

# Industrial Conservation Initiative Backgrounder

## June 2017

The Industrial Conservation Initiative (ICI) is a form of demand response that allows participating customers to manage their global adjustment (GA) costs by reducing demand during peak periods. Customers who participate in the ICI, referred to as Class A, pay GA based on their percentage contribution to the top five peak Ontario demand hours (i.e. peak demand factor) over a 12-month base period.

Ontario's electricity system is built to meet the highest demand periods of the year. By reducing demand during peak periods, ICI participants can both reduce their global adjustment costs and help defer the need for investments in new electricity infrastructure that would otherwise be needed. In 2016, ICI is estimated to have reduced peak demand by about 1,300 MW.

Customers who are eligible to participate in ICI include:

- Consumers in the manufacturing and industrial sectors, including greenhouses (with NAICS codes commencing with the digits "31", "32", "33" or "1114") with an average monthly peak demand of greater than 500 kW and less or equal to 1 MW are eligible to opt-in to the ICI.
- Consumers with an average peak demand of above 1 MW and up to and including 5 MW are eligible to opt-in to the ICI.
- Consumers with an average peak demand greater than 5 MW are automatically included in the program and have the option to opt-out of the ICI.
- Existing Class A customers who participated in one or more of the programs specified in [Reg. 429/04](#) and dropped below the peak demand threshold during a base period for an adjustment period that began on or after July 1, 2016 may be eligible to opt back into the initiative.

All requirements related to the ICI can be found in [Ontario Regulation 429/04](#).

More information on the GA is available on the IESO's website at <http://www.ieso.ca/globaladjustment>

## Details of the Industrial Conservation Initiative

### Eligibility

In order to be eligible to participate in the ICI, eligible customers must have an average monthly peak demand greater than 500 kW during an annual base period from May 1 to April 30. The following example shows how the average monthly peak demand eligibility is determined:

Base Period Months	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr
Peak hourly consumption for the month (in MW) <sup>1</sup>	3.6	2.8	2.1	3.2	4.8	4.6	4.9	3.8	4.1	5.1	3.7	3.5

12-month average =  $(3.6 + 2.8 + 2.1 + 3.2 + 4.8 + 4.6 + 4.9 + 3.8 + 4.1 + 5.1 + 3.7 + 3.5) / 12 = 3.85$

Data from separate load facilities, even if they are under the same ownership, cannot be aggregated in order for a customer to qualify as Class A. In other words, a customer that has a load facility with an average monthly peak demand of 350 kW and another load facility with an average monthly peak demand of 750 kW is not permitted to have the two values added together to qualify.

The Ministry of Energy requires Class A- enrolled customers to provide the address and GPS coordinates of their head office and enrolled load facilities, as well as consent for the information to be shared with the Ministry and made public.

### Timing

Each cycle of the ICI starts with a **base period**. At the end of this period, customers are assessed for eligibility. Customers who qualify as a Class A will be notified of their peak demand factor (see below) by their distributor if they are distribution-connected or the IESO if they are transmission-connected, by **May 31**.

Eligible customers with an average monthly peak demand greater than 500 kW and less than or equal to 5 MW must **opt-in** to the initiative by notifying their distributor or the IESO by **June 15** if they would like to be charged as a Class A customer for the following **adjustment period**.

Customers with an average monthly peak demand above 5 MW are automatically considered Class A and must **opt-out by June 15** if they choose not to participate in the initiative.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2016					BASE PERIOD →							
2017					OPT IN/ OUT	ADJUSTMENT PERIOD						
2018	→											

<sup>1</sup> Must include losses as defined in section 1(2) of O. Reg. 429/04

## Peak Demand Factor

Eligible customers are assessed on their percentage contribution to the top five hours of peak demand in the province over a base period. The percentage contribution is also referred to as a customer's coincident peaks. The sum of a customer's coincident peaks is divided by the sum of the adjusted system peaks to determine the customer's peak demand factor (PDF):

Peak	Day	Hour Ending	Customer's Consumption (MW)	Peak System Consumption (MW)*
Peak 1	July 28, 2015	17	3.1	23,023.710
Peak 2	July 29, 2015	17	4.4	22,835.441
Peak 3	August 17, 2015	17	3.9	22,892.239
Peak 4	July 27, 2015	18	4.1	22,323.277
Peak 5	September 3, 2015	14	4.3	22,860.233
Total = 19.8 MW				÷ Total = 113,934.900 MW = 0.00017378

In this example, the customer's peak demand factor is **0.00017378**.

This factor is used to calculate the customer's global adjustment charge each month over the following annual adjustment period, which is from July 1 to June 30. This is done by multiplying the monthly, Ontario-wide total GA costs by the customer's PDF. For example, the system-wide GA costs for March 2016 were \$1120.1 million. Multiplying this amount by the PDF calculated above would mean that the customer in this example would have paid \$194,654.84 in global adjustment costs for that month.

