions. If this happens, we will manually constrain the generator on at its minimum load for its minimum run-time to respect these restrictions if:

- We determine that there will be a reliability concern if the generator is not on-line, and
- We do not expect the market to solve the problem in subsequent pre-dispatch runs, and
- The affected participant agrees with the action.

We will publish information when we take these actions to manually constrain. We will track these instances and review them with stakeholders, explaining both the circumstances and rationale for using this authority. The details of these event reviews will be developed through further stakeholder consultation.

After the Pre-dispatch of Record is published:

- Eligible generators have until 15:15 to accept their reliability guarantee.
- Unless the generator expressly rejects the reliability guarantee, the default is that they have accepted it.
- We will schedule generators that accept the guarantee to at least their minimum loading point for at least their minimum run-time for all subsequent pre-dispatch and real-time runs of the dispatch algorithm associated with the next day.
- If a generator rejects the guarantee and is not required for reliability, we will not constrain it on in any subsequent pre-dispatch or real-time runs to respect its submitted operating restrictions.

⁵ Not quick-start, minimum loading point greater than zero, minimum run-time greater than one hour.

Impact on Imports

Imports scheduled in the Pre-dispatch of Record automatically receive a reliability guarantee – there is no action required of the participant. We expect these imports to deliver their day-ahead scheduled quantities in real-time. Failure to deliver will result in automatic charges during the settlement process. Note that committed imports are not scheduled at any minimum quantity in subsequent runs of pre-dispatch after the Pre-dispatch of Record – they are evaluated economically and must ensure they offer effectively in real-time to fulfill their day-ahead commitment.

Process Outcomes

The desired outcomes of the Process are:

- A pre-dispatch schedule, based on realistic expectations, with enough capacity and energy to meet the next day's needs.
- Optimal use by participants of their energy-limited resources to meet reliability needs.
- A schedule of committed imports, with incentives for them to flow in real-time.
- A schedule for committed generators that respects their submitted operating restrictions. We will schedule these generators to at least their minimum load, for at least their minimum run-time. We will constrain them on for one of two reasons:
 - They were scheduled economically by the Process and they accepted the reliability guarantee, or
 - We constrained them on, with their agreement, for reliability.

After the Process is finished, the normal routine of pre-dispatch scheduling continues right up until real-time: committed generators are scheduled to at least their minimum load for at least their minimum run-time.

Generator Data Submissions

You will submit your minimum loading point and minimum run-time through the facility registration process. You will let us know about operational restrictions that can change from day to day, such as start-up time, minimum downtime and maximum starts per day, using a process that is still to be developed. We use this information when deciding to constrain on generators for reliability.

Changes after the Pre-dispatch of Record

Non-dispatchable Generators

- Updates to forecasts or schedules follow existing market rules and market manual procedures.

Dispatchable Generators

- May revise daily energy limits.
- May revise hourly offer prices and quantities for the dispatch day, as long as the changes fall within the same hours as offered day-ahead and are no greater than the hourly capacity and energy amounts offered day-ahead.
- Need our approval to offer more hours, hourly capacity or hourly energy than was offered day-ahead. We will approve increases if:
 - Your facility returns early from a planned outage, or
 - We have solicited additional offers, or
 - The increases help resolve an emerging reliability concern, or
 - The increases are necessary to prevent violating a law, damaging property or the environment, or endangering a person.
- Need our approval to withdraw offers from committed generators. (Please note that all forced outages and deratings will be handled via the existing outage management and dispatch data revision procedures.)
- May be de-committed by us for reliability reasons only. Participants are still entitled to compensation (if they accepted a reliability guarantee) for any hours they were scheduled. They may also seek reimbursement for costs incurred in securing fuel day-ahead to support the minimum load portion of their expected real-time operation.

Dispatchable Loads

- May revise bids and offers in accordance with existing market rules and manuals except for hours they indicated they would not respond to dispatch (i.e., bids they submitted at +maximum market clearing price). You need our approval to become dispatchable or increase your dispatchable portion for these hours.

Imports

- May resubmit offers in real-time to ensure their resulting real-time schedule reflects their Pre-dispatch of Record schedule.

4. Reliability Guarantees

The Process includes two reliability guarantees: the day-ahead generation cost guarantee (DA-GCG) and the day-ahead inertia offer guarantee (DA-IOG).

Participating in the Day-Ahead Generation Cost Guarantee Program

This guarantee lets you recover certain costs called ‘combined guaranteed costs’ for eligible generators committed by the Process. The guarantee applies if you have not recovered these costs through other market revenues.

Participation is voluntary. You can register with us if your facility qualifies and you want to participate.

Combined guaranteed costs are the fuel costs of starting-up and reaching your minimum generation level, as well as the associated incremental operations and maintenance costs to reach your minimum loading point for the minimum run-time.

- You will submit your costs using the same method participants use to submit real-time ‘Spare Generation On-line’ costs.
- You must submit your costs by the close of business, the second day following the dispatch day.
- Your costs may be audited.

How does the program work?

