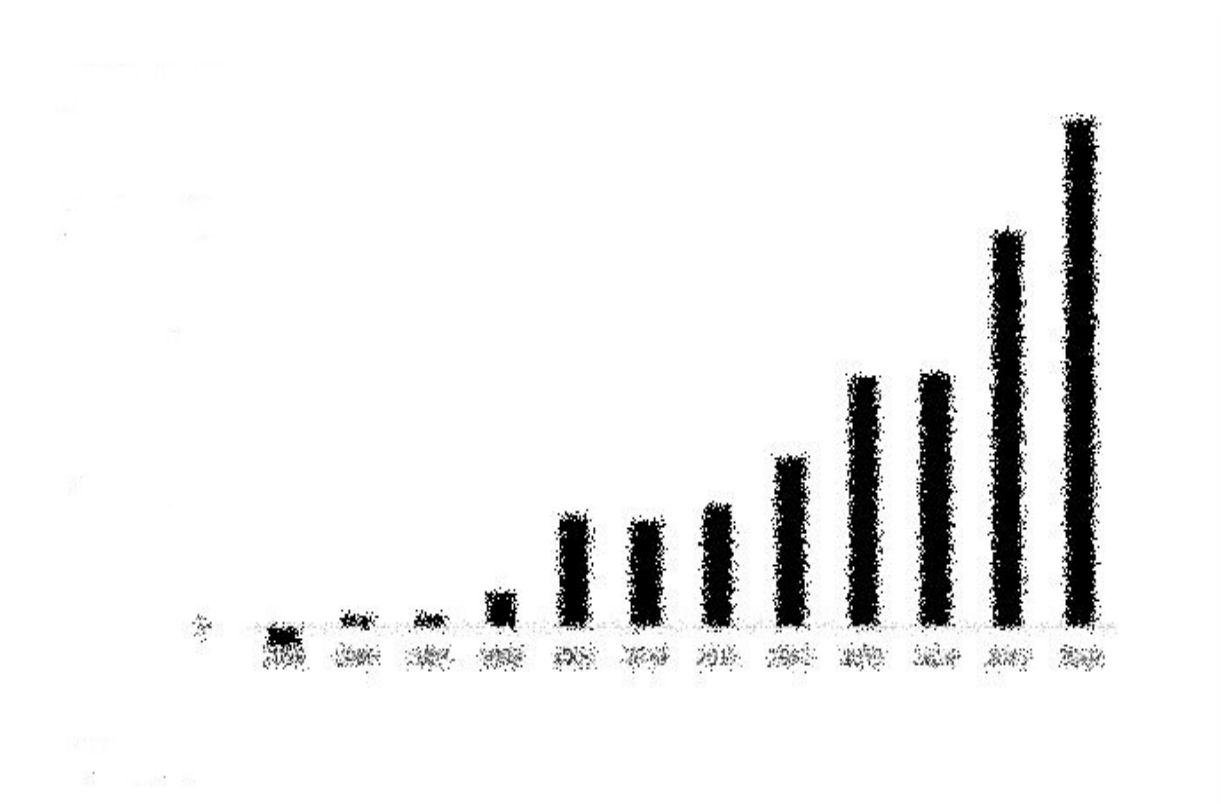


# Power Exports at What Cost?

How Ontario Electricity Customers Are Paying More to Dump the Province's Excess Power



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## **Executive Summary**

Ontario electricity customers are paying more each month to cover the costs of selling cheap power to out-of-province ratepayers.

Since 2005, Ontario customers have unwittingly paid \$6.3 billion to cover the cost of selling the province's surplus electricity to customers in neighbouring states and provinces. Most of that bill – \$5.8 billion, or nearly \$1,200 for every household in the province – has been incurred since 2009, as demand for electricity in Ontario has declined, while generation capacity in the province has continued to grow.

Ontario's power surplus is largely a result of provincial directives, which have directed Ontario's energy agencies to sign contracts with a growing number of electricity generators, promising them a guaranteed, above-market rate for their output. The power surplus has pushed the average wholesale price – the value of power on the province's electricity market – to a record low in 2016.

To offset the growing gap between what the province has promised to pay generators and what that power is worth in the wholesale market, provincial ratepayers pay a charge called the Global Adjustment, which has grown, on average, 20% annually over the last 5 years. The Global Adjustment now accounts for nearly 90% of the revenue earned by exporting power.

The combination of an increasing number of generators receiving a fixed rate for their output, depressed market prices and a decline in electricity demand in Ontario has created a large and growing surplus of power in the province. Instead of curbing their production in response to low demand and prices, generators have maintained their production levels, requiring an increase in exported power.

