

The Ontario Government's Electricity Policies 2018–2019

How They Are Failing and How to Fix Them

Elmira Aliakbari and Jairo Yunis

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Executive Summary

Policy makers in Ontario have made poor policy decisions in recent years, resulting in rising electricity costs in the province. Ontario's rising electricity costs have been, in part, blamed on the province's 2009 Green Energy Act (GEA). The centerpiece of the act included a schedule of subsidized contracts to purchase electricity called Feed-in-Tariffs (FITs). These provided long-term guarantees of above-market rates to generators of renewable sources (wind, solar, bioenergy, and some hydroelectric). To fund these commitments, as well as the cost of other non-market interventions such as conservation programs, Ontario levied a surcharge on electricity called the Global Adjustment (GA). Over the past decade, the GA has soared, resulting in a drastic increase in the cost of electricity in Ontario.

Ontario's new government, led by Premier Doug Ford, was elected in June 2018 after campaigning on a promise to reduce electricity rates by 12%—on top of the 25% rate reduction introduced by the former provincial government. To fulfill this promise, the new provincial government has implemented a series of measures including cancelling 758 early-stage renewable power contracts, repealing the Green Energy Act, eliminating a number of conservation programs, and reforming the administration of the so-called Fair Hydro Plan—a plan that increases provincial debt to reduce residential electricity bills in the short-term—introduced by the former government.

However, despite the measures implemented by the new provincial government, the primary driver of rising electricity costs in the province—the Global Adjustment—continues to rise. Specifically, between June 2018 (when the new government was elected) and June 2019, the real GA increased by 13%, from 12.1¢/kWh in June 2018 to 13.7¢/kWh in June 2019. In addition, instead of receiving the reductions in electricity prices that were promised by the new government, almost all types of consumers in Ontario have faced hikes in the price of electricity over the past year. Specifically, electricity prices for residential and small-power consumers (such as small businesses) in Toronto increased 5% and 6%, respectively, between April 2018 and April 2019. Large businesses and industries have also suffered from rising electricity costs. For example, over the past year, large-power consumers in Ottawa faced a 7% increase in their electricity costs and medium-power users, an increase of 12%. In Toronto over the same period, electricity costs rose by 10% for large-power consumers and by 15% for medium-power users.

The analysis also shows that Ontarians are still paying far more for electricity than their fellow Canadians. Despite the debt-funded rate-relief structure (the so-called Fair Hydro Plan) put in place by the former government and continued by the new government, residential consumers in the province, on average, are still paying 22% more for their electricity than the rest of Canada. Large businesses and industries in Ontario are also suffering from high electricity prices by paying the highest electricity rates in the country, significantly exceeding those in some other major cities. Specifically, in Toronto and Ottawa, the average electricity price for large-power industrial consumers in 2019 was 13.23¢/kWh and 12.56¢/kWh, respectively, whereas the same type of consumer in Montreal and Vancouver paid only 5.66¢/kWh and 6.39¢/kWh. In addition, in 2019 the average electricity rate for large industrial consumers in Canada outside Ontario was only 7.82¢/kWh, with the result that large-power industrial consumers in Ontario are paying almost 65% more than the cost to the same type of consumers in the rest of Canada.

Overall, the measures implemented by the Ontario government since June 2018 have not reduced electricity costs, which have instead continued to rise. Instead of borrowing money to reduce the growth of current residential electricity rates, and thereby increasing the annual deficit and net debt of the province, the government must find ways to reduce the GA surcharge. Breaking down the GA into its components reveals that payments to renewable energy sources are still the largest single component of the GA, accounting for about 34% of the cost. Therefore, as we have recommended previously, the new Ontario government should use legislative measures to cancel, or renegotiate, Ontario's funding commitments to renewable energy sources under the FIT contracts. There is a particularly compelling case for this in regard to solar and bio-energy generators as these payments account for 15% of the GA, yet they only generate 3% of Ontario's electricity.

Introduction

Ontario's new government has committed itself to lowering the cost of electricity in the province. It campaigned on a commitment to reduce hydro rates by 12%—on top of the 25% rate reduction introduced by the former provincial government.

Ontario's rising electricity costs have been in part blamed on the province's 2009 Green Energy Act (GEA). The centerpiece of the GEA was a Feed-In-Tariff program, which provides long-term guaranteed contracts to generators with renewable energy sources (wind, solar, and so on) at a fixed price well above market rates. To fund these commitments, as well as the cost of other non-market interventions such as conservation programs, Ontario levied a surcharge on electricity called the Global Adjustment (GA). Over the past decade, the GA has soared, resulting in a drastic increase in the cost of electricity in Ontario. Consequently, the key to lowering electricity costs in Ontario is reducing the Global Adjustment.

