

Electricity Price Mitigation

Ministry of Energy

WORKING DRAFT

Date:

Minister

Deputy Minister

Context

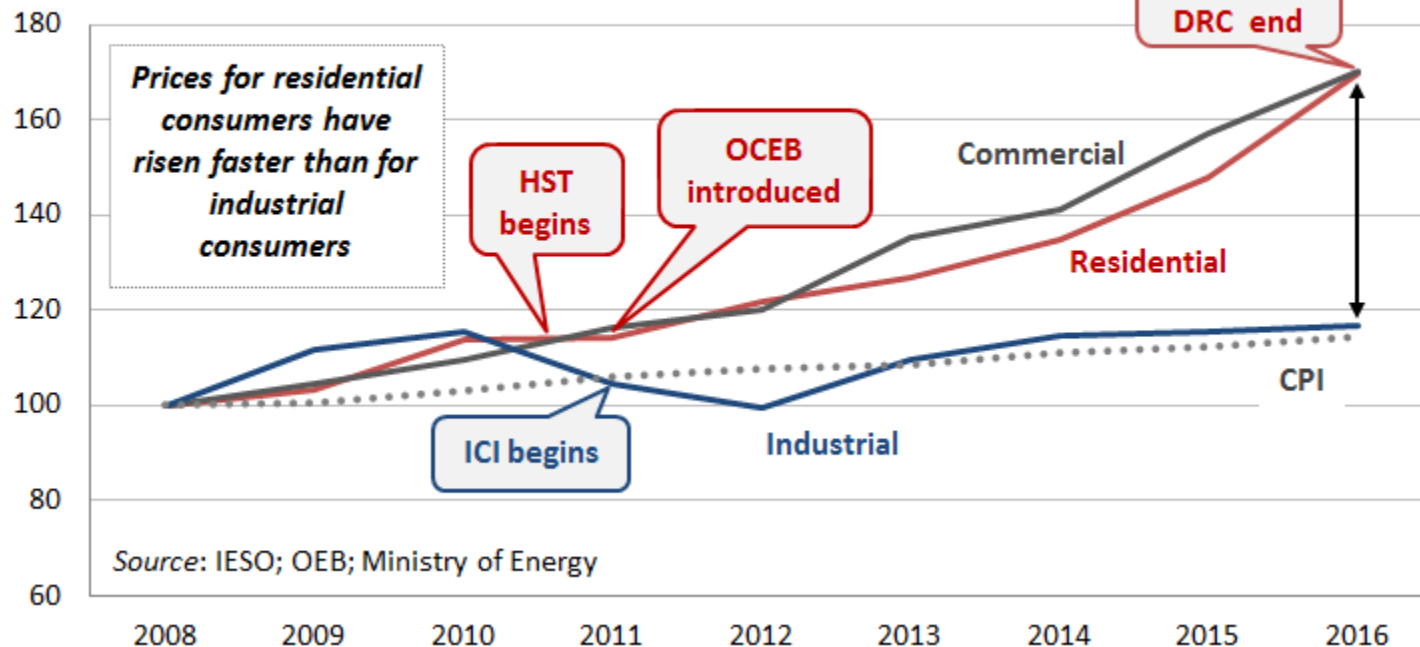
- Electricity costs are increasing as the necessary investments are made to decarbonize and modernize the province's electricity infrastructure (i.e., \$35 billion+ investment in cleaner generation and \$15.5 billion investment in Hydro One transmission and distribution systems).
- Ontario has taken a number of actions to lower electricity costs for all consumers by:
 - Deferring investments in generation (e.g., new build nuclear), improving market efficiency (e.g., wind dispatch) and decreasing the cost of renewable procurements (e.g., GEIA renegotiation, decreasing FIT prices, competitive LRP).
 - Increasing cost effectiveness and improving efficiency by adopting new electricity market approaches (e.g., no new NUG contracting and demand response).
- Following the 2016 Throne Speech, actions were announced to further reduce electricity costs by:
 - Providing an 8% rebate (\$11/month savings), updating RRRP (\$45/month savings), expanding ICI (up to one-third savings for participants) and suspending the LRP II and the EFWSOP (up to \$3.8 billion in cost savings).
- On November 28, 2016, the Minister of Energy announced the need for changes in how electricity resources are procured, the need for wholesale market renewal and greater electricity consumer choice.
- The Ministry of Energy is currently updating its Long-Term Energy Plan (LTEP), which provides an opportunity to consider a range of policy changes to how the Ontario energy sector operates.