Ontario ratepayers are left covering the difference between what the province has promised domestic generators for their output and what that power is worth when it is exported, since export customers don't pay the Global Adjustment. Ontario ratepayers are now paying the lion's share of the cost of exporting electricity.

Worse still, since 2011, residential customers in Ontario have increasingly had to pay a greater share of the costs of selling power below cost to neighbouring states and provinces than large consumers (big businesses).

## Part I. How electricity generators make money in Ontario

Nearly all electricity generators in Ontario have either a fixed-rate contract with one of the province's electricity agencies, or have their rates set by the Ontario Energy Board (OEB) – both of which ensure they receive a guaranteed price for their output. Generators no longer rely solely on the province's wholesale electricity market for their revenue.<sup>1</sup>

The Independent Electricity System Operator (IESO) is the provincial agency responsible for signing fixed-rate contracts with new generators.<sup>2</sup> In total, the agency holds contracts amounting to 26,671 Megawatts (MW) of capacity<sup>3</sup>, accounting for nearly 74% of the province's total installed generating capacity.<sup>4</sup> All renewable energy generators, such as wind, solar and biomass plants, as well as most gas plants, have signed contracts with IESO.<sup>5</sup>

The remaining generation capacity in Ontario is largely owned and operated by the provincially owned Ontario Power Generation (OPG) and has its rates set by the OEB.

Contracts signed with the IESO and those set by the OEB provide generators with two streams of revenue. One revenue stream comes from the price that power sells for in the province's wholesale market – known as the Hourly Ontario Energy Price (HOEP). The second stream is the revenue they receive from the Global Adjustment (GA), a ratepayer-funded charge that makes up the difference between what a generator receives on the market for their output and what they were promised in their fixed-rate contract or the rate set by the OEB.<sup>6</sup>

*Generator revenue = Market Revenue + Global Adjustment*

*Market Revenue = the price of power on the province's wholesale electricity market*

*Global Adjustment = Difference between wholesale price and guaranteed rate, funded by ratepayers*

In recent years, the province has continued to procure additional generation capacity, even though demand for that power has declined<sup>7</sup>. This has created an ongoing power surplus. By signing high-priced contracts with generators, the market price for electricity has been pushed

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<sup>1</sup> Page 87, [http://www.ontarioenergyboard.ca/oeb/ Documents/MSP/MSP\\_Report\\_Nov2014-Apr2015\\_20160512.pdf](http://www.ontarioenergyboard.ca/oeb/ Documents/MSP/MSP_Report_Nov2014-Apr2015_20160512.pdf)

<sup>2</sup> Prior to 2015 the agency responsible for procurement was the Ontario Power Authority (OPA). The province has since merged the two agencies.

<sup>3</sup> See: <http://www.ieso.ca/Documents/Supply/Progress-Report-Contracted-Supply-Q12016.pdf>

<sup>4</sup> Using IESO's figures for installed generating capacity: <http://www.ieso.ca/Pages/Power-Data/Supply.aspx>

<sup>5</sup> A small number of generators have contracts with the Ontario Electricity Financial Corporation (OEFC), which manages contracts that were signed with the old Ontario Hydro.

<sup>6</sup> The Global Adjustment also includes other, smaller costs, such as provincially mandated conservation programs. For more information on the Global Adjustment, see:

[http://www.ieso.ca/Documents/Understanding\\_GA\\_June\\_2014.pdf](http://www.ieso.ca/Documents/Understanding_GA_June_2014.pdf)

<sup>7</sup> Ontario demand has fallen by nearly 13% since 2005. See: <http://www.ieso.ca/Documents/OPO/MODULE-1-State-of-the-Electricity-System-20160901.pdf>

<sup>8</sup> For a look at Ontario's growing generation capacity, see page 6: <http://www.ieso.ca/Documents/consult/sac/SAC-20160323-Ontario-Planning-Outlook.pdf>

down to record low levels in Ontario. This has resulted in generators receiving higher payments through the Global Adjustment to make them whole.