Since it was elected in June 2018, the new provincial government has implemented a series of measures aimed at reducing the cost of electricity. In this study, we review the current and proposed measures and then evaluate how effective they have been. We also update our earlier research on the subject by examining how electricity costs in Ontario compare to costs in other provinces.

The study proceeds as follows. The first section reviews previous policies and the measures implemented by the new provincial government. The second section examines the recent evolution of the GA, as well as the recent change in electricity prices in Ontario, to evaluate how effective the new proposed measures have been. We find that the measures implemented thus far have not succeeded in reducing electricity prices, which have instead continued to rise. Section 3 examines Ontario's recent electricity prices and compares them to other Canadian jurisdictions; then Section 4 provides specific recommendations for achieving real reductions in prices.

1. Previous Policies and the Measures Implemented by the New Ontario Government

Before evaluating the Ontario government's recent performance, we briefly review some of the earlier policies that contributed to electricity price increases. This review is not meant to be exhaustive, as this has been done in our earlier publications.¹

Ontario's approach to electricity policy underwent a fundamental shift around 2005 when the government decided to begin phasing out coal power. The next major step occurred in 2009 when the government launched its *Green Energy Act* (GEA). The centerpiece of the GEA was a Feed-In-Tariff program, which provides long-term guaranteed contracts to generators with renewable energy sources (wind, solar, and so on) at a fixed price that is above market rates. In other words, generators with renewable sources received a guaranteed price without being subject to competition in the market. In fact, some of these generators were to be paid not for generating electricity, but merely for having generating capacity available on call (Aliakbari, Green, McKitrick, and Stedman, 2018; McKitrick and Aliakbari, 2017; McKitrick and Adams, 2014).

The prices charged to Ontario electricity customers consists of two components: the Hourly Ontario Energy Price (HOEP), and the Global Adjustment (GA). The HOEP is an average, market-clearing price for electricity set each hour, based on the demand and supply for electricity, and is determined by a competitive process through offers submitted by generators. The GA is a surcharge to fund a variety of spending commitments by the Province, such as the difference between the wholesale price and the fixed contract rates in relation to the Feed-in-Tariff program for renewable sources, as well as other non-market interventions such as conservation programs, and some costs related to nuclear power and gas capacity projects (Aliakbari, McKitrick, and Stedman, 2018). The GA and HOEP, which together constitute the commodity cost (or generation cost), are only a portion of

1. For more information, see our earlier studies on the subject: Aliakbari, Green, McKitrick, and Stedman, 2018; Aliakbari, McKitrick, and Stedman, 2018; McKitrick and Aliakbari, 2017; and Jackson, Stedman, Aliakbari, and Green, 2017.

total electricity cost. The remainder consists of transmission and distribution as well as wholesale market services.² However, among all the components of electricity costs, the commodity portion (or generation cost) is the largest and the fastest growing segment of total electricity costs (Aliakbari, McKitrick, and Stedman, 2018; McKitrick and Aliakbari, 2017). Specifically, between 2006 and 2015, Ontario experienced an annual increase of approximately \$5 billion in the cost of its electricity system (in inflation-adjusted 2016 dollars) and generation costs accounted for \$4.5 billion or 90% of the increase (OEA, 2018).

As shown in earlier publications, the dramatic increase in the generation costs in recent years is driven by significant growth in its GA component, not the wholesale-price component (McKitrick and Aliakbari, 2017; Jackson, Stedman, Aliakbari, and Green, 2017). Between 2008 and 2017, the GA grew from under one cent per kWh to about 10¢, causing a drastic increase in electricity prices (Aliakbari, McKitrick, and Stedman, 2018). The significant increase in the GA occurred while, over the same period, the wholesale electricity component (HOEP) declined. Specifically, the HOEP portion of the generation cost declined by 64%, from 4.45¢/kWh in 2008 to 1.58¢/kWh in 2017 (Aliakbari, McKitrick, and Stedman, 2018). Therefore, the key to lowering electricity prices in Ontario is to reduce the GA.

Ontario's Conservative government, headed by Premier Doug Ford, was elected in June 2018 after campaigning on a promise to reduce electricity prices by 12%—on top of the 25% rate reduction introduced by the former provincial government (*CTV News*, 2018, April 1). The Conservatives promised that electricity rate reductions would begin January 1, 2019, although it did not specify any deadline for the 12% rate reduction. The government proceeded to implement the following measures to achieve its goals.