Context (Cont'd)

- Electricity price increases have generally outpaced inflation. There have been several government policies that have impacted electricity prices over the past several years, including: HST, the Industrial Conservation Initiative, the Ontario Clean Energy Benefit (OCEB) and the Debt Retirement Charge (DRC).

Illustrative Electricity Prices by Customer Type

Index (2008 = 100)



Rate Mitigation Proposal

- In recognition of the costs borne by ratepayers related to decarbonizing and modernizing the province's electricity sector, options for further rate mitigation include:
 - 1) Helping the most vulnerable by enhancing electricity support programs and shifting cost onto the tax-base:
 - Rural or Remote Electricity Rate Protection (RRRP) Enhancement (Delivery Charge Relief);
 - Ontario Electricity Support Program (OESP) Expansion;
 - LDC Affordability Fund; and
 - First Nations Rate.
 - 2) Ongoing activities to bend the future cost curve of electricity:
 - Ontario Energy Board (OEB) – Identify opportunities for OEB red-tape reduction and future LDC efficiencies and rates.
 - Independent Electricity System Operator (IESO) – Modernize Ontario's electricity market through electricity Market Renewal initiatives.
 - 3) Smoothing the global adjustment (GA) to provide significant and immediate rate relief through cost deferral of the GA:
 - Implementation Model.
 - Smoothing Mechanism; and
- The following slides provide additional information on the above initiatives.

ELECTRICITY SUPPORT PROGRAMS TO HELP THE MOST VULNERABLE

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Electricity Support Programs to Help the Most Vulnerable

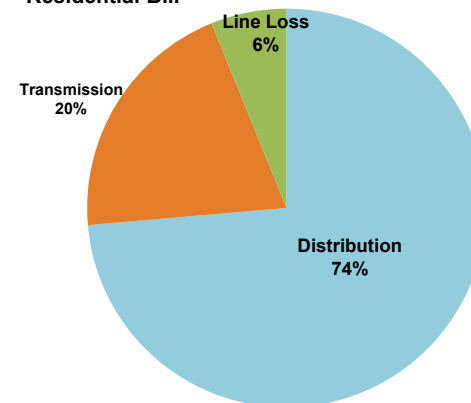
- In addition to broad electricity relief provided by the smoothing of Global Adjustment, there is opportunity to create and expand programs designed to support a more targeted subset of customers who are disproportionately affected by increased electricity costs.
- These customers include:
 - **High Delivery Cost Customers:** Customers in rural areas and other areas where the cost to delivery electricity is high can experience difficulty in reducing their electricity bill through conservation, particularly when reliant on electric heating.
 - **Low-Income Customers:** Rising electricity costs make up a disproportionately large amount of the household expenditures for low-income households.
 - **On-Reserve Customers:** On-Reserve First Nations customers experience challenges with energy affordability and are seeking to address historical grievances associated with electricity system infrastructure.
- To provide targeted assistance to the customers and alleviate electricity cost burden, ENERGY proposes to:
 - a. Enhance Rural or Remote Rate Protection (RRRP) by funding its costs through the tax base and providing additional support to customers of designated Hydro One rate classes and/or other high distribution cost Local Distribution Companies (LDCs).
 - b. Enhance Ontario Electricity Support Program (OESP) by funding its costs through the tax base and increasing eligible benefits by 50%.
 - c. Establish an LDC Affordability Fund, providing energy efficiency measures at no or minimal cost to those struggling to pay electricity bills and are ineligible for low-income conservation or support programs.
 - d. Establish a First Nations Delivery Credit (FNDC) program, funded through the tax base, to remove Delivery charges for on-reserve First Nations customers.