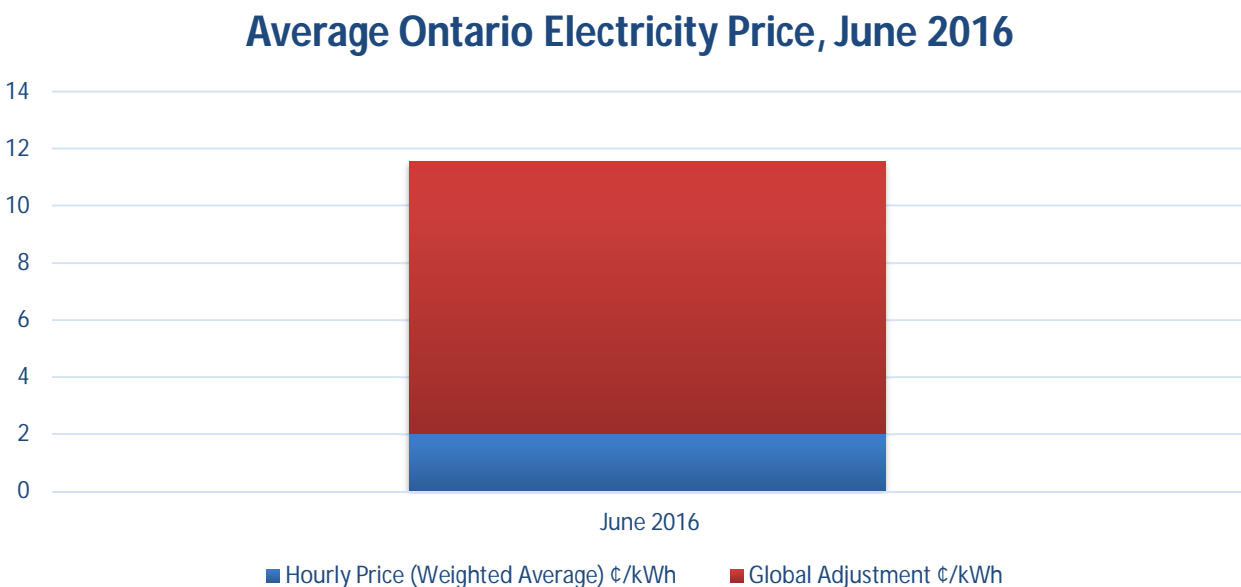
## Part II. What happens when Ontario generators export their power?

When generators sell electricity into the province's wholesale market, they receive the same amount of revenue whether that power is consumed in Ontario, or exported to neighbouring states and provinces. However, if that electricity is exported outside of Ontario, those non-domestic consumers don't pay the Global Adjustment charge – they pay only the wholesale rate.

Instead, Ontario electricity customers are on the hook for the Global Adjustment charge on electricity exports. The Global Adjustment paid on exported electricity is blended into the hydro bills of Ontario ratepayers and acts as a subsidy from Ontario electricity customers to those outside the province.

Take Figure 1 as an example. In June of 2016, the average selling price of electricity on the province's wholesale market was 2.02 cents per kilowatt hour (kWh), while the province's average cost to pay generators what they were promised – either in contracts signed with IESO or those set by the OEB – was 11.57 cents per kWh. That means that for each kWh of electricity sold to customers outside of Ontario, a 9.55 cent per kWh Global Adjustment charge was paid by domestic customers.<sup>9</sup>

