
Electricity Prices – Residential

Transition 2018
Top Issue Briefing
Working Draft

CONFIDENTIAL DRAFT

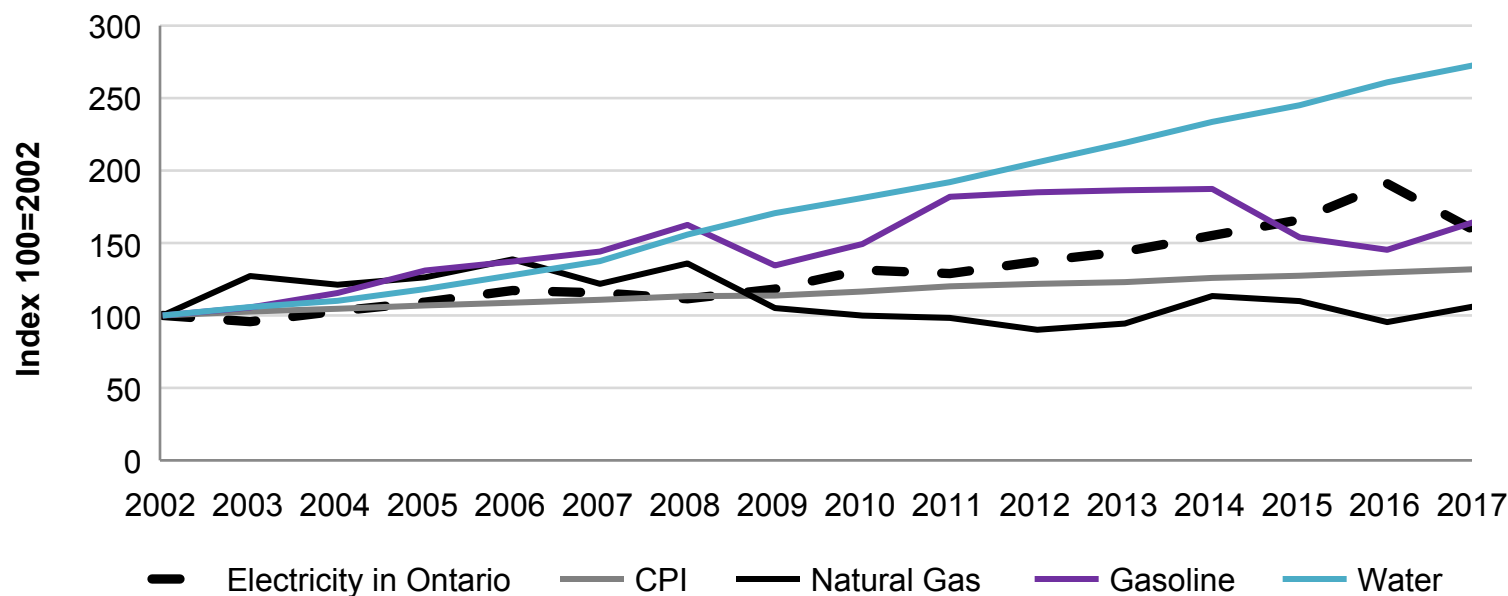
Overview

- To provide an overview of residential electricity prices and current pricing issues in Ontario, including:
 - Historical, current and forecast for residential electricity bills;
 - Existing electricity rate mitigation programs; and
 - Considerations and Next Steps.

Historical Electricity Prices

- For more than a decade, electricity prices in Ontario increased more than in most other North American jurisdictions and outpaced the overall rate of inflation.
- This long-term increase in electricity prices has been the result of the addition of significant generation capacity, including new natural-gas fired generation, renewables (e.g., wind and solar) and refurbished nuclear, as well as the cost of upgrading and maintaining the province's distribution and transmission infrastructure.

Electricity Prices vs. Other Commodities Ontario



Source: Statistics Canada

Current Residential Electricity Bill

- The table below shows the make-up of a monthly electricity bill for a consumer using 750 kWh for May 2018.
 - It should be noted that electricity bills can vary depending on consumption (i.e., electric heat) or local distribution company.
 - In addition, some residential consumers sign contracts with electricity retailers for the wholesale market price of electricity. The rates charged by retailers are generally higher than the market rate.

