

# DEMAND DR RESPONSE

A SMART APPROACH TO ENERGY MANAGEMENT

THERE MAY BE MORE OPPORTUNITIES TO MANAGE YOUR ENERGY COSTS THAN YOU THINK.



Consumers are joining the ranks of traditional generators to help maintain reliability on Ontario's power grid. They are quickly moving from passive power users to engaged consumers, equipped with the knowledge and technology to make consumption decisions based on supply conditions and price.

### Matching Demand with Supply

Traditionally, the amount of power generated at any one time was adjusted to meet changes in demand. There is however, growing interest from consumers to turn this conventional thinking on its head, by also adjusting their electricity use to match real-time system needs. This is known as demand response. This broader approach is a smart way to manage Ontario's power grid and helps businesses better manage their electricity costs.

### How Do I Participate?

Demand response is not a completely new idea. In fact, it has played a part in the operation of the power system for many years. Existing demand response initiatives have successfully encouraged large consumers to reduce or shift their electricity use from periods of high demand to lower demand, by rewarding them for their actions. As a result, these businesses can help the IESO more efficiently manage the power system.

AT HOME, YOU MAY BE FAMILIAR WITH TIME-OF-USE ELECTRICITY RATES THAT ENCOURAGE YOU TO SHIFT ELECTRICITY USE FROM ON-PEAK TO OFF-PEAK PERIODS.

BUSINESSES AND INSTITUTIONS CAN ALSO TAKE ADVANTAGE OF ONTARIO'S ELECTRICITY MARKET AND RELATED INITIATIVES TO BETTER MANAGE THEIR COSTS.

ONTARIO'S INDEPENDENT ELECTRICITY SYSTEM OPERATOR (IESO) IS EXPANDING THE POSSIBILITIES FOR DEMAND RESPONSE IN ONTARIO.

In Ontario, there are a number of ways in which consumers can provide demand response.

Consumers can respond to the changing hourly price, reducing their energy use when market prices are higher.

As well, large businesses which pay market prices may participate in the:

- **IESO market** as a dispatchable load and by providing operating reserve.
- **Industrial Conservation Initiative** – Many large users of electricity, whose peak demand is over three megawatts (MW), are charged Global Adjustment (GA) costs based on how much energy they use during high demand days. The more these companies reduce electricity demand on these days, the lower their overall GA charge.
- **Demand Response 3** – This is a program in which businesses agree to reduce their energy use for four-hour periods when system needs are greatest.

Over the hot summer days of 2013, the combination of these and other demand response measures have helped reduce peak demand by an average of 1,200 MW. This is just the first step. Large businesses and consumers have the potential to contribute much more.

### Possibilities of Demand Response

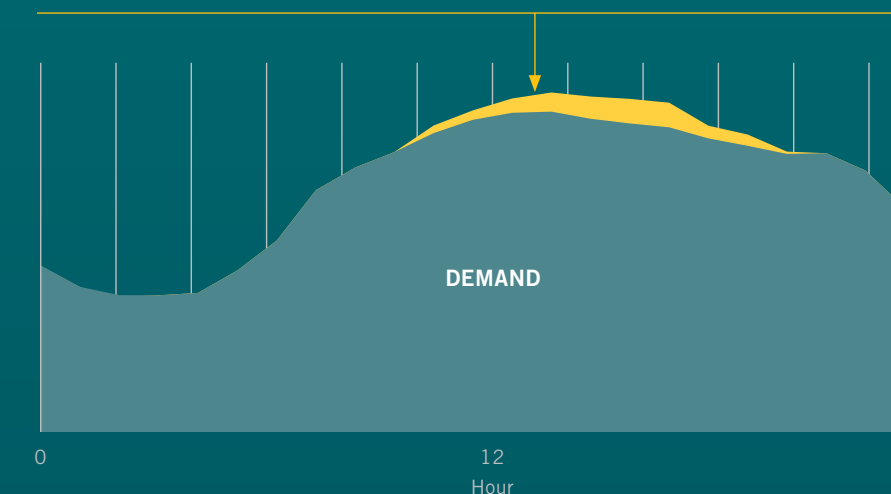
Demand response allows the system to tap into flexibility within existing infrastructure. It is an additional resource that can be used in a variety of ways to manage the changes in demand and supply on the grid. The IESO is increasing the role of demand response within Ontario's power system by developing more ways to participate. To start, the IESO will evolve current programs and work with stakeholders to investigate and develop options to more closely integrate demand response into the electricity market.



## DEMAND RESPONSE IN ACTION

### DEMAND REDUCTION

Over several hot summer days in 2013, demand response helped reduce peak demand by an average of 1,200 MW. This is more than enough to power the cities of Hamilton and St. Catharines.



Power to Ontario. On Demand.



# DEMAND RESPONSE: A GROWING RESOURCE

Efforts are underway to expand opportunities for demand response in Ontario.

The IESO is expanding the role of demand response within the wholesale electricity market by evolving current demand programs, and working with stakeholders to investigate and develop new market-based opportunities.

## Demand Response 3

Current participants in the Demand Response 3 (DR3) program may notice a difference as to when they are being activated.