Figure 1

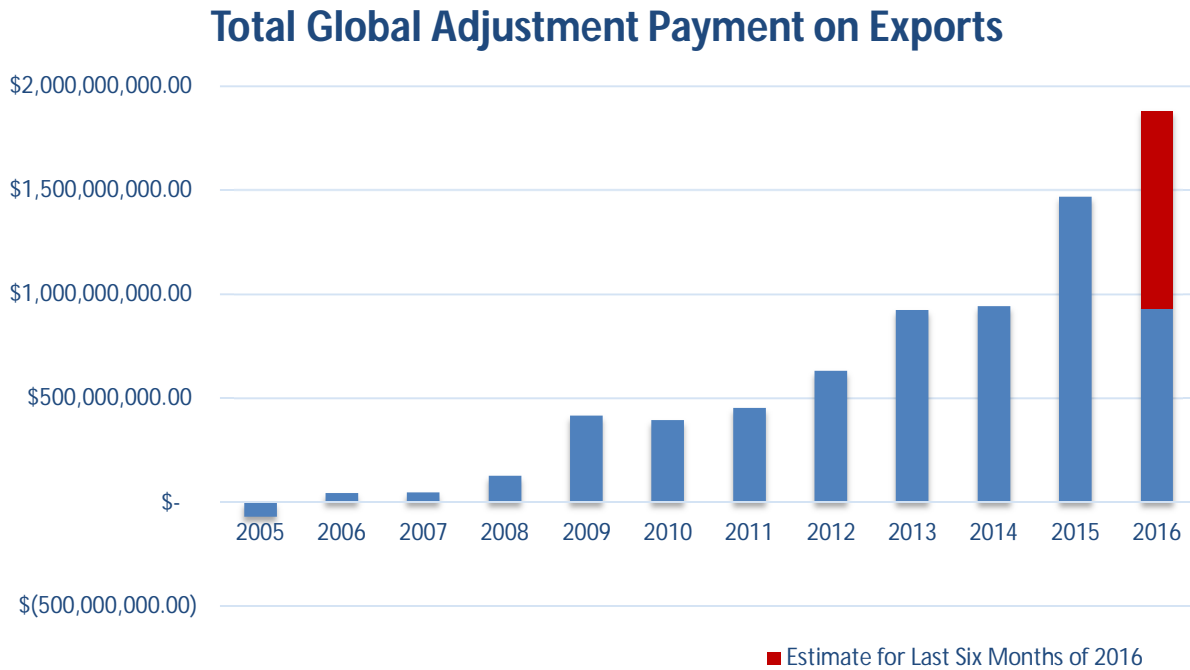


Over the past decade, the cost to Ontario electricity customers of paying the Global Adjustment charge for exported power has increased more than ten-fold. In 2006, that figure was less than

<sup>9</sup> This is the method that the Ontario Auditor General in her 2015 annual report to calculate the cost to Ontario ratepayers for power exports. We use a slightly modified version of this calculation that results in a lower cost estimate of the cost to Ontario's electricity customers on power exports.

\$100 million, while it was more than \$1.4 billion last year. In 2016 alone, using figures from January to June, the Global Adjustment has already surpassed all of 2013 and could reach more than \$1.8 billion for the entire year – marking the highest level since Ontario’s electricity market was redesigned in 2002.

**Figure 2**



Increasingly, generators are relying on the Global Adjustment, not the market price, to reimburse them for the power they generate. Between January of 2005 and June of 2016, Ontario’s electricity generators received just under \$12.9 billion for their exports. However, \$6.6 billion of that figure came from the market value of that power, while \$6.3 billion was paid for by Ontario electricity customers through the Global Adjustment (see Table 1).

In recent years, Ontario ratepayers have paid the lion’s share of the costs associated with power exports. Since 2012, Ontario ratepayers have paid \$4.9 billion to cover the cost of paying generators for their exported power, while customers purchasing that power have paid just \$2 billion.

Table 1<sup>10</sup>

	Global Adjustment paid by Ontario ratepayers for power exports	Market value of power exports	Total Revenue (Global Adjustment and Market value)
2005	-\$70,858,544	\$724,865,524	\$654,006,980
2006	\$43,896,377	\$558,596,299	\$602,492,676
2007	\$46,155,241	\$621,306,747	\$667,461,988
2008	\$126,248,042	\$1,144,980,580	\$1,271,228,622
2009	\$417,028,862	\$484,828,776	\$901,857,638
2010	\$394,976,789	\$563,918,254	\$958,895,043
2011	\$453,401,999	\$403,688,730	\$857,090,729
2012	\$630,572,662	\$348,581,436	\$979,154,098
2013	\$924,980,300	\$480,992,842	\$1,405,973,142
2014	\$941,826,632	\$592,924,713	\$1,534,751,345
2015	\$1,466,851,385	\$526,156,668	\$1,993,008,053
2016 (Jan-June)	\$933,730,153	\$130,782,850	\$1,064,513,004
Total	\$6,308,809,898	\$6,581,623,420	\$12,890,433,318

The market value of exports from Ontario is declining, despite the physical amount of power being exported having increased. Because nearly every unit of electricity is guaranteed a rate that is higher than the market price for power, the per kWh cost of those exports to Ontario ratepayers is increasing. In short, nearly every unit of power that Ontario sells outside of its borders, it does so at a loss – and the more power it sells, the greater the loss.

While the province defends electricity exports for the revenue they<sup>11</sup> bring into Ontario, it ignores the fact that the province’s electricity customers are being charged to export that power and in many cases would be better off if it wasn’t produced in the first place.

### Part III. The road less travelled: How Ontario turned its electricity exports into a money loser

Transforming Ontario electricity exports into a money-losing endeavor for the province’s ratepayers, has occurred in tandem with the Ministry of Energy assuming greater control over the electricity sector, particularly in its policies supporting new generation capacity.

When the province redesigned the electricity sector in 2002, it did so to create a more competitive market and consumer-oriented utilities.<sup>12</sup> However, the Ministry of Energy has, over

<sup>10</sup> In 2005, the Global Adjustment was negative, meaning the wholesale rate for power was higher than the rate promised to generators. When that occurs, the generators give a rebate to electricity customers.