Components of a Typical Residential Electricity Bill

Bill Components	Monthly Cost (For a Typical Consumer in Toronto)	Notes
Electricity	\$61	Covers the cost of generating electricity and conservation and demand management programs. Consumers with contracts with electricity retailers pay a different rate than that listed
Delivery	\$52	Associated with the cost of delivering electricity from generators to customers
Regulatory	\$3	Recovers the costs of administering the wholesale electricity system and maintaining the reliability of the provincial grid
HST	\$15	Applied at a rate of 13 per cent; consists of a provincial portion of 8 per cent and a federal portion of 5 per cent
Ontario Rebate for Electricity Consumers (OREC)	-\$9	An 8 per cent reduction on pre-tax electricity charges equivalent to the provincial portion of HST
Total	\$123	

Note: Sum of components do not add to the Total due to rounding.

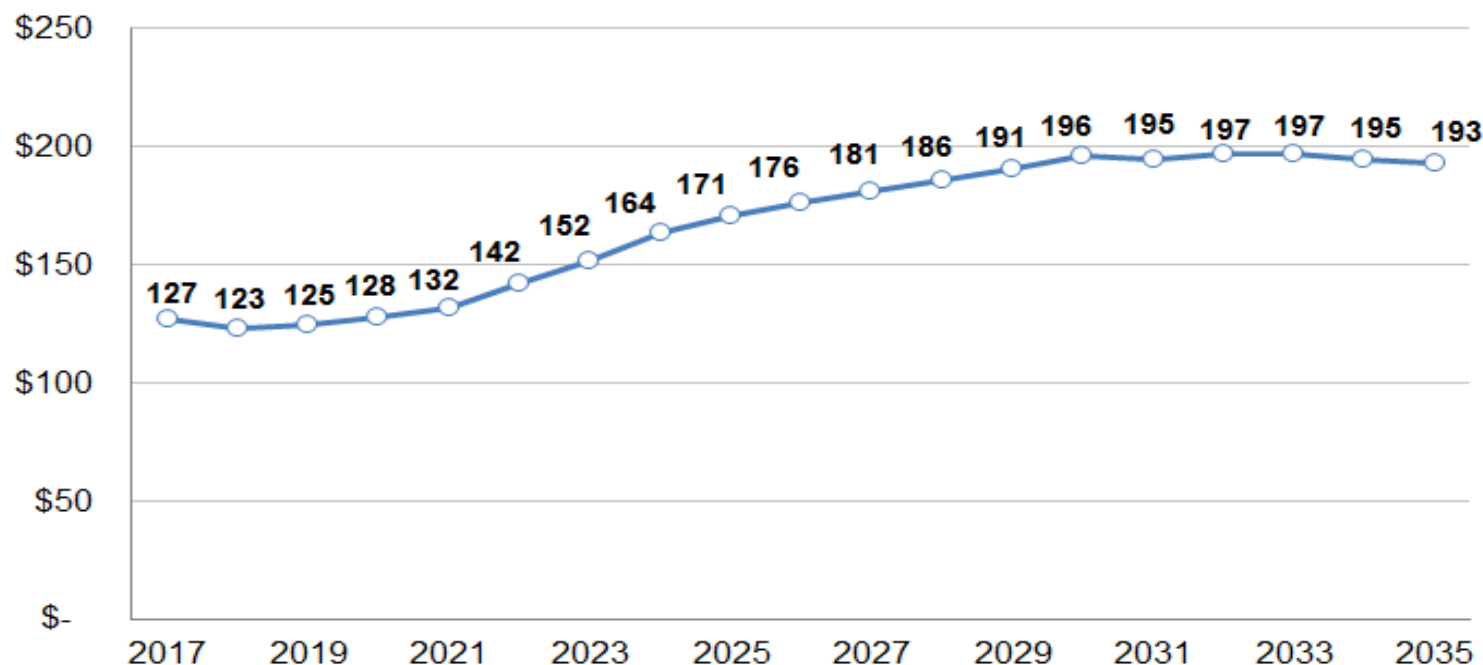
Source: Toronto Hydro, Ministry of Energy

Long-Term Electricity Price Outlook

- After being held to the level of inflation in the near term, prices are expected to increase at a faster rate than inflation beginning in 2021, primarily as a result of recovering deferred global adjustment (GA) charges.

