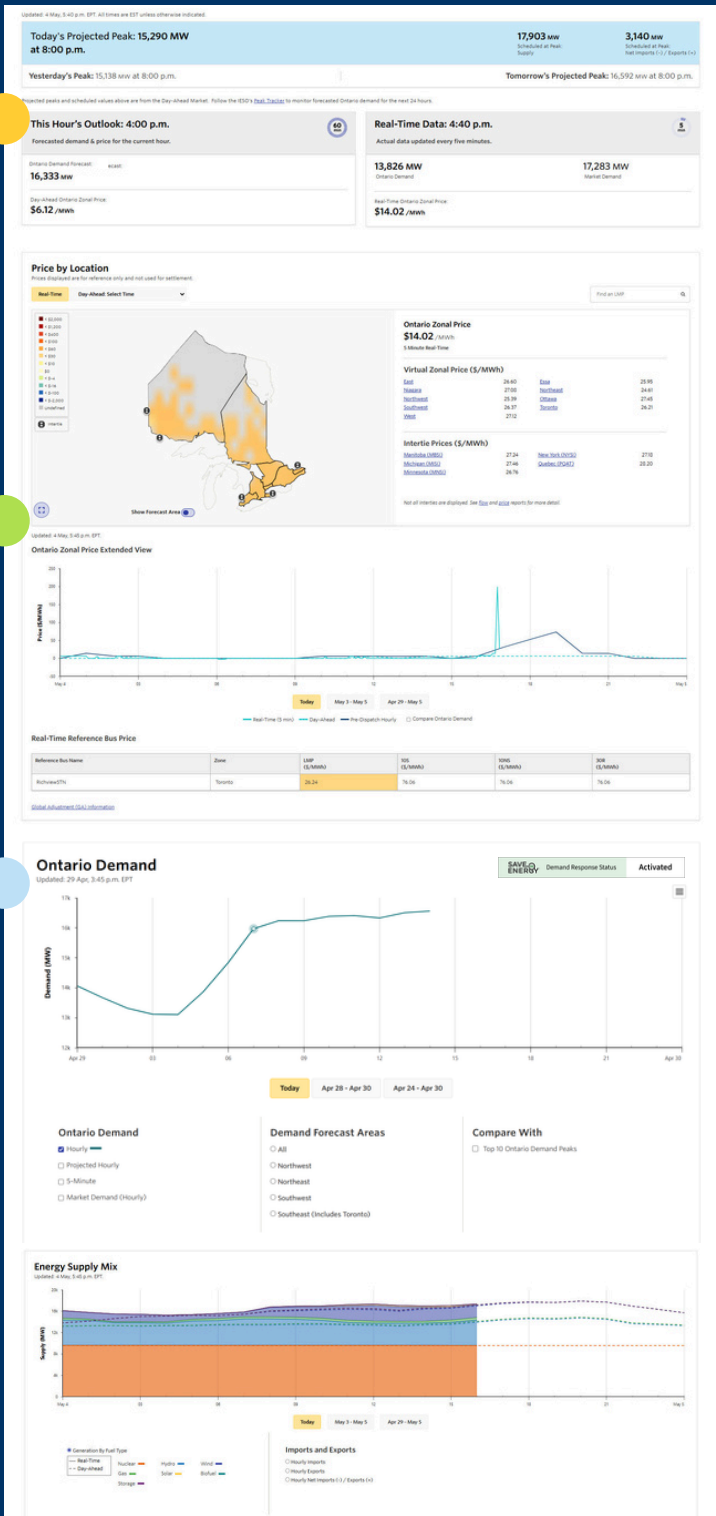


A New Way of Looking at the IESO Market

A renewed market requires a refreshed approach to displaying market information. The Market Data page provides a snapshot of the day-ahead and real-time markets showing how they work together to more accurately reflect the cost to provide electricity throughout the province.



OVERVIEW

Current market activity from hour to hour. Contrast demand forecasts and the prices from the day-ahead market, against real-time outcomes. Compare demand peaks, looking one day back and one day forward.

PRICE

With more than 1,000 local prices in the renewed market, follow price trends at-a-glance. Maps, charts, and data can be configured to show the results for any interval or hour within the current market cycle.