<sup>11</sup> [http://www.ontla.on.ca/web/committee-proceedings/committee\\_transcripts\\_details.do?locale=fr&BillID=&ParlCommID=8996&Date=2014-11-18&Business=Ministry%20of%20Energy&DocumentID=28339](http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts_details.do?locale=fr&BillID=&ParlCommID=8996&Date=2014-11-18&Business=Ministry%20of%20Energy&DocumentID=28339)

<sup>12</sup> The province eventually got cold feet and stopped its push to privatize the electricity sector and make it more competitive.

the last decade, slowly taken over nearly all aspects of electricity planning in Ontario, in the process, steadily burying any competitive mechanisms. Ontario's Auditor General has warned, for example, that the Ministry of Energy has ignored the technical planning procedures it is legally required to follow and, instead, issued ministerial directives that block its policies from the oversight of regulatory agencies such as the OEB and the IESO.<sup>13</sup>

In particular, the Ministry of Energy's decision to sign fixed rate contracts with generators outside of any economic analysis from the OEB has incited most generators to dump power onto the province's wholesale market, regardless of whether there is demand for it. The province's control over what rates generators receive for their output ensures that the price of power is determined politically and no longer reflects the supply/demand dynamics of a competitive market.

The province's guaranteed contracts signed with generators have been criticized by both the Auditor General and other oversight bodies. According to the Market Surveillance Panel – a regulatory body that monitors and investigates activities on the province's wholesale electricity market – a recent review highlighted that “the Ontario market design fails to provide prices reflective of the marginal cost of generation, and that the design relies on out of market payments to compensate generators, when more efficient and competitive design features are feasible.”<sup>14</sup>

In 2005, as much as 23% of electricity generated in Ontario came from generators that received the market price for their output, meaning their revenue was obtained solely from the market price and was more in line with demand.<sup>15</sup> This also ensured that many generators only generated power when both demand and the wholesale electricity price that they could earn was rising.

In contrast, the most recent report from the Market Surveillance Panel noted that, “virtually all generation in Ontario” now relies either on the province or the OEB to set their rates, meaning they no longer rely on supply/demand dynamics or financial viability to determine whether they should generate power or not.

The impact of having nearly all of the generators in the province on guaranteed rate contracts has caused such a surplus of power that the wholesale rate of power in Ontario has plummeted to levels that would render any generation uneconomic. The average price per kilowatt hour on the province's wholesale market is about one-seventh what it was in 2005, thanks to the surplus.<sup>16</sup>

To make up the difference, the Global Adjustment, by necessity, has continued to increase, having risen by nearly \$100 per MWh over the last decade. Since the Global Adjustment has increased at a faster rate than the market price has declined, Ontario ratepayers are seeing an increase in the total price they pay for each unit of electricity.

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<sup>13</sup> <http://www.auditor.on.ca/en/content/annualreports/arreports/en15/3.05en15.pdf>

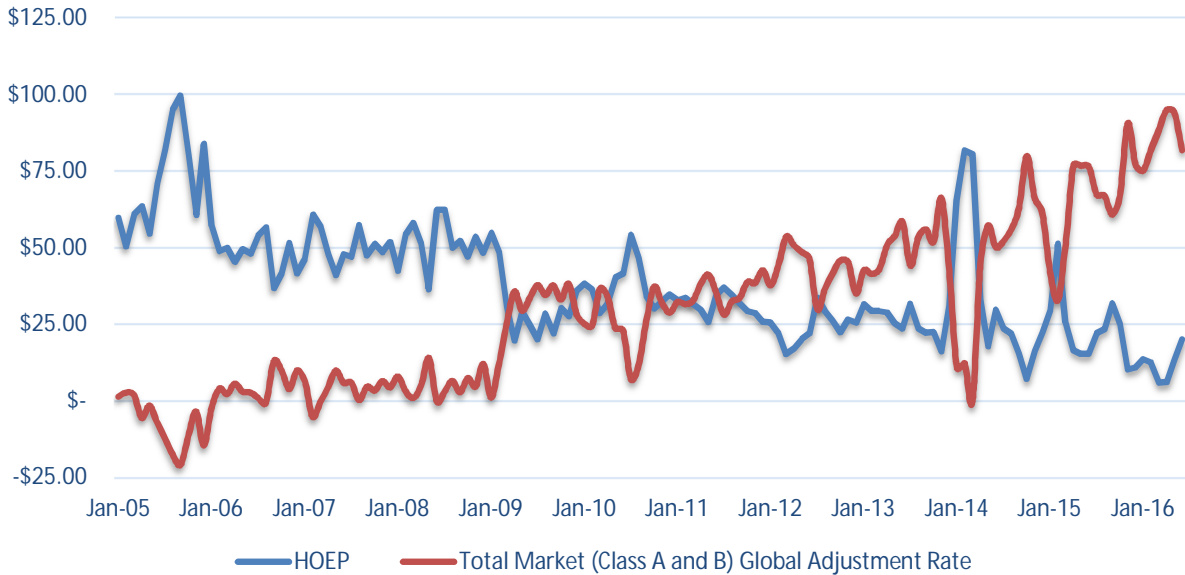
<sup>14</sup> Page 85: [http://www.ontarioenergyboard.ca/oeb/Documents/MSP/MSP\\_Report\\_May2014-Oct2014\\_20151008.pdf](http://www.ontarioenergyboard.ca/oeb/Documents/MSP/MSP_Report_May2014-Oct2014_20151008.pdf)