DR3 activation will be better aligned with specific system needs, based on a price trigger and in some cases, activated on a regional basis. By switching to a price trigger, it is anticipated that when participants receive a standby notification, it will better indicate the likelihood of a subsequent activation. The market will signal when demand response will provide the most value to the system.

For current DR3 participants, there will be no change to the standby notification, activation, or communications mechanisms, including settlements.

For more detail about DR3 program changes, contact IESO Customer Relations.

The IESO is looking to enhance the role of existing demand response and create new opportunities for broader participation.

As existing DR3 contracts expire, greater value, transparency and flexibility of demand response can be achieved by adopting a market-based approach. This will be accomplished through the development of a demand response 'auction' where participants compete to offer the amount of energy they can reduce against a forecast of system needs. The first auction is slated to start in 2015, with demand response providers to be ready to contribute to meeting system needs in 2016.

## For More Information

To assist in this work, a Demand Response Working Group with representation from a number of commercial and industrial sectors has been gathered to explore the opportunities. [www.ieso.ca/drwg](http://www.ieso.ca/drwg)

Updates on working group meetings are posted on the IESO's website and announced in the weekly IESO Bulletin. You can subscribe for both the Bulletin and the Electricity Insider, the IESO's newsletter for energy managers, at [www.ieso.ca/subscribe](http://www.ieso.ca/subscribe)

## Industrial Conservation Initiative (ICI)

The eligibility requirements of the Industrial Conservation Initiative (ICI) have been expanded to allow customers with an average peak demand for electricity greater than 3 MW but less than or equal to 5 MW to participate.

To be eligible, customers in this expanded range must also own or operate a facility classified under the North American Industry Classification System (NAICS) categories such as mining, manufacturing, greenhouse production, refrigeration, and data services.

Newly-eligible customers who decide to opt in, would be charged the Global Adjustment based on their consumption during the top five peak demand hours each year. These 'Class A' customers are able to reduce Global Adjustment costs based on their ability to anticipate and reduce their demand during these peak hours.

Customers with a peak demand greater than 3 MW but less than or equal to 5 MW, must **opt in** to the initiative each year while customers with a peak demand of above 5 MW are automatically considered Class A. Customers with an average hourly peak demand of greater than 5 MW will continue to participate in the program on an opt-out basis.

Your local distribution company is also working with eligible customers to determine how they can take advantage of the initiative. For details on your eligibility as a Class A customer, or how to opt in or out, contact your local distribution company ([www.ieso.ca/findyourutility](http://www.ieso.ca/findyourutility)) or IESO Customer Relations.

Under the Industrial Conservation Initiative, Class A customers are charged Global Adjustment (GA) based on their percentage contribution to the top five peak demand hours each year, these are also referred to as "coincident peaks". These customers should reduce their demand during this year's system peaks to take advantage of a lower GA cost next year. For more information go to [www.ieso.ca/global.adjustment](http://www.ieso.ca/global.adjustment)

# TOOLS TO TRACK THE PEAKS



By shifting energy use away from peaks, consumers will lower their energy costs. The IESO provides tools to help large consumers and organizations predict periods of high demand and monitor hourly prices.

## 1. TIME OF YEAR

Ontario is a summer-peaking province, meaning the times of highest peak demand tend to be during hot, humid days and/or during a heatwave.

## 2. TIME OF DAY

The peak hour for each day varies by season. For example, peaks in the winter tend to be in the early evening when electricity consumers across the province are turning their lights on and making dinner. In the summer, demand tends to be higher in the early to mid-afternoon when air conditioners are turned up during the hottest time of the day.

## 3. PEAK TRACKER

The Peak Tracker tool, available at [www.ieso.ca/peaktracker](http://www.ieso.ca/peaktracker), shows the top 10 peaks for the current base period updated in real time. This tool is for Class A customers participating in the Industrial Conservation Initiative.

## 4. DR3 ACTIVATIONS

DR3 activations will be posted on the IESO website, which also offers an email subscription for DR3 activation alerts.

## 5. IESO WEBSITE

The IESO provides demand and price tracking in real time as well as an archive of historical data. Use the IESO's Power Data page to help predict future peaks at [www.ieso.ca/powerdata](http://www.ieso.ca/powerdata) and monitor the Hourly Ontario Energy Price.



## Ontario's Independent Electricity System Operator

The IESO's primary responsibility is to manage the reliability of the provincial power grid.

The IESO works at the heart of Ontario's power system, balancing supply and demand through the electricity market. The agency is like a hub, working with a broad range of industry players including: generators, transmitters, local distribution companies and consumers.

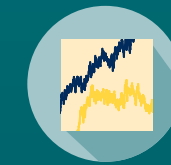
Demand response is a valuable and cost-effective resource to the system. The IESO is working with consumers and others in the sector to explore and evaluate opportunities to increase their participation in the market.

IESO Customer Relations representatives are available to respond to your questions.

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## Capacity Markets

The IESO is exploring new ways to secure future supply to meet peak demand (capacity needs). This includes the possibility of procuring future supply through an open market, such as an auction. An auction would have generators competing against each other, as well as other forms of supply, such as demand response, to meet future demand needs. Experience shows these markets bring costs down and allow consumers to participate by offering demand response. This backgrounder provides more information on capacity markets:

[www.ieso.ca/capacitymarket.backgrounder](http://www.ieso.ca/capacitymarket.backgrounder)