Delivery Charge Relief – Background

- The **Delivery** line on a typical consumer bill accounts for roughly 25-35% of the total bill before taxes.
- Delivery covers the costs of getting electricity from generating stations across the province to homes and businesses and combines three cost components of the electricity sector into one line item charge:
 - Transmission:** The costs of moving electricity across high voltage lines from generating stations to the distribution system. This cost is recovered through a variable charge that is approved by the OEB.
 - Distribution:** The costs of moving electricity from the transmission system to homes and businesses. Depending on the LDC, distribution costs makes up about 60% to 80% of the Delivery line.
 - This cost is currently recovered through both a variable charge and fixed charge, approved by the OEB. Distribution rates are moving to a fully-fixed charge over next 5 years.
 - Line Loss:** The costs to recover electricity that is lost as heat when its delivered over a power line, as well as power theft. Each LDC is assigned by the OEB a specific line-loss adjustment factor to reflect their losses particular to their assets. This factor is multiplied against the monthly electricity cost to determine the monthly cost.

SAMPLE MONTHLY BILL STATEMENT Anytown Hydro-Electric Limited	
Account Number:	000 000 000 000 0000
Meter Number:	00000000
Your Electricity Charges	
Electricity	
Off-Peak @ 8.700 ¢/kWh	41.20
Mid-Peak @ 13.200 ¢/kWh	16.35
On-Peak @ 18.00 ¢/kWh	23.60
Delivery	53.07
Regulatory Charges	
Debt Retirement Charge	4.79
	0.00
Total Electricity Charges	\$139.00
HST	18.07
8% Provincial Rebate	(11.12)
Total Amount	\$145.95

Cost breakdown of Delivery Line for an Average Residential Bill*



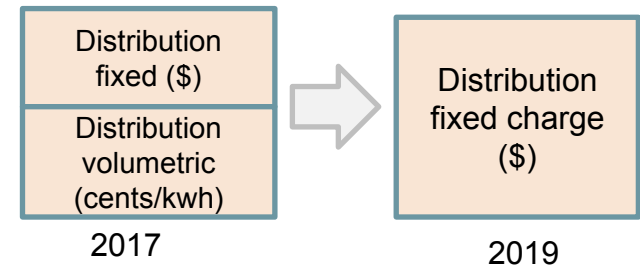
Cost Pressures for Customers of High-Cost LDCs

- There has been historic recognition of the cost pressures faced by some customers in the province, as well programs designed to mitigate those pressures.
- Rural or Remote Rate Protection (RRRP) mitigates some of the high costs of electricity distribution in rural or remote areas of the Province. It is a legacy program of the old Ontario Hydro and has existed in its current form since 2001.
- Part of the program helps fund the costs of Hydro One customers in the lowest density service territory. These customers are classified into the “R2” residential rate class.
 - From 2001-2016 the program provided \$125.4M to help defray these costs.
 - In the 2016 Speech from the Throne, this funding was expanded by \$116.4M to a total of \$241.9M.
 - As of Jan 2017 R2 customers receive \$60.50/month off their distribution costs.
- Notwithstanding recent efforts to provide additional rate relief to Hydro One’s R2 customers, more needs to be done to address the increasing cost pressures felt by R2 customers, as well as Hydro One’s R1 customers and other customers of high-cost LDCs.
- These customers are often faced with significantly high bills and are at increased risk of energy poverty. The higher than average consumption patterns coupled with higher than average distribution rates has resulted in monthly bills that are no longer affordable.