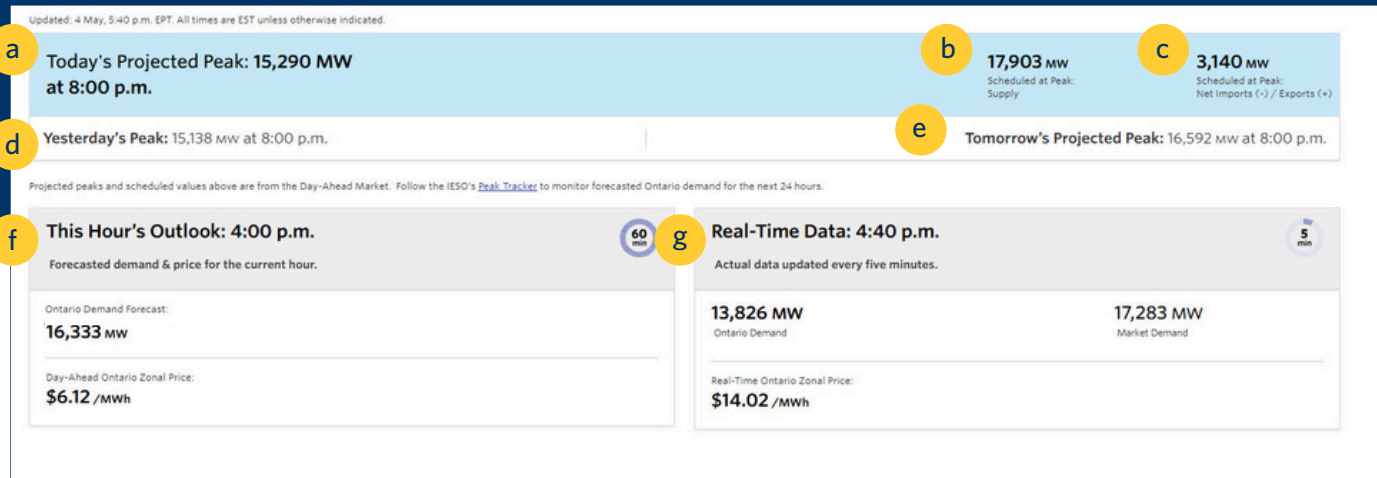
DEMAND & SUPPLY

Here you can follow the projected hourly Ontario demand and see the real-time 5-minute values reflected in MW. When *Save on Energy* demand response is scheduled the status will appear as either, *Scheduled*, *Activated*, or *Not Required*.

You can now track the four new regional demand forecast areas and real-time hourly demand. The day-ahead supply mix forecasts are now added to the IESO's Energy Supply Mix charts.

OVERVIEW

Take a quick look at demand peaks, Ontario Zonal Prices (OZPs) and capacity.



- a Today's Projected Peak:**
The forecast Ontario Demand peak used in the day-ahead market. It is posted every evening at midnight.
- b Scheduled at Peak — Supply:**
Capacity scheduled in the day-ahead market, providing an indication of overall supply adequacy at that day's projected peak. As a day-ahead value, it won't exactly match real-time system needs. Differences between forecast and actual demand are managed in the real-time market.
- c Scheduled at Peak — Net Exports and Imports:**
Trade scheduled on the interties between Ontario and neighbouring jurisdictions at today's peak. A positive value shows Ontario is a net exporter, while a negative value shows net imports.
- d Yesterday's Peak:**
Actual energy consumed on the system at peak.
- e Tomorrow's Projected Peak:**
The forecast peak used to settle the day-ahead market. This value is greyed out until it is available each afternoon.
- f This Hour's Outlook:**
Ontario demand and price, set in yesterday's day-ahead market, for the current hour. Posted at the beginning of each hour.
- g Real-Time Data:**
Five-minute updates of actual Ontario and Market Demand (Ontario Demand plus exports) as well as the real-time OZP. Published after each five-minute interval.

PRICE

View prices within the day-ahead and real-time markets. Choose a time and data will automatically refresh the maps and charts.