Typical Residential Monthly Bill

750 kWh, After Taxes



Source: 2017 Long-Term Energy Program (2017 LTEP)

Current Rate Mitigation Activities

Global Adjustment Refinancing

- On June 1, 2017, the *Fair Hydro Act, 2017* received Royal Assent. Under the Act, a portion of the Global Adjustment (GA) is being refinanced, allowing for an immediate reduction in the amount of GA payable by eligible consumers (“specified consumers” under the Act).
 - Ontario Regulation 195/17, made under the Act requires the OEB to calculate Regulated Price Plan (RPP) rates for the period from May 1, 2018 – April 30, 2019 such that the typical bill increases by the rate of inflation.
- Specified consumers include all consumers eligible for the Ontario Energy Board’s RPP, including all residents and most small businesses, as well as farms and long-term care homes.
- On July 1, 2017, the OEB set prices to reflect full implementation, reducing bills from \$162 to \$121 for a typical consumer when combined with other initiatives.
 - In April 2018 the OEB announced new RPP prices that are in effect May 1, 2018 until April 30, 2019 that have the effect of increasing a typical residential consumer’s bill by 1.6 per cent (i.e., the rate of inflation) relative to July 1, 2018. New RPP prices are as follows:

	Price (cents / kWh)	Change from Previous Prices
Off-Peak	6.5	No change
Mid-Peak	9.4	Down 0.1 cents / kWh
On-Peak	13.2	No change

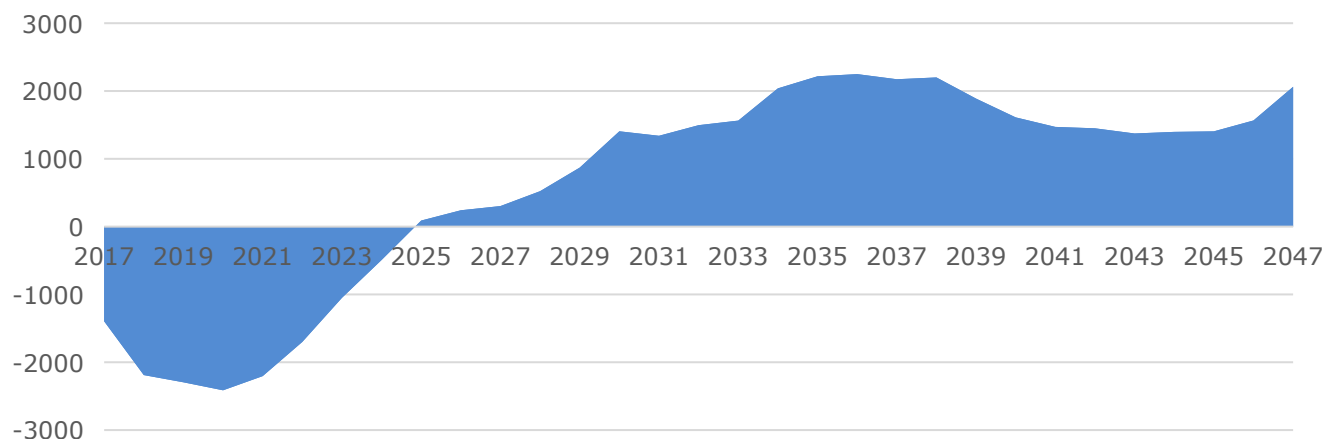
Source: Ontario Energy Board

Current Rate Mitigation Activities (cont'd)

GA Refinancing (cont'd)

- Debt is being issued in order to finance the deferred GA (i.e. the shortfall between reduced GA collected from ratepayers and the Independent Electricity System Operator's (IESO) settlement obligations to generators). Under the program, deferred GA and the cost of refinancing will be recovered from ratepayers in later years through "Clean Energy Adjustments" (CEAs).
 - Ontario Power Generation (OPG) is appointed as the Financial Services Manager under the Act, and is responsible for developing a Financing Plan and establishing a financing entity (i.e., the Fair Hydro Trust) through which debt obligations are incurred and managed.
- OPG concluded its first two offerings of long-term debt on February 6, 2018 and April 24, 2018 with weighted average interest rates of 3.53 per cent and 3.71 per cent, respectively. According to OPG, the weighted average interest rate for all long term debt, including both issuances, is currently 3.6 per cent.