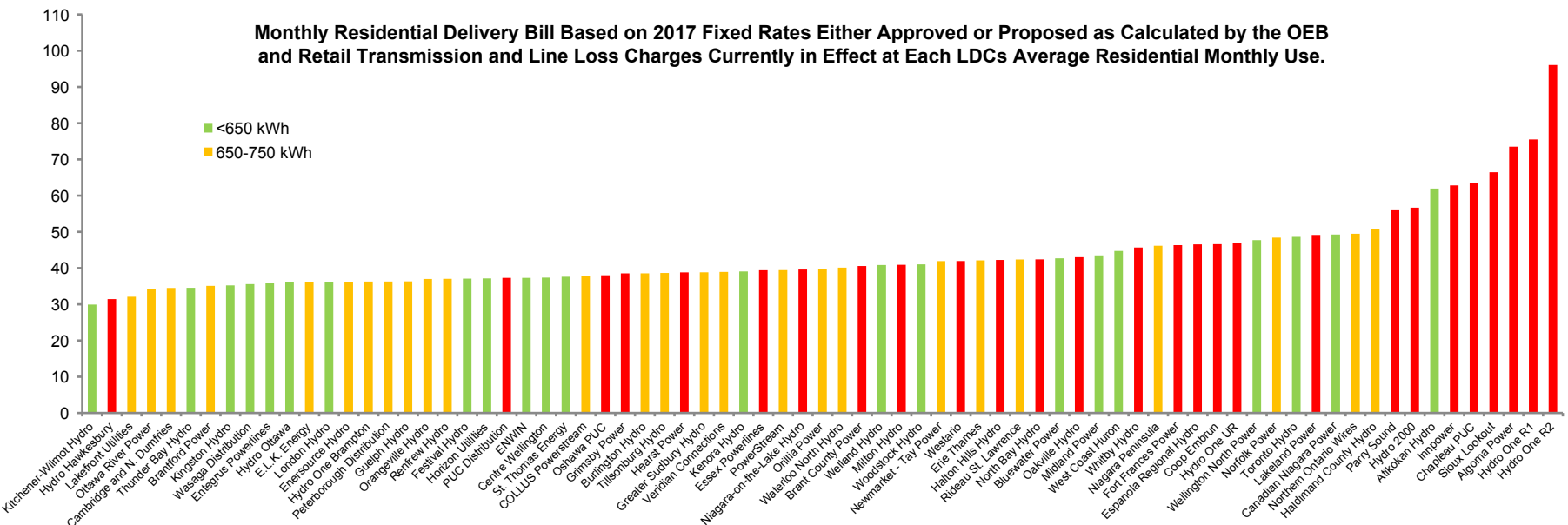


Moving to Fixed Distribution Rates

- Distribution charges are transitioning (2019-2020 for most LDCs, 2023 for Hydro One) from a mix of fixed and volumetric charges to a fully fixed charge. The OEB believe this is a more equitable way to charge for distribution service.
- There is opportunity to provide tax-based funding to accelerate the benefits of fixed rates for those who would see rates go down without impacting the phase in timeline for lower volume customers who will see their distribution costs rise.
- The table below shows what delivery costs would be by LDC if fixed rates were fully implemented in 2017.



- As LDCs transition to a single fixed charge to access the system, customers with the lowest consumption will pay more for distribution, while customers with high consumption will pay less.*



*2017 Approved and Proposed (Decisions Pending – rates are subject to change)