Cancelled energy contracts with generators of renewable energy

In July 2018, they announced a plan to cancel 758 energy contracts with generators of renewable energy such as wind and solar (Ontario, END&M, 2018, July 13). All the cancelled projects were in the early stages, meaning they had not reached specific milestones or received notice from the government to proceed (Aliakbari and Stedman, 2018, July 28). According to the government's press release, the cancellation of these contracts would save provincial ratepayers \$790 million (Ontario, END&M, 2018, July 13).³

2. A tax called the Debt Retirement Charge (DRC) was another component constituting the electricity cost in Ontario. However, this tax was eliminated from electricity bills in March 2018 (OEA, 2018).

3. In June 2018, the new Ontario government scrapped the GreenON program, which offered incentives to homeowners and businesses to complete energy-efficient renovations. Scrapping this conservation program meant consumers would no longer receive free smart thermostats or rebates for purchases to enhance energy efficiency such as windows, insulation, or equipment to capture solar power

Repealed the Green Energy Act

In September 2018, the Government of Ontario introduced legislation (Bill 34) to repeal the *Green Energy Act* (GEA) (Ontario, END&M, 2018, Sept. 20; Legislative Assembly of Ontario, 2018). The legislation prevented future procurement of long-term renewable energy contracts that would add unnecessary costs to electricity bills. In other words, future renewable energy projects must first demonstrate the need for the electricity they generate before receiving approval (*National Post*, 2018, Sept. 20). In addition, the legislation will ensure municipalities regain planning authority over renewable projects, something that was removed under the GEA (*Globe and Mail*, 2018, Sept. 20).

Repealed authority of OEB to set prices

In December 2018/January 2019, the new government proposed Bill 66, as part of its *Restoring Ontario's Competitiveness Act*, to repeal the authority of the Ontario Energy Board (OEB) to set prices for sub-meters (Environmental Registry of Ontario, 2019). This Bill will affect about 325,000 businesses and residential customers who pay for their electricity through a unit sub-metering company. According to the government, regulating the prices that sub-metering companies charge would have introduced burdensome regulations and unintended consequences that would have been passed on to consumers in a form of higher electricity rates (Global News, 2019, Jan. 22).

Eliminated energy-conservation and demand-management programs

In March 2019, the Ford government eliminated six province-wide and eight local energy-conservation and demand-management programs, including the Poolsaver program, which would give rebates to pool owners who purchased energy-efficient pumps, and other programs that subsidized modern lighting such as LED bulbs, more-efficient air conditioners, and furnaces and upgrades to commercial refrigeration equipment (*CBC News*, 2018, June 19; *Globe and Mail*, 2019, March 21).

Passed Bill 87—Fixing the Hydro Mess Act

In May 2019, the government passed Bill 87, or the Fixing the Hydro Mess Act. This piece of legislation covered four basic areas.

1. Centralized delivery of electricity-conservation programs

Bill 87 centralized the delivery of eight electricity-conservation programs from local distribution companies (LDC) to the Independent Electricity System Operator (IESO), a

(*CBC News*, 2019, March 24). However, this program was funded by Ontario's cap-and-trade program, and not by the ratepayers, therefore its termination did not affect electricity prices.

provincial agency funded through electricity rates. The intention was to reduce administrative costs and give the government the flexibility to fund conservation programs through general tax revenues rather than through the electricity rate. According to the government's news release, refocusing and uploading conservation programs to the IESO will save electricity customers and tax payers up to \$442 million over three years. The eight conservation programs delivered by the IESO includes the Retrofit Program, which provides incentives to businesses for updating inefficient and old equipment, and the Small Business Lighting program, which provides an assessment and incentives for eligible lighting upgrades (Ontario, END&M, 2019a, March 21).

2. Modernized the Ontario Energy Board

Bill 87 modernized the Ontario Energy Board (OEB) by streamlining its organizational structure. The key changes include the creation of the role of CEO to provide executive leadership for operational and policy aspects of the organization, and creation of board of directors, led by a chair, “who would be responsible for governance and strategic oversight of the organization, interfacing with the Minister and the provincial government”. According to the news release, the changes would reform the governance structure of the OEB and ensure “a greater separation of its administrative and adjudicative functions” (Ontario, END&M, 2019b, March 21).

3. Reformed the administration of the Fair Hydro Plan

Bill 87 reformed the administration of the so-called Fair Hydro Plan (FHP), introduced by the former government, to reduce borrowing costs. The FHP was introduced in 2017 to reduce electricity bills by 25% on average for all residential consumers, and to limit the increase in electricity bills to the rate of inflation over the next four years (Ontario, OP, 2017, March 2; FAO, 2017). The core of the FHP involved refinancing a portion of the Global Adjustment (GA)⁴ at a cost of \$2.5 billion annually until 2027, all of which was to be borrowed. The province would recover the money from future ratepayers, including interest, from 2028 onwards for an estimated 18-year period and the scheme would have entailed \$21-billion in total accumulated interest costs (*Globe and Mail*, 2019, March 21; FAO, 2017).