The screenshot shows the 'Price by Location' interface. At the top, there are tabs for 'Real-Time' and 'Day-Ahead: May 5, 08:00 PM'. A search bar on the right says 'Find an LMP'. The main area is divided into a map on the left and a data panel on the right. The map shows price zones with a legend on the left ranging from < \$2,000 to < \$-2,000. The data panel shows 'Day-Ahead Ontario Zonal Price' at \$51.20/MWh, 'Hourly Day-Ahead' prices for various zones, and 'Day-Ahead Intertie Price(\$/MWh)' for various regions. Callouts 'h', 'i', and 'j' point to the zonal price, virtual zonal price table, and intertie price table respectively. Other callouts describe map navigation and forecast area toggles.

Toggle between both day-ahead and real-time markets.

Use the drop-down menu to choose a specific hour in the day-ahead market.

Find prices by location using the search function.

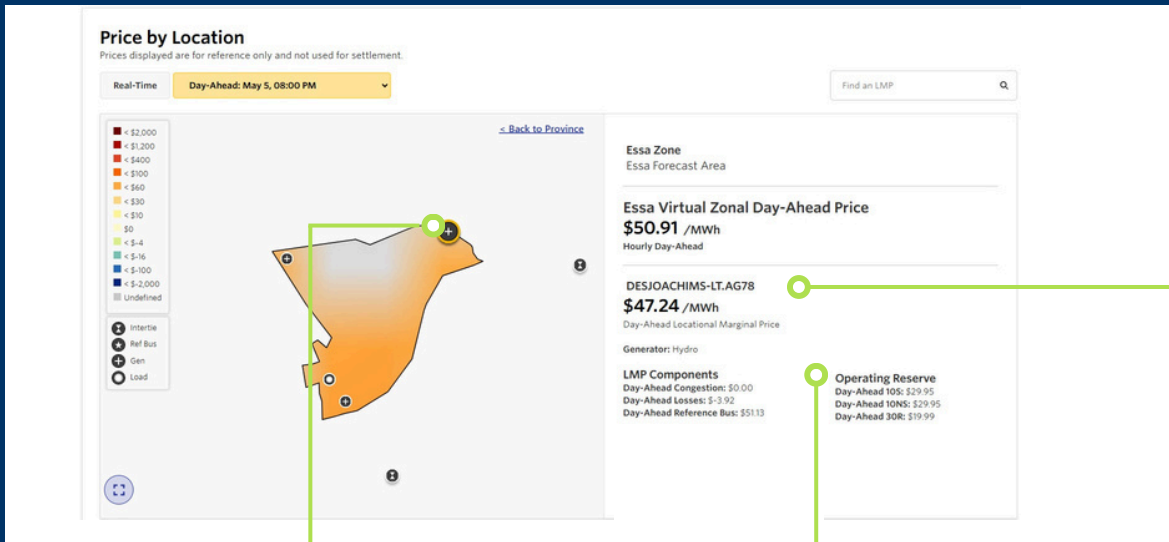
View the map in full-screen to watch ongoing market activity.

Layer on the regional demand forecast areas.

Click on a zone and then click on a specific node to see local pricing.

- h Ontario Zonal Price:**
The hourly load-weighted average of the locational marginal prices (LMPs) for non-dispatchable loads.
- i Virtual Zonal Price:**
Load-weighted average of the LMPs at all non-dispatchable load points within each zone. Virtual zonal prices are used to settle virtual bids and offers within each zone.
- j Intertie Prices:**
Prices from the largest, or the only connection if there is just one, from each jurisdiction. Prices for all interties can be found in the [reports site](#).