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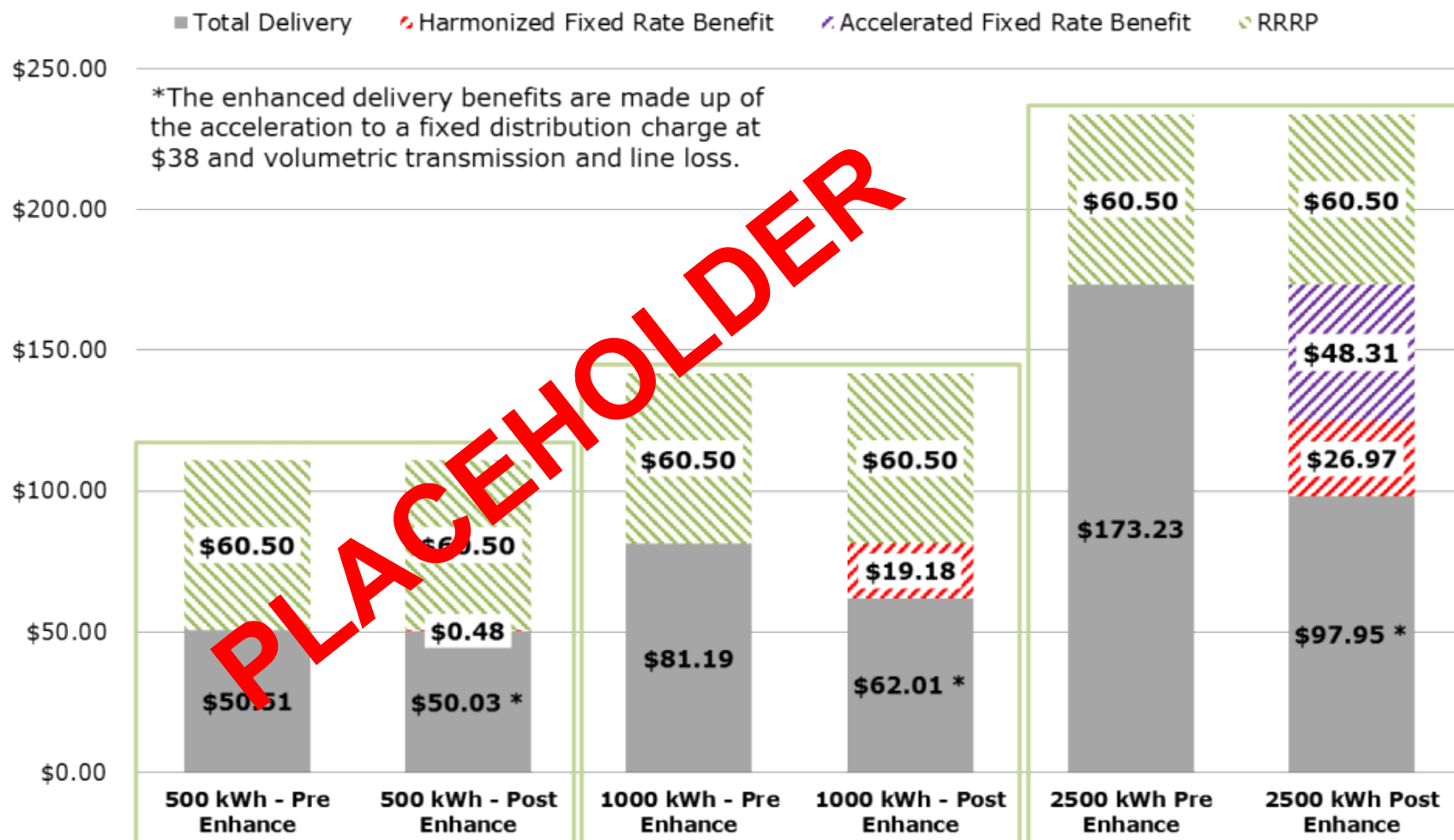
A. RRRP Enhancement – Accelerating Fixed Rate Benefit (cont'd)

- While Hydro One R1 and R2 customers pay the highest distribution rates, as outlined in the graph on the previous slide there are other relatively high-distribution cost LDCs
- These LDCs include Northern Ontario Wires, Lakeland, Parry Sound, Chapleau, Sioux Lookout, InnPower, Atitikion and Algoma.
 - Estimates of what the fixed monthly rate would be in each of these LDCs if fixed rates were fully implemented in 2017 range from \$38/month for Northern Ontario Wires to \$65/month for a Hydro One R2 customer.
- The following slides discuss the incremental ratepayer and fiscal impacts of accelerating the emergence of this benefit in three stages:
 - **Option 1:** Accelerating fixed rate benefits for Hydro One R2 & R1 consumers (cost decreases for ~260k consumers). Hydro One R1 consumers fixed distribution rate would be at \$55/month and R2 would be at \$65/month; and
 - **Option 2:** Accelerating fixed rate benefits for additional high cost LDCs (cost decreases for ~20k additional consumers)
 - **Option 3:** Harmonizing fixed rates at \$38/month for Hydro One R2, R1, and the high cost LDCs (enhanced benefits for all ~280k consumers and new cost decreases for ~420,000 consumers, for a total of ~700,000 consumers benefitting).
- The ratepayer impact charts on the next slides show the benefits consumers in each LDC would receive if the fiscal plan was used to support both accelerating costs to the unique fixed rate for each LDC (benefit shown in purple hatching) and harmonizing LDCs with the \$38/month fixed rate for the lowest cost LDC in the selected group (benefit shown in red hatching). Other aspects of the Delivery line would stay the same (Transmission charges and Line loss)