However, following the introduction of this plan, the Auditor General of Ontario expressed the concern that, in an effort to keep the magnitude of borrowing off the government's books, the Province proposed to direct other entities such as Ontario Power

4. The GA is a charge consumers pay for above-market rates to power generators; it will be discussed in section 2.

Generation to do the borrowing, which would add about \$4 billion to the total interest costs (Office of the Auditor General of Ontario, 2017). The 2018 Independent Financial Commission of Inquiry concluded the same thing (Ontario, Min. of Finance, 2018, Sept. 21; Independent Financial Commission of Inquiry, 2018). The new Conservative government replaced the FHP with a new system in line with recommendations from the Auditor General and the Independent Financial Commission of Inquiry, in which the full electricity cost is to be shown on electricity bills. Specifically, starting November 1, 2019, bills will show the full cost of electricity, with all government subsidies highlighted (Ontario, END&M, 2019c, March 21). By having the government do the borrowing, total financing costs are expected to be reduced by \$4 billion.

4. Increases held at rate of inflation

Additionally, the government kept the rule, first introduced in the FHP, in which further electricity bill increases were going to be held at the rate of inflation.

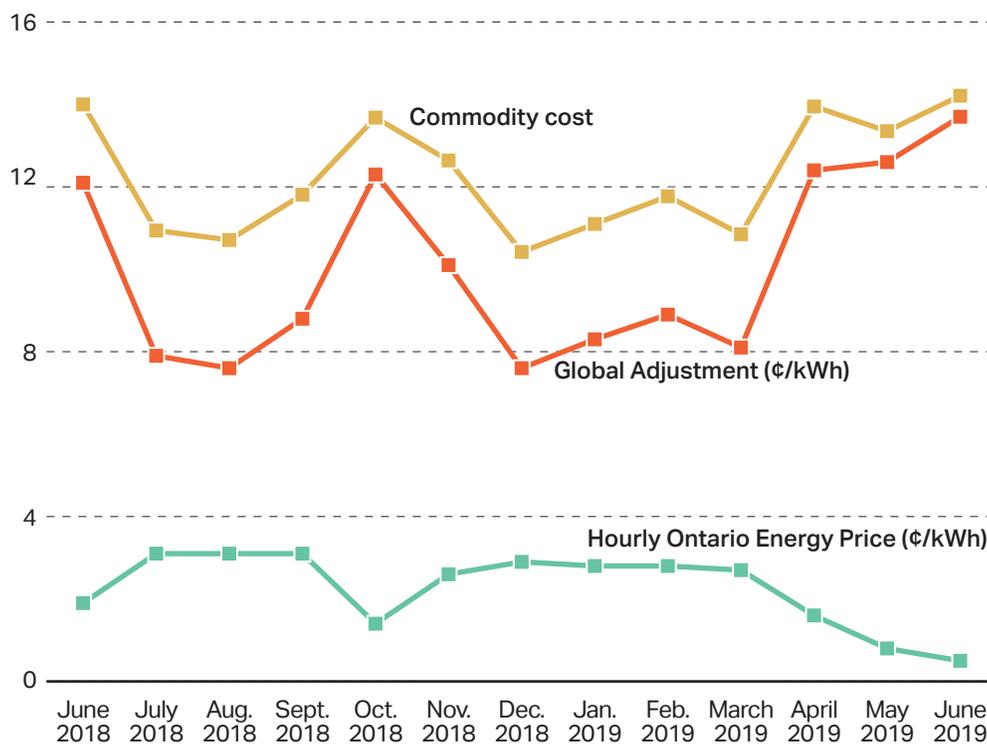
2. Evaluating the New Government's Performance on the Electricity File

This section examines whether the new provincial government's measures discussed in section 1 have had any meaningful impact on reducing the cost of electricity in Ontario.

Evolution of the Global Adjustment

Since the drastic increase in the Global Adjustment (GA) has been the primary cause of rising electricity prices in Ontario, examining recent data on the GA would allow us to evaluate whether the measures implemented by the new provincial government have been effective in reducing electricity costs. Figure 1 shows the evolution of the GA, along with the Hourly Ontario Energy Price (HOEP) and the commodity cost (all inflation-adjusted) from June 2018 (when the new Conservative government was elected) to June 2019.

Figure 1: Real Global Adjustment (GA), Hourly Ontario Energy Price (HOEP), and commodity cost (CC)



Sources: CPI: Statistics Canada, 2019; GA: IESO, 2019b; HOEP: IESO, 2019a.