LOCATIONAL MARGINAL PRICES



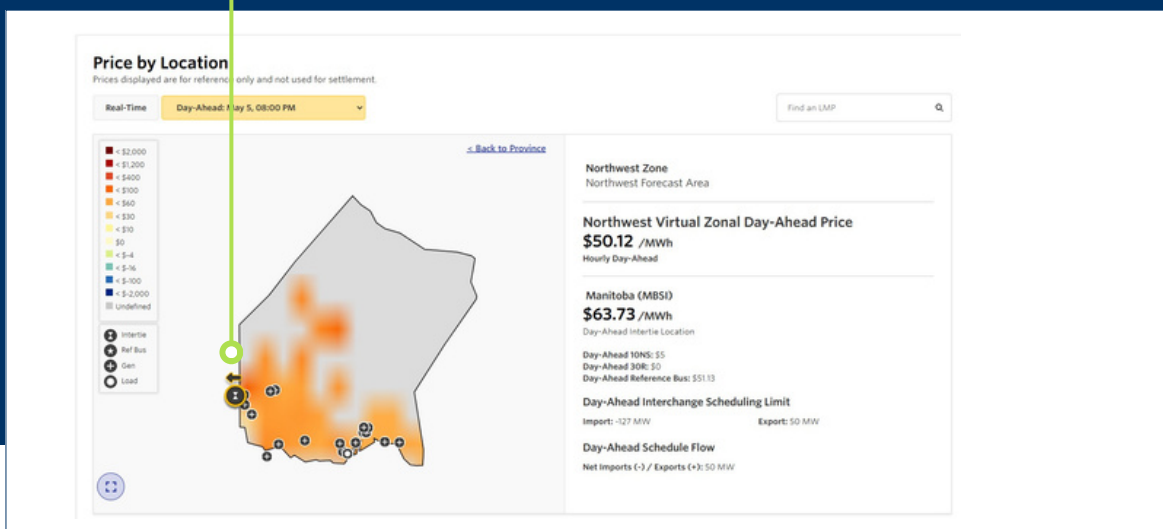
While the colour visualization is populated by all LMPs in the market, only nodes where capacity or load is 20 MW or larger are displayed with icons.

Click on an icon to see the LMP, the components used to calculate it and operating reserve prices at that node.

The name of each location or node is the same here as it is on the [reports site](#).

INTERTIE PRICES AND FLOWS

Arrows indicate which jurisdiction is the net exporter. If the arrow points away from the province, it indicates that Ontario is a net exporter at that interconnection.



Note that where there are more than one interconnection with a neighbouring jurisdiction, prices are only shown for the largest intertie. For scheduled flows, data is shown for the largest intertie with Manitoba and Quebec and aggregated data for each U.S. state.

PRICE

Compare prices against demand over various time spans.

Graph will refresh automatically to show the same data set as the map — OZP, zonal prices and LMPs.

Default is for today. You can also select the same data for yesterday, today and tomorrow and a weekly view, starting five days back.