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**2017 Approved and Proposed (Decisions
Pending – rates are subject to change)*

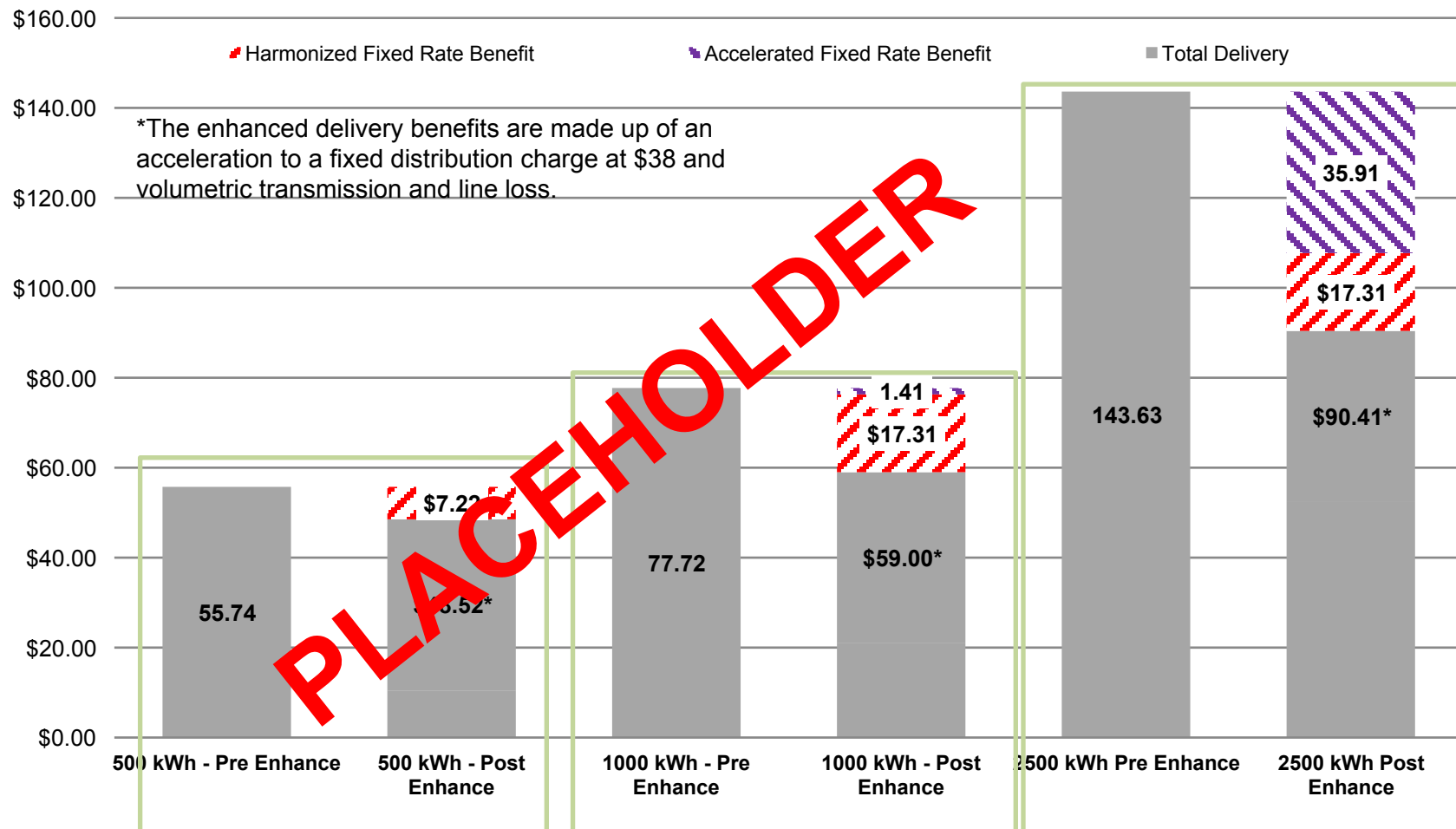
A. Option 2: Hydro One and Other LDCS – Accelerating Fixed Rate Benefit and Harmonizing Fixed Rate Benefit (Hydro One R2)