In June 2018, the GA was 12.1¢/kWh, or 86.7% of the commodity cost, and the HOEP was 1.9¢/kWh, for a total of 14¢/kWh. By June 2019, rather than falling, the GA had increased 1.6¢ to 13.7¢/kWh, while the HOEP declined 1.4¢ to 0.5¢/kWh, for a total of 14.2¢/kWh. Thus, overall, the real GA increased by 13% from June 2018 to June 2019 while the total commodity cost went up by 1.4%.⁵

Recent changes in electricity prices

Analyzing recent changes in electricity prices in Ontario (both residential and non-residential) provides an even better evaluation of the effectiveness of the government's measures to reduce electricity costs in the province. This analysis relies on the two latest versions of a major annual survey undertaken by Hydro-Quebec (2018, 2019). The survey collects information from, or pertaining to, several electricity distribution companies and provides average costs of electricity in cents per kilowatt-hour (¢/kWh). This is the delivered cost of electricity on customers' bills at specified levels of consumption, including applicable rate riders. The total reported cost of electricity includes the cost of generation plus transmission and distribution service costs, and taxes. The reported electricity costs are as of April 1, 2018 and April 1, 2019.

Table 1 presents average electricity costs for different types of consumers in two major cities of Ontario in 2018 and 2019. As shown, between 2018 and 2019, instead of receiving the reductions in prices that were promised by the new government, almost all types of consumers in Toronto and Ottawa faced an increase in electricity prices.⁶ Specifically, residential consumers in Toronto, who paid 15.11¢/kWh in 2018, saw a 5% increase in their electricity bills and are now paying 15.85¢/kWh. Residents in Ottawa experienced a 1% decrease in their electricity bills—from 13.88¢/kWh in 2018 to 13.74¢/kWh in 2019—which is still far away from the promised 12% reduction.

Furthermore, small-power consumers in Toronto, who paid 14.2¢/kWh in 2018, saw their electricity costs increase by 6%, paying 14.99¢/kWh in 2019. In Ottawa, the same type of consumer experienced a 1% increase in their electricity bills, going from 13.16¢/kWh in 2018 to 13.25¢/kWh in 2019.

5. The GA and the HOEP tend to move in opposite directions because part of the GA is determined by the difference between the HOEP and the guaranteed price set by the government. For more details, see McKittrick and Adams, 2014.

6. We observed the same pattern when examining electricity costs excluding taxes.

Table 1: Electricity costs (¢/kWh) in Toronto and Ottawa including taxes, 2018 and 2019

Type of consumer	City	2018 ¹	2019 ¹	Percentage change
Residential²	Toronto	15.11	15.85	4.9
	Ottawa	13.88	13.74	-1.0
Small-power³	Toronto	14.20	14.99	5.6
	Ottawa	13.16	13.25	0.7
Medium-power⁴	Toronto	13.90	15.94	14.7
	Ottawa	13.93	15.64	12.3
Large-power⁵	Toronto	12.03	13.23	10.0
	Ottawa	11.70	12.56	7.4

Notes: **1.** Figures for 2018 and 2019 are in cents per kilowatt-hour (¢/kWh). Taxes are included. Rates are as of April 1, 2018 and April 1, 2019. **2.** Residential = monthly consumption of 1,000 kWh. **3.** Non-residential, small consumers = consumption of 10,000 kWh and demand of 40 kW. **4.** Medium consumers = consumption of 1,170,000 kWh and demand of 2,500 kW. **5.** Large consumers = consumption of 30,600,000 kWh and demand of 50,000 kW. Source: Hydro-Quebec, 2018, 2019.

The price increases are more substantial for medium- and large-power consumers (large businesses and industries) in Ontario. Between April 2018 and April 2019, electricity costs for medium-power consumers increased by 15% in Toronto, and by 12% in Ottawa. More specifically, in 2018, a medium-power consumer paid 13.9¢/kWh in Toronto and 13.93¢/kWh in Ottawa, while, a year later, the same type of consumer paid 15.94¢/kWh in Toronto and 15.64¢/kWh in Ottawa. Similarly, large-power consumers in Toronto and Ottawa experienced a 10% and 7% increase in their electricity costs, respectively. In April 2018, large-power consumers paid 12.03¢/kWh in Toronto and 11.7¢/kWh in Ottawa. By April 2019, the same type of consumer paid 13.23¢/kWh in Toronto and 12.56¢/kWh in Ottawa.

Clearly, the measures proposed by the Ontario government since June 2018 have not reduced power costs, as promised during the election campaign. Despite several measures implemented by the new Ontario government, the primary driver of rising electricity cost in the province—the GA—continues to rise. To date, the new Ontario government has not presented a plan explaining how they are going to reduce electricity rates at all, let alone by 12%. Energy Minister Greg Rickford has stated that the government is taking a “measured, systematic approach” in providing moderate cost savings to ratepayers but has not tackled the high costs of electricity generation in the province (*Globe and Mail*, 2019, March 21).