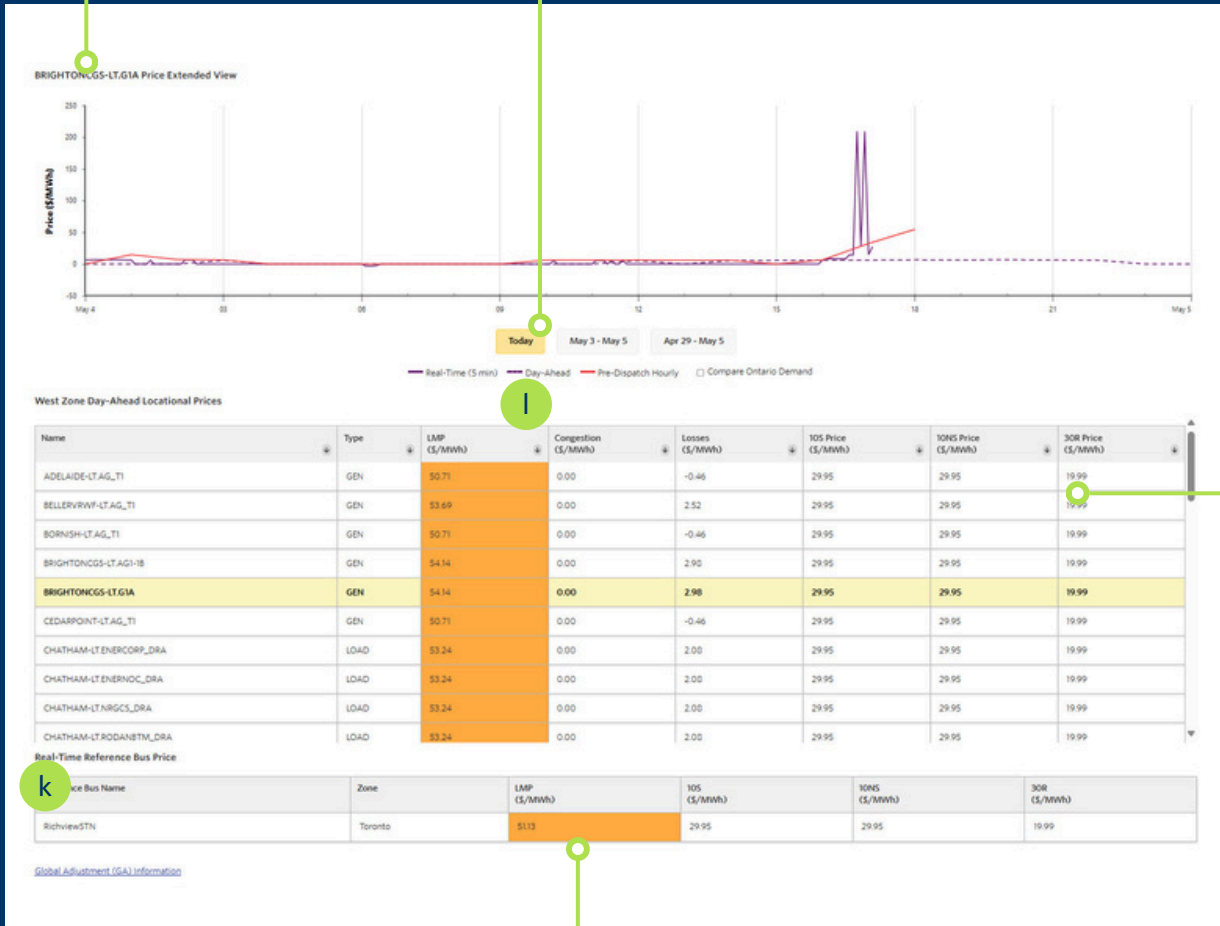


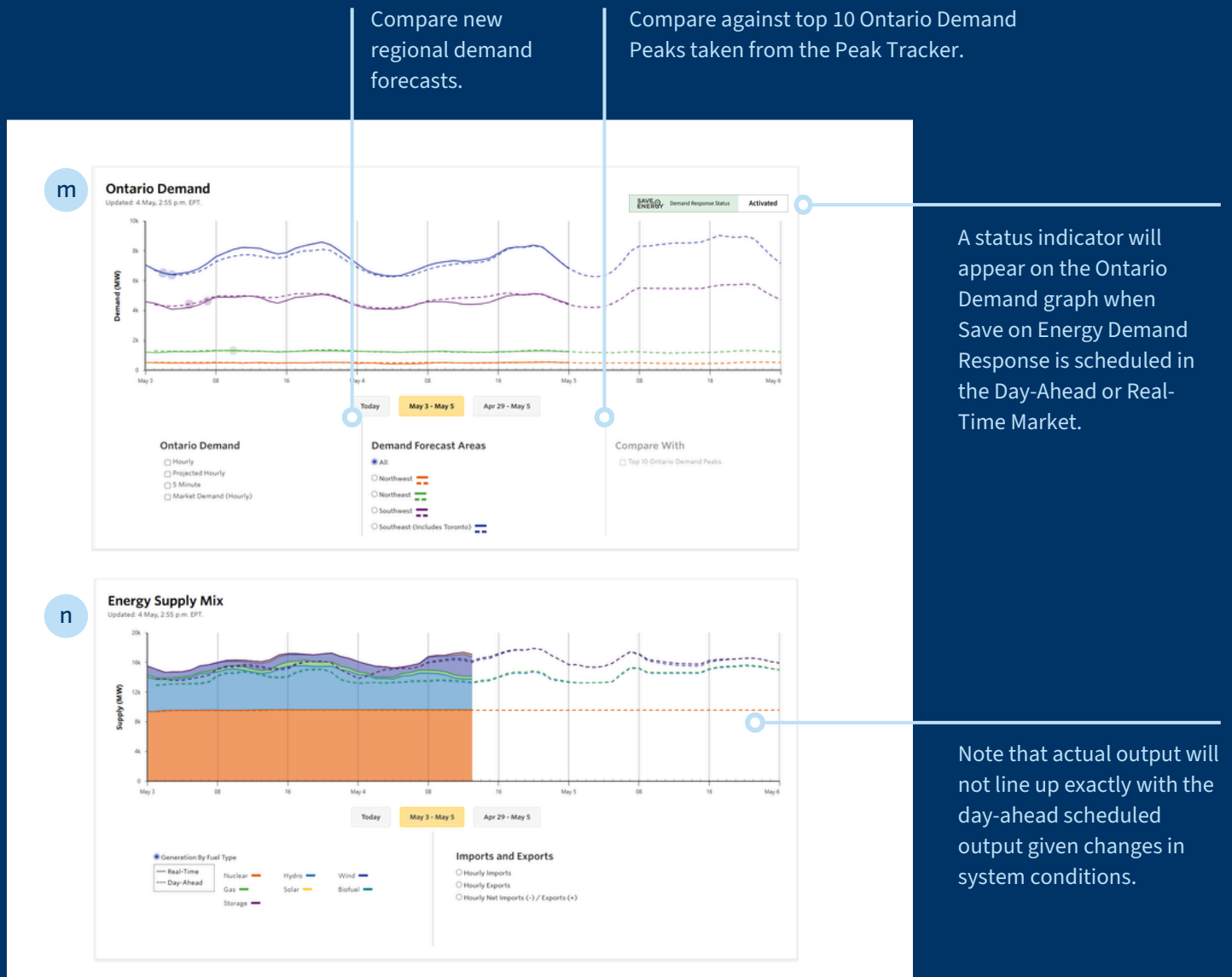
Table contains LMPs, including operating reserve, congestion and line losses, for nodes shown in the map.