Borrowing and Repayment (\$M)



Note: Based on Ministry forecasts consistent with the Fair Allocation Amount provided to OPG in September 2017. Forecasted debt assumes a 5% average interest rate over the 30-year life of the program and includes estimates of OPG fees. Estimates are subject to change based on a number of variables, including interest rates.

Source: Ministry of Energy

Current Rate Mitigation Activities (cont'd)

Conservation Programs

- Conservation investments support a suite of programs that help households manage their electricity bills, through the installation of energy saving measures, or information and awareness to support the efficient use of energy.
- Each program and portfolio of programs must pass required cost-effectiveness tests (exceptions for low-income, Indigenous and educational programs), which demonstrate that benefits (avoided system costs) outweigh program delivery costs.
 - Save on Energy for Home Programs: Offered by LDCs and the IESO, provide incentives and rebates for a variety of measures to help households become more energy efficient (e.g. furnace rebates, smart thermostat rebates, discounts on energy-efficient products like LEDs, powerbars, and more).
 - The Save On Energy Home Assistance Program: Helps income-eligible customers by providing home energy assessments and electricity savings measures at no cost (e.g. appliances such as refrigerators and window air-conditioners, insulation services and more).

Time-of-Use Pricing

- Time-of-Use (TOU) pricing was first introduced in 2005 and by 2011 the majority of residential consumers had been shifted to TOU. Currently, nearly all of the 4.6 million residential electricity consumers are charged electricity based on TOU rates (2018-2019 RPP TOU prices are shown on slide 7).
- Electricity consumers that shift their electricity usage away from on-peak hours, when TOU rates are higher, can achieve bill savings. However, several studies, including one undertaken for the OEB in 2013 and another by the IESO in 2016, have found limited responsiveness to TOU rates (on-peak shifting of 1-3 per cent). Currently, a typical RPP consumer's consumption profile is 65 per cent off-peak, 17 per cent mid-peak and 18 per cent on-peak.

Current Rate Mitigation Activities (cont'd)

Time-of-Use Pricing (cont'd)

- TOU pricing has faced criticism from the Environmental Commissioners and Auditor General, both of whom have argued that TOU rates should have a higher on-peak to off-peak ratio to deter electricity usage during peak periods. On the other hand, some consumers and stakeholders have complained that TOU rates punish seniors and others that are home during the day.
- As part of the OEB's RPP Roadmap, the OEB is working with distributors to pilot new pricing and non-pricing (e.g. information) options, to inform new price plans that could be made available to all RPP-eligible customers.
- Pilots are being undertaken in select communities across the province that are testing a variety of innovative price structures.
 - Pilot project proposals from Alectra, London Hydro, Oshawa PUC, Hydro One and Customer First have been approved by the OEB and are starting to be introduced in Q2 2018.
 - Combined, the RPP pilots will be accessible to approximately 26,500 customers.
- The OEB will report back to the Ministry on a framework for future price plan(s) in 2020.

Example Pilot Testing Elements

Pilot Testing Elements	Description
Critical peak pricing (CPP)	Increases prices for a fixed number of days/hours of the year when demand is expected to be high.
Enhanced TOU	Increases the current on-to-off peak TOU ratio.
Seasonal TOU	Offers flat rates in shoulder seasons of spring and autumn, eliminates the mid-peak period, and increases the on-to-off peak ratio in the summer and winter.