3. Comparing the Cost of Electricity in Ontario to Costs in the Rest of Canada

The data presented in the previous section shows that the new Ontario government has clearly failed to reduce electricity costs in the province since it was elected in June 2018. Before proposing some feasible reforms to reduce the primary cause of the rising cost of electricity—the GA—and thereby the cost of electricity, we first examine how electricity prices in Ontario compare to those in other Canadian provinces. **Table 2** presents a detailed comparison of electricity rates in Ontario relative to other Canadian jurisdictions in 2019. It lists average electricity costs (including taxes) for different types of consumers in Toronto, Ottawa, and four other major Canadian cities. The first column shows residential rates, and the second, third, and fourth columns, non-residential (commercial, industrial, etc.) electricity rates.

In 2019, residential consumers in Ontario did not pay the highest prices of all major Canadian cities. As shown in the first column of table 2, residents in Calgary paid the highest electricity prices, followed by residents in Toronto and Edmonton. More specifically, residential consumers in Toronto and Ottawa paid 15.85¢/kWh and 13.74¢/kWh, respectively, whereas the same type of consumers in Calgary and Edmonton paid 16.53¢/kWh and 15.42¢/kWh. Overall, the residential electricity rates in Toronto in 2019 were comparable to those in Edmonton and lower than those in Calgary. Consumers in Montreal enjoyed the lowest electricity rates across major cities at 8.39¢/kWh, while residents in Vancouver paid 12.4¢/kWh. In 2019, the average residential electricity price in Canada (outside Ontario) was 12.14¢/kWh, meaning that residential Ontarians, on average, paid 22% higher electricity costs than the rest of Canada, despite the debt-funded rate-relief structure put in place by the previous government and continued by the new government.

In 2019, small-power users (such as small businesses) in Ontario did not pay the highest prices of all major Canadian cities either. Following Calgary, Toronto and Edmonton had the second and third highest electricity prices for small consumers, at 14.99¢/kWh and 14.86¢/kWh, respectively. However, small-power consumers in Toronto are still paying high prices when compared to the rest of Canada. In 2019, the average electricity prices for small consumers in Canada outside Ontario was 13.24¢/kWh.

Table 2: Electricity costs (¢/kWh) in Canadian cities, 2019¹

	Residential ²	Non-Residential		
		Small consumers ³	Medium consumers ⁴	Large consumers ⁵
Montreal, QC	8.39	11.52	7.85	5.66
Calgary, AB	16.53	16.73	12.98	12.54
Edmonton, AB	15.42	14.86	15.54	11.27
Ottawa, ON	13.74	13.25	15.64	12.56
Toronto, ON	15.85	14.99	15.94	13.23
Vancouver, BC	12.40	12.53	8.94	6.39
Canada (average) ⁶	12.14	13.24	10.07	7.82

Notes: **1.** All figures in cents per kilowatt-hour (¢/kWh). Taxes are included. Dates are as of April 1. **2.** Residential = monthly consumption of 1,000 kWh. **3.** Non-residential, small consumers = consumption of 10,000 kWh and demand of 40 kW. **4.** Medium consumers = consumption of 1,170,000 kWh and demand of 2,500 kW. **5.** Large consumers = consumption of 30,600,000 kWh and demand of 50,000 kW. **6.** Electricity cost in Canada is a weighted average of all Canadian cities, excluding Ottawa and Toronto, based on 2016 census population data. The cities included in the Canadian average are St. John's, Halifax, Charlottetown, Moncton, Montreal, Winnipeg, Regina, Edmonton, Calgary, and Vancouver. Source: Hydro-Québec, 2019.

Furthermore, medium- and large-power consumers (businesses and industries) in Ontario continue to pay the highest electricity prices in Canada. Specifically, in 2019, Toronto and Ottawa had the highest and second-highest electricity costs for medium consumers among all Canadian cities, at 15.94¢/kWh and 15.64¢/kWh. In Montreal, average power cost for a medium consumer was only 7.85¢/kWh, while it was 8.94¢/kWh in Vancouver. In addition, the average power cost for a medium-power consumer in Canada outside Ontario was only 10.07¢/kWh, meaning that the rates paid by medium-power consumers in Toronto and Ottawa were about 57% higher than those paid by the same type of consumer in the rest of Canada.

Similarly, large-power consumers in Ontario continue to pay the highest electricity cost in Canada, and the rates significantly exceed those in some other major cities. In Toronto and Ottawa, the average electricity cost for large-power consumers including taxes in 2019 were 13.23¢/kWh and 12.56¢/kWh, respectively, whereas the same type of consumer in Montreal and Vancouver paid only 5.66¢/kWh and 6.39¢/kWh. In other words, large consumers in Toronto and Ottawa paid more than twice the rates paid by large consumers in Montreal and more than one-and-a-half times the prices paid by the same type of consumer in Vancouver. In addition, in 2019, the average electricity rate for large consumers in Canada outside Ontario was only 7.82¢/kWh, meaning that large-power consumers in Ontario paid almost 65% more than the cost to the same type of consumers in the rest of Canada.