Colours in the LMP column use the same legend as the map to show price differences.

- k Real-Time Reference Bus Prices:**
Used in the calculation of LMPs. The reference bus price, the marginal cost of energy at the reference bus, forms the basis for all prices on the system.
- l Predispach OZP:**
An hourly value generated through the real-time market that provides an indication of the balancing needs of the system.

DEMAND & ENERGY SUPPLY

Compare forecast and actual demand for Ontario, the market and the four new regional demand zones. See how Ontario's generators have supplied the market over the past week.



m Ontario Demand:
Hourly projected, hourly actual and five-minute actual demand updated as new data is available. Market Demand is also available as a real-time hourly value.

n Energy Supply Mix:
Breakdown of generator output by fuel type for each hour – using the same timescale options as the pricing graph. The supply mix graph now also features day-ahead scheduled output.

QUICK TIPS:



Watch the clock:

With the introduction of the day-ahead market, market data is posted at different points in time. Day-ahead prices are hourly values posted in advance. Real-time prices are posted every five minutes after the fact.



Not all data is on the market data page:

Given the sheer volume of data produced by the renewed market, the Market Data page only complements the data available on the reports site. Visit the [Data Directory](#) as a guide to find links to all market data – including more than 1,000 LMPs.



Use the Peak Tracker to follow the demand forecast:

The Market Data page shows the demand forecasts used to settle the day-ahead market. The [IESO Peak Tracker](#) and [Power Data](#) page will continue to show changes in the IESO's Control Room demand forecast in response to changing system conditions.

WHO PAYS WHICH PRICE?



In the IESO-administered market, different prices apply to different types of market participants.

Locational Marginal Price:

Dispatchable generators, dispatchable loads, self-scheduling and intermittent suppliers and price-responsive loads.

The Ontario Price:

Non-dispatchable loads (e.g., Local Distribution Companies).

Business customers that pay the wholesale price through their local distribution company also pay the Ontario Price.

Intertie Price:

Exports from Ontario to neighbouring jurisdictions and Imports to Ontario from neighbouring jurisdictions.

Virtual Zone Price:

Virtual transactions are settled on price differences between the day-ahead and real-time markets.

QUESTIONS?

Contact the IESO at customer.relations@ieso.ca