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Note: Rates are for 2017 (either approved or proposed)

A. Option 2: Hydro One and Other LDCS – Accelerating Fixed Rate Benefit and Harmonizing Fixed Rate Benefit (Hydro One R1)



Note: Rates are for 2017 (either approved or proposed)

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B. Ontario Electricity Support Program (OESP)

- The OESP is an income-tested, application based program that lowers electricity costs of the most vulnerable consumers and provides a rebate directly on bills.
- As outlined in the tables below there are two benefit scales
 - The first table outlines the basic program credits by income and household size. The credits range from \$30/month to \$50/month
 - The second table outlines an enhanced benefit credits for: Indigenous, electric heat consumers and certain medical devices. The credit ranges from \$45/month to \$75/month.
- As of February 3, 2017, over 278,000 applications for the OESP have been received by the Ontario Energy Board. This represents 50% of the total targeted low-income population as identified by the Low Income measure (target is 571,000 low income customers).

Table 1: Current base program credits

Sliding Scale #1		Household Size						
		1 Person	2 Persons	3 Persons	4 Persons	5 Persons	6 Persons	7 or More Persons
Income Bracket	< \$28,000	\$30	\$30	\$34	\$38	\$42	\$50	\$50
	\$28,001 - \$39,000	-	-	\$30	\$34	\$38	\$42	\$50
	\$39,001 - \$48,000	-	-	-	-	\$30	\$34	\$38
	\$48,000 - \$52,000	-	-	-	-	-	-	\$30

Table 2: Current enhanced program credits

Sliding Scale #2		Household Size						
		1 Person	2 Persons	3 Persons	4 Persons	5 Persons	6 Persons	7 or More Persons
Income Bracket	< \$28,000	\$45	\$45	\$50	\$55	\$60	\$75	\$75
	\$28,001 - \$39,000	-	-	\$45	\$50	\$55	\$60	\$75
	\$39,001 - \$48,000	-	-	-	-	\$45	\$50	\$55
	\$48,000 - \$52,000	-	-	-	-	-	-	\$45

B. Ontario Electricity Support Program (OESP)

- Under the proposed program enhancement, OESP credits could be increased by 50%.
 - This would mean that single low income consumers who receive the lowest credit amount would get an increase from \$30 to \$45/month (\$540/year), and the lowest credit for the enhanced scale would increase from \$45 to \$67.50 (\$810).
- Under the proposed funding source change, the OESP could be shifted from a charge levied on all, to funding from the tax base, given this is essentially a social program.
 - Average residential customer savings: \$0.83/month, and average industrial customer savings: \$1.10/MWh.
- At the time of program design, it was estimated that 40-50% participation would be high for an application-based program delivered through electricity bills. OESP participation can be enhanced by working to ensure the program uptake is as close as possible to 100%:
 - Streamlining the application process to make it easier / quicker to get through (e.g., an alternative to the requirement to mail-in a signed consent forms);
 - Putting in place a more aggressive communications strategy to make sure people are aware of the program; and
 - Exploring automatic OESP qualification for those who receive provincial programs (e.g., OW, ODSP).

C. Establishing a New LDC Affordability Fund

Need for Incremental Conservation Programs for Struggling Electricity Consumers

- In addition to measures to help customers save on future electricity bills, there is an immediate need to help customers in arrears or struggling with their electricity bills to ‘get back on track.’
 - At the end of 2015, there were over 560,000 residential electricity accounts in arrears; of these about 19,900 (~3.6%) accounts were eligible to participate in low-income conservation and support programs.
 - According to the Ontario Energy Board, in 2015 about 60,000 customers had their electricity service disconnected.
- For eligible low-income customers, the Home Assistance Program (HAP), delivered by LDCs under the Conservation First Framework, provides efficiency upgrades and education, at no cost, to help improve the energy efficiency and comfort of their homes.
- HAP does not address the need of those customers that are struggling and do not qualify as “low-income”.
- Other low-income financial assistance and conservation programs delivered by utilities include: OESP, Low Income Energy Assistance Program (LEAP) Emergency Financial Assistance, weatherization programs delivered by gas utilities (see Appendix for more details).