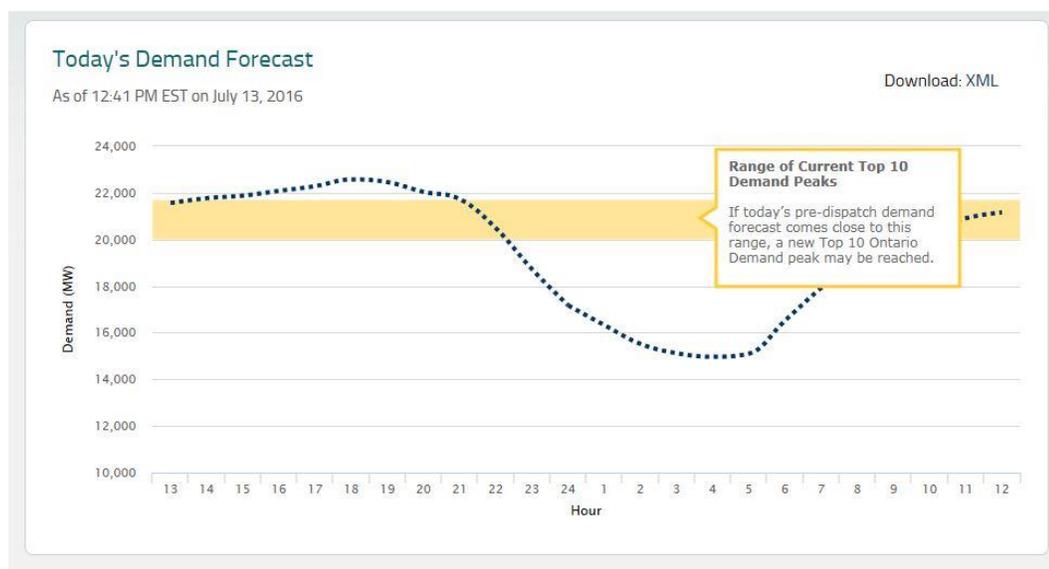
## **Anticipating Peaks**

The better that a Class A customer can forecast the top five hours of peak demand and shift their demand accordingly, the more they will be able to take advantage of this initiative.

The top five hours of peak demand in a year are those occurring on different days in which the greatest number of MW of electricity was withdrawn from the IESO-controlled grid by all consumers of electricity in Ontario. They are established by the IESO at the end of the base period and posted on the IESO's website at [www.ieso.ca/peaktracker](http://www.ieso.ca/peaktracker). Here are a few ways to know when these hours are more prone to occur:

1. Time of year: Electricity demand is largely driven by the weather. Peaks tend to occur during a sustained heat wave in the summer or cold snap in the winter.

2. Time of day and days of the week: Demand peaks always occur on weekdays when businesses are in operation. The highest times of demand in a day also vary between seasons. For example, winter tends 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 afternoon when air conditioners are turned up during the hottest time of the day.
3. Class A-specific tools on the IESO's website: On the Class A GA page at [www.ieso.ca/peaktracker](http://www.ieso.ca/peaktracker), customers will find the current day and week-ahead demand forecasts and the Peak Tracker tool, which shows the top 10 peaks for the current base period updated in real time.



4. Adequacy Reports: These reports provide an hourly forecast of system conditions including Ontario demand for the next day and up to a few weeks ahead. They are updated throughout the day as required and are available at: <http://reports.ieso.ca/public/Adequacy2/>

Solar generation, conservation and demand response activities are having the effect of flattening the peaks. The coordinated action of Class A customers can also change when a peak would otherwise occur.

Information on energy management is available on the IESO's website at [www.ieso.ca/market-education](http://www.ieso.ca/market-education)

## Impacts of Peak Shifting

### Scenario A: Minor shifting

Peak	Day	Hour Ending	Customer's Consumption (MW)	Peak System Consumption (MW)*	
Peak 1	Jan 7, 2015	19	3.1	23,023.710	
Peak 2	Feb 19, 2015	20	4.4 - 0.2	22,835.241	
Peak 3	Aug 26, 2014	17	3.9	22,892.239	
Peak 4	Feb 23, 2015	20	4.1 - 0.2	22,323.077	
Peak 5	Sep 5, 2014	17	4.3	22,860.233	
			Total = 19.8 - 0.4 MW	Total = 113,934.500 MW	= 0.00017027

### Scenario B: Moderate Shifting

Peak	Day	Hour Ending	Customer's Consumption (MW)	Peak System Consumption (MW)*	
Peak 1	Jan 7, 2015	19	3.1	23,023.710	
Peak 2	Feb 19, 2015	20	4.4 - 1	22,834.441	
Peak 3	Aug 26, 2014	17	3.9	22,892.239	
Peak 4	Feb 23, 2015	20	4.1 - 1	22,322.277	
Peak 5	Sep 5, 2014	17	4.3	22,860.233	
			Total = 19.8 - 2 MW	Total = 113,932.900 MW	= 0.00015623

### Scenario C: Significant Shifting

Peak	Day	Hour Ending	Customer's Consumption (MW)	Peak System Consumption (MW)*
Peak 1	Jan 7, 2015	19	3.1 - 1	23,022.710
Peak 2	Feb 19, 2015	20	4.4 - 0.5	22,834.941
Peak 3	Aug 26, 2014	17	3.9 - 0.5	22,891.739

Peak 4	Feb 23, 2015	20	4.1 - 1	22,322.277
Peak 5	Sep 5, 2014	17	4.3 - 1	22,859.233
			Total = 19.8 - 4 MW	÷ Total = 113,934.900 MW
				= 0.00013869

**Monthly Savings Summary:**

System-wide GA Cost	PDF	Scenario	Customer GA Cost	Savings
\$1120.1M (March 2016)	0.00017378	No shifting	\$194,654.84	N/A
	0.00017027	Minor	\$190,719.43	\$3,935.41
	0.00015623	Moderate	\$174,993.223	\$19,661.62
	0.00013869	Significant	\$155,346.67	\$39,308.17

Customers connected to a distribution network can work with their local distribution company to better understand their unique demand profiles and learn about programs and strategies available for helping to manage electricity costs.

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For more information, please contact IESO Customer Relations at:

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