<sup>15</sup> See page 116: [http://www.ontarioenergyboard.ca/documents/msp/msp\\_report\\_final\\_130606.pdf](http://www.ontarioenergyboard.ca/documents/msp/msp_report_final_130606.pdf)

<sup>16</sup> According to IESO data, the average price per kilowatt in 2016 is 0.97 cents, down from 7.21 cents in 2005. In terms of MWh that's a decrease to \$9.70 per MWh from \$72.10.

**Figure 3**

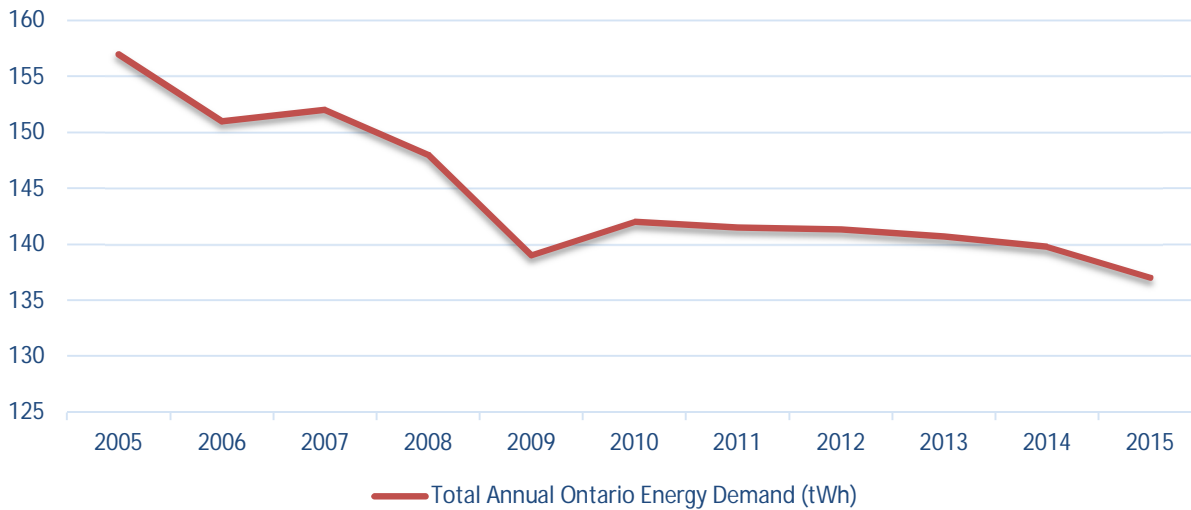
### Monthly HOEP and Global Adjustment Rate (\$ per MWh)



As electricity rates have risen, the economy has slowed, causing the demand for power in Ontario to decline further.

**Figure 4**

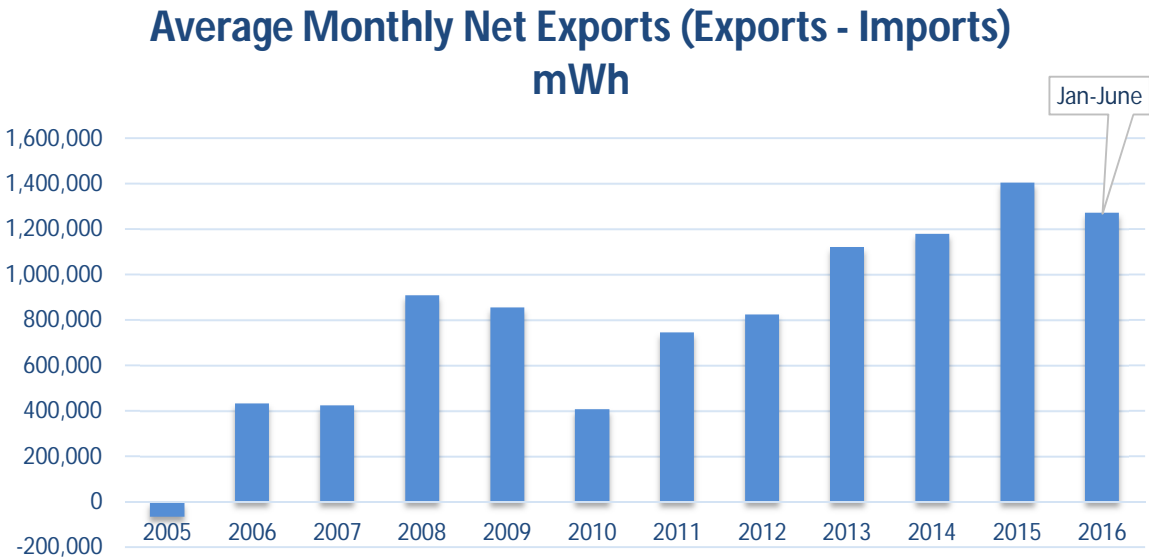
### Total Annual Ontario Energy Demand (tWh)