- If we schedule your generator for at least the minimum run-time and minimum loading level in the Pre-dispatch of Record, you can accept the guarantee. Your generator will be committed, and you will be eligible for the guarantee for the dispatch day.
- For reliability reasons, we may de-commit your generator before it has run for its minimum run-time. If this happens, you are still eligible for guarantee payments. However, if your generator fails to run for its minimum run-time for any other reason, you will not be eligible for guarantee payments.
- If we constrain on your generator for reliability reasons and you had not accepted a guarantee, you will not be eligible for guarantee payments, but you will still be eligible for normal congestion management settlement credit (CMSC) payments.
- Anytime we de-commit your committed generator before it has run for its minimum run-time, you can seek reimbursement from us for costs incurred securing fuel day-ahead to support the minimum load portion of your anticipated real-time operation.

How is the DA-GCG settled?

We will settle the day-ahead generation cost guarantee in a manner similar to the way we settle the real-time 'Spare Generation On-line' guarantee – we will compare your eligible costs to the amount your facility would receive for the minimum run-time for:

- Energy revenues up to the minimum loading point
- CMSC for energy output up to the minimum loading point
- All operating reserve revenue
- All CMSC for operating reserve

Costs for DA-GCG payments will be recovered through an uplift charged to loads, including exports.

Please note that you will not be paid both a real-time generation cost guarantee and a day-ahead generation cost guarantee for the same facility for the same start-up; if you accept a day-ahead generation cost guarantee for a given start-up, you are not eligible for a real-time generation cost guarantee as well.

Participating in the Day-Ahead Intertie Offer Guarantee Program

Import offers into the day-ahead commitment process are voluntary. You may also offer imports into the real-time market. If you are participating in the day-ahead, these real-time offers may be in addition to or may replace your day-ahead import transactions.

How does the program work?

You accept the day-ahead intertie offer guarantee by submitting your import offer by 11:00 a.m. (EST) of the pre-dispatch day.

If you submit your offer by this time, and you are scheduled in the Pre-dispatch of Record, we will guarantee that you will recover at least your 'day-ahead as offered' costs, as long as you meet the following conditions:

- The import must be delivered into the real-time market⁶, and
- If the import transaction is part of an implied wheel-through transaction,⁷ it must have a financially-binding obligation in the neighbouring control area that it is supplied from.

⁶ 'Delivery in real-time' means that you successfully schedule and flow an import transaction in real-time during the hour corresponding to the time your import was scheduled in the Pre-dispatch of Record, and at the same location where your day-ahead import was originally scheduled, i.e., at the same market scheduling point(MSP) and constrained scheduling point (CSP).

⁷ An implied wheel-through transaction is one where you have also scheduled an export transaction in real-time in the same hour.

Financially binding status is only available for transactions at an interface where the neighbouring control area has a day-ahead market (DAM). An import has financially binding status only to the extent that you scheduled more exports to Ontario than imports from Ontario in the neighbouring DAM. This calculation is done hourly. (At this time, only transactions from NYISO can be considered financially binding.)

How is the DA-IOG settled?

- We will calculate a DA-IOG payment for all import transactions arranged in the Process (as reflected in the Pre-dispatch of Record). The calculation is a break-even assessment of the transaction's profits, using these definitions:
 - **Cost:** as represented through the import's day-ahead offer curve, up to the amount of the revenue quantity
 - **Revenue Rate:** the real-time price in the intertie zone
 - **Revenue Quantity:** the smallest quantity in the day-ahead constrained schedule for the import transaction and the real-time schedule for the transaction (at the same location, in the corresponding hour in real-time)

Keep in mind that this calculation only works if the import was actually delivered in real-time.

- If the real-time delivery results in a real-time intertie offer guarantee (IOG), you will receive the higher of the DA-IOG payment or the real-time IOG payment.
- You will not receive the guarantee payment if your day-ahead import transaction was part of an implied wheel-through transaction, and the transaction did not meet the 'financially-binding status' requirement in the neighbouring control area it was sourced from.

What happens if the day-ahead import fails?

If your day-ahead import transaction fails to flow in whole or in part in real-time, there may be an automatic charge to you through the settlement process. The purpose of this charge is to:

- Reinforce the reliability benefit of day-ahead import transactions,
- Require importers to share in the risk of an upward price movement between day-ahead and real-time if they fail to deliver, and
- Allocate the proceeds from the charge to loads and exports who are exposed to these price movements.
- You will be exempt from this charge if we determine or you demonstrate that the failure was due to bona fide reasons.

How do we settle day-ahead import failures?

The settlement amount is a function of:

- The difference in price between the day-ahead energy offer submitted to the day-ahead commitment process and the Ontario energy price determined from the unconstrained run of the real-time market, and
- The difference in quantity between the real-time schedule and the scheduled quantity from the day-ahead Pre-dispatch of Record.

The settlement amount is only payable from the market participant to the IESO-administered markets. Payments of these settlement amounts to market participants under any other circumstances are not allowed.

We will distribute amounts collected under these charges on a pro-rata basis to market participants with allocated quantities of energy withdrawn (AQEW, including export transactions) at the time for which the charge was assessed.

5. Compliance and Surveillance

Once the market rules have been amended to cover the day-ahead commitment process, we will monitor dispatch data submissions as well as changes to declared availability.

The day-ahead commitment process assumes that market participants will submit reasonable data. Our Market Assessment Unit (MAU) will continue to monitor the market on behalf of the Market Surveillance Panel, as it does now — it will continue to review market outcomes to identify inappropriate or anomalous conduct.