Clearly, Ontario's electricity rates for large businesses and industries are still the highest among Canadian cities and the rates significantly exceed those in some other major cities. As shown in the previous section, the new Ontario government has not achieved any meaningful reductions in the Global Adjustment (GA), which has been the main driver of rising electricity cost in the province. Despite the government's promise to reduce electricity rates, almost all types of consumers in Ontario continue to pay higher electricity prices.

4. Feasible Reforms to Reduce the Cost of Electricity in Ontario

Instead of borrowing money to reduce the current electricity rates, and thereby increasing the annual deficit and net debt of the province, the government must find ways to reduce the Global Adjustment.

From 2011 to 2019 the Ontario Energy Board (OEB) has published Regulated Price Plan (RPP) reports with details about the allocation of GA revenues across four large groupings. We will use the data from these reports to analyze the main drivers of the GA. **Table 3** breaks down the GA into its components by their total cost from 2011 to 2019. The latest report (OEB, 2019) breaks down the GA allocations over 2018/19 as follows: \$4.1 billion for renewable power generators; \$4 billion for prescribed nuclear and hydroelectric generators; \$0.1 billion for Non-Utility Generators (NGUs) and others; and \$3.9 billion for energy-conservations programs, gas capacity and Bruce Nuclear. As shown, payments to renewable energy sources are still the largest single component of the GA, accounting for about 34%. Payments to nuclear and hydroelectric generators are also a major component of the GA, accounting for 33%. Conservation programs, gas capacity, and Bruce Nuclear made up about 32% of the GA.

The Ontario Energy Board also estimates the percentage of Ontario's electricity supply attributable to different generation sources, the percentage of GA for each type of generation source, and the total unit costs for each generation course. **Table 4** presents this data for the period from May 2019 to April 2020. As shown, nuclear power is the most significant contributor to the electricity supply, accounting for 55% of the electricity output. Hydroelectric is next at almost 25%. Wind (8%), solar (2%), and bioenergy (1%) generate about 11% of Ontario's electricity output.

While nuclear and hydroelectric power generate the majority of Ontario's electricity output, their generators receive much lower rates than wind, solar, and biofuel generators. The rate paid to solar generators (48.1¢/kWh) is more than six times the rate paid to nuclear generators (8¢/kWh), and more than seven times the rate paid to hydroelectric generators (6.3¢/kWh).

Table 3: Breakdown of Global Adjustment components in Ontario, by cost (\$ billions), 2011–2019

	Renewable power generators	Prescribed OPG ¹ nuclear and hydroelectric generators	Non-Utility Generators (NUGs) and others	Conservation programs, gas capacity, and Bruce Nuclear
2018/19	4.1	4.0	0.1	3.9
2017/18	4.2	2.6	0.3	4.1
2016/17	3.8	3.2	0.6	4.0
2015/16	3.2	3.0	0.7	3.6
2014/15	3.0	1.7	0.8	3.2
2013/14	1.9	2.4	1.0	3.5
2012/13	1.3	2.0	1.2	3.1
2011/12	0.8	0.7	0.8	1.6

Note 1: OPG = Ontario Power Generation Inc.

Sources: OEB, 2019; Aliakbari, McKittrick, and Stedman, 2018.

Table 4: Percentage of supply and Global Adjustment, and average generation costs (cents/kWh) in Ontario, by fuel type, 2019/20

Fuel type	Percentage of electricity supply	Percentage of Global Adjustment	Total unit cost (cents/kWh)
Nuclear	55	43	8.0
Hydroelectric	25	13	6.3
Gas	9	12	13.2
Wind	8	14	14.8
Solar	2	13	48.1
Bioenergy	1	2	23.0

Source: OEB, 2019

Much of the GA is driven by the difference between a provincially guaranteed payment and the Hourly Ontario Energy Price (HOEP). As the HOEP goes down the province's liability to generators covered by revenue guarantees grows. As shown in figure 1 (p. 7), the HOEP is very low and, on a daily basis, frequently is zero. This is a commonly observed phenomenon in power systems with large renewables components (Starn, 2018; Amelang and Appun, 2018). Why do generators offer power on the wholesale market for free? Because those who operate with revenue guarantees do not care what the wholesale price is, they will get the guaranteed price from the government, so

they are instead trying to maximize their market share by slashing their offer prices. In doing so, they drive down the market price even for the traditional generators (like nuclear and hydroelectric) who would otherwise offer at wholesale rates much closer to traditional market levels.