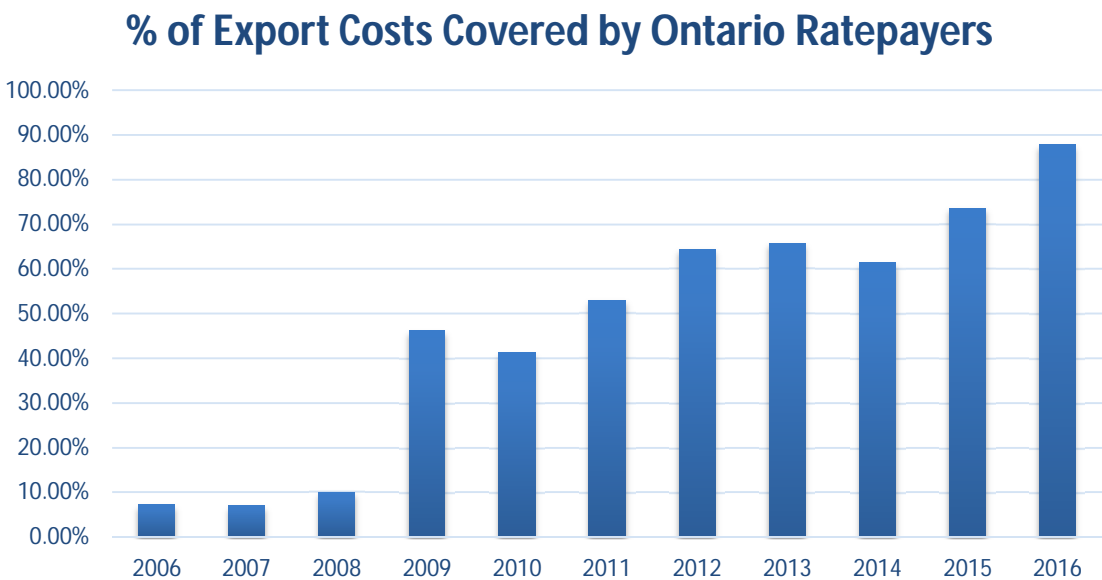
Greater generation capacity and falling demand has resulted in Ontario becoming a net exporter of electricity. The shift to becoming a net exporter has been especially costly for the province's electricity customers, as power exports from Ontario have increasingly been sold at rates that are below their contracted value.

**Figure 5**



Ontario ratepayers now pay a majority of the costs to generate the power that is exported out of the province, not the power purchasers. A decade ago, Ontario generators received 93% of their revenue from the market price they earned for their power exports. That situation has now reversed. In the first six months of 2016, Ontario electricity customers paid 87% of the cost of selling power generated in Ontario to neighbouring customers.