Current Rate Mitigation Activities (cont'd)

Rural or Remote Rate Protection (RRRP)

- RRRP has existed in some fashion since the 1980s. It provides for a reduction in distribution system costs for customers living in low-density areas where the cost to distribute electricity is considerably higher.
- Currently RRRP provides support in the following ways:
 - Customers of Hydro One's R2 (low density) residential rate class, approximately 330,000 customers, receive a fixed credit of \$60.50/month. Since 2017, this is funded through the tax-base.
 - Algoma Power and Hydro One Communities Inc. receive support from RRRP to bring down their distribution costs prior to billing their customers. This is funded through the rat- base – the average residential customer in Ontario pays \$0.23/month in RRRP.

Distribution Rate Protection (DRP)

- In 2017, a new distribution rate protection program was created to provide distribution charge relief to eligible residential customers served by LDCs with the highest distribution costs.
- Roughly 750,000 customers, served by the following LDCs, receive benefits from the broadened program: Hydro One (R1 and R2 rate classes), Algoma Power, Atikokan Hydro, InnPower, Chapleau Public Utilities Commission, Sioux Lookout Hydro, Lakeland Power (Parry Sound), and Northern Ontario Wires Inc.
- The program requires the Ontario Energy Board to set a maximum monthly distribution charge that customers of these LDCs pay. The charge is currently set at \$36.43/month.
- This program is funded through appropriated provincial funds (i.e., the tax-base).

Current Rate Mitigation Activities (cont'd)

Ontario Electricity Support Program

- The Ontario Electricity Support Program (OESP) was launched on January 1, 2016. It replaced the Ontario Clean Energy Benefit, which ended on December 31, 2015.
 - The OESP provides an ongoing rate reduction directly on the bills of low-income electricity consumers who have applied and meet the eligibility requirements.
- New eligibility categories and rates came into effect on May 1, 2017:
 - The fixed monthly credit eligible electricity consumers receive is determined based on household after-tax income and household size. Credit amounts range between \$35 and \$75 per month.
 - Consumers who face unique challenges with respect to electricity affordability and outreach receive higher credit amounts ranging from \$52 to \$113 per month. This includes Indigenous consumers, consumers who use electric heating as the primary source of heating, and households using certain electricity-intensive medical devices.
 - Eligibility for the OESP lasts two years, or five years for seniors (65+ and older) receiving a disability benefit under the Canadian Pension Plan.
- As of the end of March 2018, 225,307 households are receiving OESP.
- This program is funded through appropriated provincial funds and administered by the Ontario Energy Board (OEB)

Current Rate Mitigation Activities

Additional Tax-base Programs

- Ontario Rebate for Electricity Consumers: An 8% reduction on pre-tax electricity charges equivalent to the provincial portion of HST.
- Affordability Fund: Launched with \$100 million in government funding, the program provides energy efficiency improvements to homes of Ontarians who do not qualify for low-income conservation programs, and who could not undertake these improvements without support.
- First Nations Delivery Credit: A 100 per cent rebate of the Delivery line for First Nations residential customers living on-reserve.
- Northern Ontario Electricity Credit: A tax credit that can save a single person up to \$148 per year, and a family up to \$227 per year.
- Energy and Property Tax Credit: A tax credit that saves qualifying individuals up to \$1,023 per year, with a maximum of \$1,165 per year for qualifying seniors.

Considerations

Further Rate Mitigation

- Under the *Fair Hydro Act*, the commodity prices for residential electricity consumers are set by the government through regulation. Rates are currently prescribed by regulation to the end of April 2019.
- Further lowering of current or future rates could be achieved through regulatory amendments, however there is limited ability to achieve sustained reductions under the framework within the Act. Additionally, further reductions would also put upward pressure on ratepayers in the longer term as deferred charges are recovered.
 - Longer-term upward pressure on bills could be mitigated through tax-based funding.
- Further analysis is needed before changes to the RPP price structure are implemented more broadly:
 - RPP pilots will provide information about customer understanding of alternative pricing plans, and their responsiveness to price changes.
 - Making changes to RPP price plans without this information could lead to cross-subsidies between customers and, under Global Adjustment refinancing, could add refinancing costs beyond those forecast.
- Market renewal could lead to further savings in the long-term, although the projected savings achieved are included in the current forecast.