Virtually all generators in Ontario now operate under rate guarantees, although not all the rates are publicly known. For hydroelectric plants, the guaranteed rate is 4.55¢/kWh, for OPG nuclear it is 8.97¢/kWh, and for Bruce Nuclear it is 6.57¢/kWh (OEB, 2019). Prices for Non-Utility Generators (NUGs) are not published. For early solar contracts (under the RESOP program), the rate was 42¢/kWh. Recent rates for biogas and solar range from 17.9¢/kWh to 21.3¢/kWh (IESO, 2019c). Individual wind-power contract prices are not known but the standard feed-in-tariff rate offer when the *Green Energy Act* was introduced was 13.5¢/kWh. Thus, many generators have rate guarantees far above traditional market wholesale prices and this heavily distorts their supply behaviour. This in turn amplifies the GA costs throughout the market. If, for example, wind-power producers enter zero-price bids to maximize market share, it drives down the price paid to everyone else and thereby drives up the Global Adjustment liability throughout the entire electricity system, not just for wind companies.

What to do?

In order to reduce power prices, therefore, the Province needs to put a stop to distortionary bidding practices. One way would be to set new, low limits on the amount of capacity for which generators will be given guaranteed prices so that the HOEP returns to realistic wholesale price levels and the liabilities under the Global Adjustment can be slashed. Another would be simply to revise downward the guaranteed rates, especially for renewable contracts where they are very high.

Any of these measures would require changing the terms of existing supply contracts. We have recommended previously that the Ontario government should use legislative measures to cancel Ontario's funding commitments to renewable energy sources under the FIT contracts (Aliakbari, McKittrick, and Stedman, 2018). There is a particularly compelling case for this in regard to solar and bioenergy generators. As shown in the table 3, payments to solar and bioenergy generators account for 15% of the GA, yet they generate only 3% of Ontario's electricity. If they were removed from the system altogether and replaced with increased output from another source operating at break-even with respect to any revenue guarantees (in other words, it only earns the HOEP), the GA could be reduced by 15%. In fact, it would likely decline more than that because

the GA amount owing to nuclear plants would also decline as the HOEP goes up. The benefit for consumers from the reduced GA would be partly offset by an increase in the HOEP, but the net effect would be a reduction in the electricity price.

If, in addition, supply contracts with wind-energy companies were revised so that half or less of their historical output were given the contracted (guaranteed) rate, and the remainder were subsequently paid only the HOEP with no guaranteed access to the market, this would also remove a source of the pressure for zero HOEP bids, raising the wholesale price and reducing the GA liability by more than enough to yield a net reduction in the electricity commodity cost.

In terms of the legalities surrounding the cancellation of the FIT contracts, legal scholar and Queen's Law Professor Bruce Pardy concluded in a 2014 analysis that the government of Ontario could pass laws to change or cancel legally binding agreements as long as it acts within its constitutional jurisdiction and uses unambiguous statutory language. Provincial governments, of course, clearly have subject-matter jurisdiction over electricity generation, and in Canada there is no constitutional right to compensation for expropriated property (Pardy, 2014; Aliakbari, McKittrick, and Stedman, 2018). In order to avoid liability for compensation pursuant to the terms of the contracts, the government must proceed by passing explicit legislation. Simply cancelling the contracts as an administrative or policy directive without properly worded legislation could easily result in enormous compensation liabilities for the government.

Conclusion

Ontario used to have low electricity costs. However, poor government policy decisions have resulted in surging Global Adjustment (GA) rates, leading to skyrocketing electricity prices for all Ontarians.

Ontario's new government has committed to lowering the cost of electricity in the province. It has implemented a series of measures including cancelling 758 renewable power contracts, repealing the *Green Energy Act*, eliminating a number of conservation programs, and reforming the administration of the so-called Fair Hydro Plan. However, despite the several measures implemented by the new Ontario government, the primary driver of rising electricity cost in the province—the Global Adjustment—continues to rise. Specifically, the real GA increased by 13% from June 2018 (when the new government was elected) to June 2019. In addition, examining the recent changes in electricity costs in Ontario reveals that, between April 2018 (before the new government was elected) and April 2019 (almost 10 months after the election), almost all types of consumers in Toronto and Ottawa experienced increases in their bill for electricity.

Breaking down the GA into its components reveals that payments to renewable energy sources are still the largest single component of the GA, accounting for about 34%. Therefore, as we have recommended previously, the new Ontario government should use legislative measures to cancel Ontario's funding commitments to renewable energy sources under the FIT contracts. There is a particularly compelling case for this in regard to solar and bioenergy generators as payments to these generators account for 15% of the GA, yet they generate only 3% of Ontario's electricity.

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