**Figure 6**



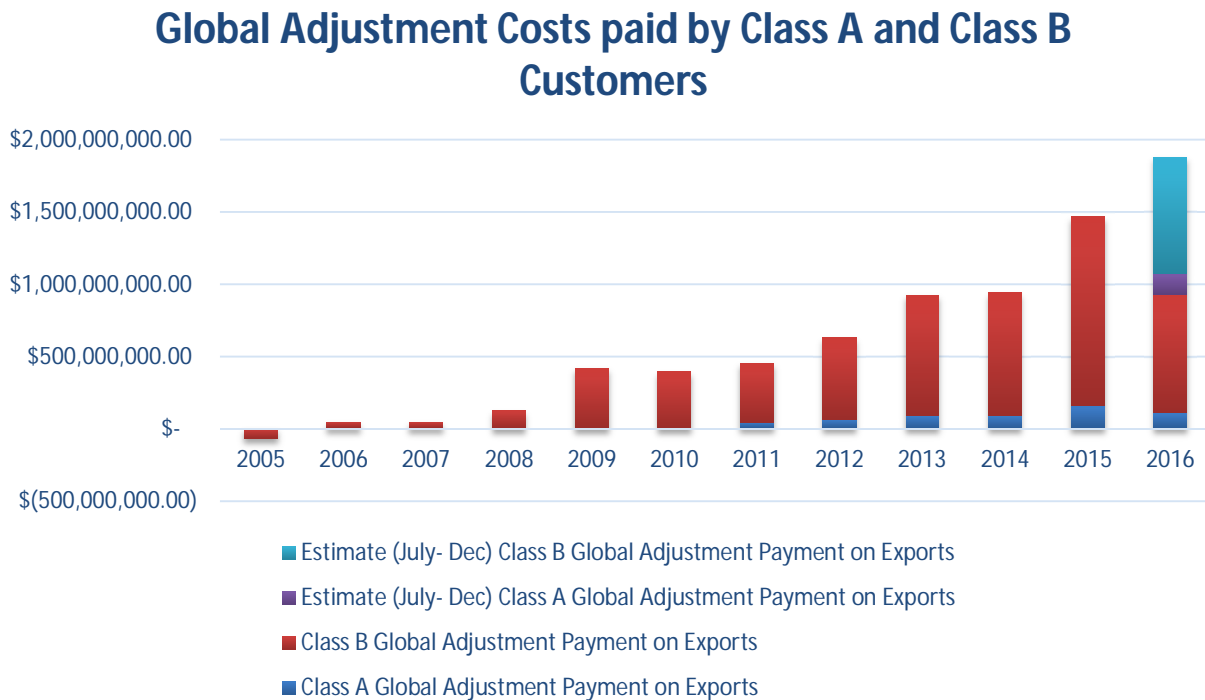
## Part IV: Shifting Costs from Big Business to Households and Small Businesses

Prior to 2011, Global Adjustment costs were allocated to all customers equally, regardless of how much power that customer consumed each month. But in 2011, the province altered the formula for allocating Global Adjustment costs by splitting customers into two rate classes: Class A and Class B.

Class A customers are large energy consumers and total about 300 in the province. They pay the Global Adjustment based on their share of peak electricity demand in Ontario. The IESO calculates peak demand as the percentage of power consumed during the top five hours of electricity consumption in each year.

Class B customers are all of the remaining small consumers in the province, including households and small and medium businesses.

Figure 7

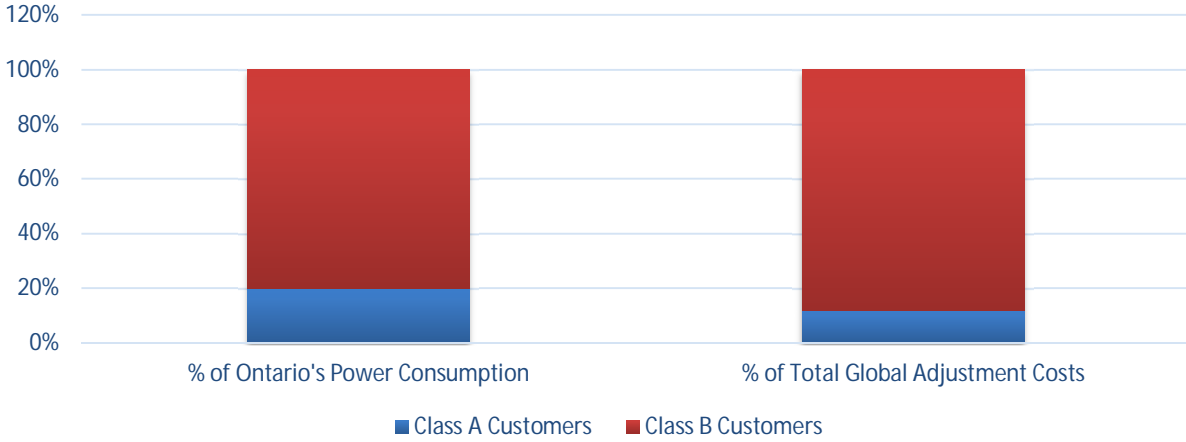


The Class A/Class B division benefits large customers, as they pay less, in percentage terms, of the costs of the Global Adjustment compared to their share of power consumption.

In 2016, for example, Class A customers accounted for 20% of all power consumption in Ontario, but only paid 12% of Global Adjustment costs. Class B customers, meanwhile, accounted for 80% of all power consumed in Ontario, but paid 88% of all Global Adjustment costs.

**Figure 8**

## Households Pay A Greater Share of Global Adjustment Costs



Households and small business consumers, which account for most Class B consumers, meanwhile, pay the most to subsidize electricity exports for customers in neighbouring states and provinces.