Considerations (cont'd)

Jurisdictional Comparison

- Although comparing Ontario electricity prices with U.S. state prices can be useful, it has limitations. There is no such thing as a single “Ontario price” or a “Michigan price”, for the following reasons:
 - Location: Jurisdictions typically have more than one utility, each with a different geographic service territory and rate schedule. For example, while consumers in Ontario pay the same for electricity regardless of location. Note: Delivery charges vary by local distribution company.
 - Consumption Profiles: Published prices are constructed based on typical consumers. To the extent that not all consumers are typical, prices will differ. For example, a consumer with electric heating would have a much different consumption profile than a typical consumer, leading to a difference in prices paid.
 - Support programs: Posted prices generally do not reflect government programs, such as the Ontario Electricity Support program (OESP).
 - Exchange Rates: Prices for U.S. states are reported in U.S. dollars. If converted to Canadian dollars, the comparison may not be totally meaningful, as exchange rates often reflect macroeconomic conditions that are unrelated to electricity prices.
- There are a handful of public sources that report on electricity prices in Canadian provinces and U.S. states, such as the U.S. Energy Information Administration (EIA).
 - These price comparisons can be helpful in order to better understand how Ontario’s residential electricity prices compare to other North American jurisdictions.
 - Supply mix is the largest determinant of electricity prices. Jurisdictions with significant hydroelectricity tend to have the lowest electricity prices. Note: Higher proportions of renewables can result in higher prices.

Considerations (cont'd)

Jurisdiction Comparison

- Based on the latest information, Ontario's residential electricity price is above the Canadian average and below the U.S. average.
- The table below compares residential electricity prices in Ontario to the Canadian and U.S. averages.

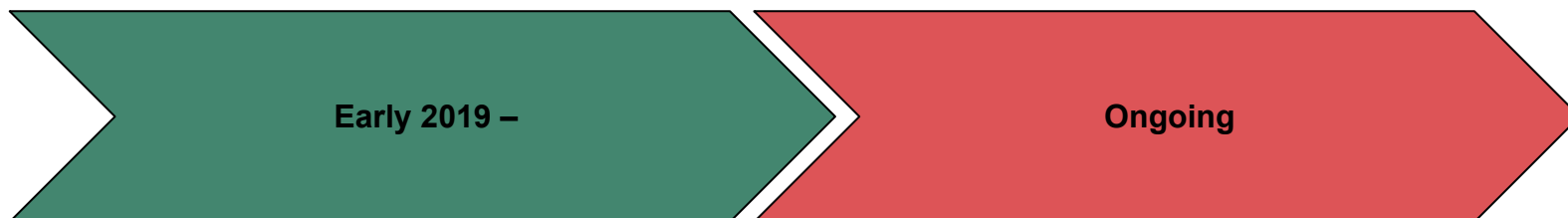
Jurisdictions	Electricity Price (Canadian ¢/kWh)
Ontario	15.35
Canadian average	12.77
U.S. average	18.30

Note: The national averages presented are the simple averages of the jurisdictions for each country.

Source: EIA, Hydro Quebec.

Key Near-Term Government Decisions

- Government decisions that may materialize over the course of the near-term include:



- OEB is expected to set new Regulated Price Plan (RPP) rates that will come into effect May 1, 2019.
- The Ministry will monitor the results of several OEB pricing pilots, and will conduct ongoing analysis to better inform government on future electricity pricing structure decisions.

Next Steps

- Currently, Regulated Price Plan (RPP) rates for consumers under the *Ontario Fair Hydro Plan Act* are set in *Ontario Regulation 195/17* through April 2019. Regulatory amendments are required to set rates for May 2019 and beyond.
- The Ministry is tracking the results of the OEB Pricing Pilots, as they become available, to determine if any of the tested pricing structures could be implemented for the province in the future.

Appendix

Jurisdictional Comparison

- The following table compares published residential electricity prices in Canadian provinces and U.S. states for 2017.

2017 Residential Electricity Prices (Canadian ¢/kWh)					
Jurisdiction	Cost	Jurisdiction	Cost	Jurisdiction	Cost
1 Quebec	7.45	18 Missouri	14.61	35 Saskatchewan	16.67
2 Manitoba	8.97	19 Montana	14.65	36 Arizona	16.74
3 British Columbia	10.27	20 Texas	15.10	37 Ohio	16.78
4 Alberta	11.11	21 North Carolina	15.32	38 Indiana	16.84
5 Newfoundland	11.68	22 Ontario - July	15.35	39 New Mexico	16.92
6 Louisiana	12.53	23 Wyoming	15.38	40 Alabama	17.03
7 Washington	12.64	24 Georgia	15.40	41 Prince Edward Island	17.24
8 Canadian Average	12.77	25 Virginia	15.41	42 Minnesota	17.46
9 Idaho	13.08	26 Florida	15.52	43 District of Columbia	17.55
10 New Brunswick	13.69	27 Mississippi	15.60	44 South Carolina	17.59
11 North Dakota	13.92	28 South Dakota	15.62	45 Illinois	17.69
12 Arkansas	13.94	29 Oklahoma	15.85	46 Kansas	18.20
13 Tennessee	14.31	30 West Virginia	15.91	48 Delaware	18.25
14 Oregon	14.32	31 Colorado	16.01	49 U.S. Average	18.30
15 Nebraska	14.32	32 Iowa	16.33	50 California	18.88
16 Utah	14.39	33 Nevada	16.51	51 California	18.88
17 Kentucky	14.42	34 Nova Scotia	16.51	52 Pennsylvania	19.38
				53 Wisconsin	19.97
				54 Michigan	20.64
				55 New Jersey	21.11
				56 Maine	21.51
				57 New York	23.20
				58 Vermont	23.75
				59 New Hampshire	25.47
				60 Rhode Island	26.32
				61 New England	26.36
				62 Connecticut	26.96
				63 Massachusetts	27.74
				64 Alaska	28.70
				65 Hawaii	40.64

Note: The Ontario residential prices are based on a Toronto Hydro time-of-use Regulated Price Plan (RPP) customer with a monthly consumption of 750 kWh, with 65% of consumption occurring off-peak, 17% occurring mid-peak, and 18% occurring on-peak.

Ontario - July illustrates typical residential prices as of July 1 2017, without the 8% rebate equivalent to HST.

All other Canadian prices are from the Hydro Quebec Rate Comparison for rates effective April 1, 2017 for select local distribution companies servicing specific cities. Where Hydro Quebec reports prices for two cities in a province (e.g. Calgary and Edmonton), an average of the two is used. In provinces where only one city is reported (e.g. Vancouver in BC, Montreal in QC), that one price is used to represent the province for indicative comparison purposes.

American jurisdictions reflect April 2017 data from the US Energy Information Administration's survey of approximately 500 of the largest utilities. The price reflects the average revenue reported by the utility from electricity sold to the residential sector. The value represents an estimated average retail price, but does not necessarily reflect the price charged to an individual consumer. National averages are the simple averages of the jurisdictions in the country. Prices are converted at an exchange rate of 1 USD = 1.34 CAD.

Source: Hydro Quebec; U.S. Energy Information Administration

GA Refinancing Impacts on Bills

- Under *Ontario Regulation 195/17*, made under the *Ontario Fair Hydro Plan Act*, the impacts of Global Adjustment (GA) refinancing are calculated based on a typical consumer with the following characteristics:
 - Customer of Toronto Hydro, consistent with previous Ministry forecasts;
 - 750 kWh monthly consumption, the average used by the Ontario Energy Board (OEB); and
 - Time-of-use customer that consumes 65 per cent off-peak, 17 per cent mid-peak, and 18 per cent on-peak, the average profile used by the OEB.
- Under the Act, the OEB was required, in 2017, to calculate Regulated Price Plan (RPP) rates that would result in a 25 per cent reduction for the typical consumer relative to what they would have paid in the absence of the Act.
 - The 25 per cent reduction includes the 8 per cent rebate and shifting of cost recovery for electricity support programs from electricity bills to provincial revenues.
 - The OEB also calculates a “GA Modifier”, or credit, to be applied to the bills of specified consumers who are not RPP customers, such as residents who have signed a contract with an electricity retailer.
- Actual impacts on consumer bills vary depending on their consumption, the rates charged by the local utility, and cost of retail contract where applicable.