Proposal: Establish Affordability Fund to Provide Existing Low-Income Conservation Program to Other Struggling Electricity Customers

- The Ministry proposes establishing an Affordability Fund which would be available to LDCs to provide similar energy efficiency measures as provided under HAP to targeted customers.
- The Affordability Fund would not be used to provide grants or financial assistance to customers to forgive all or a portion of their arrears or electricity bill.

C. Establishing a New LDC Affordability Fund

Overview of the Home Assistance Program

- LDCs and the IESO have been delivering conservation programs since 2005.
- All programs are subject to Evaluation, Measurement & Verification and reporting of cost-effectiveness and other performance results.
- Conservation programs typically provide incentives that cover only a portion of the incremental cost of the more energy efficient measure. Programs require an upfront investment by customers.
- However, for eligible low-income customers, the Home Assistance Program (HAP), provides efficiency upgrades and education, *at no cost*, to help improve the energy efficiency and comfort of the homes of eligible low-income customers.
 - HAP eligibility is aligned with other low-income support programs such as the Ontario Electricity Support Program (OESP).
 - Energy efficiency measures under the Program include:
 - Energy-saving light bulbs (LEDs); power bars;
 - Energy efficient window ACs, refrigerators, freezers, dehumidifiers;
 - Low-flow showerheads, hot water blankets, pipe wrap and faucet aerators (in homes with electric water heating); and
 - Programmable thermostats, weather stripping, insulation (in homes with electric heating).
- As an example of HAP uptake and customer incentives: in 2016, ~2,500 Hydro One customers participated in the HAP program with an average measure cost of \$1,600 per customer.

C. Establishing a New LDC Affordability Fund

Fund details:

- An Affordability Fund would be accessible to LDCs only, and would support conservation and energy efficiency programs delivered by these utilities to struggling customers who do not meet the definition of low-income customers.
- The Fund would establish a cap on costs per participant (i.e., measures would be provided up to a certain cost for each participant), in order to ensure equitable/consistent benefits to eligible consumers.
- The Fund would target those customers who are most in need, such as those who are facing disconnection and who cannot qualify for the low-income programs.
 - Over time, the Fund could help these customers get back on track with their bills and also save on disconnection costs; and
 - The Fund would provide LDCs with a degree of flexibility and would be an additional tool to provide assistance to their customers.

Eligibility criteria/Fund principles:

- Determination of eligibility could involve a number of factors and metrics:
 - Do not meet the definition of “low-income”
 - May have triggered action by an LDC collection department (e.g., are in arrears, have been placed on one or more payment plans, are due to be disconnected, etc.).
 - Priority could be given to eligible customers in electrically-heated homes, or other unique circumstances.
 - Require financial assistance to pay for energy efficiency measures.
- ENERGY would form a Working Group before the Fund is established to develop the eligibility criteria/fund principles. The Working Group would include: OEB, LDCs, and potentially low-income organizations.

C. Establishing a New LDC Affordability Fund

Performance Measures

- Performance measures to be established for the Affordability Fund would include:
 - Program participation;
 - Number of disconnections avoided / customers out of arrears;
 - Customer profile information to inform future programs; and
 - Annual incremental kWh of electricity savings.

Implementation

- ENERGY is currently in discussions with several large LDCs to determine the feasibility of establishing a Fund and to identify a willing funding partner(s).
 - LDCs have over 10 years of experience in delivering conservation programs, including experience specific to contracting for programs that target low-income customers.
 - LDCs are best positioned to identify and target their customers who are most in need.
- To allow for funds to flow in FY 2016/17, ENERGY would sign a Transfer Payment Agreement (TPA) with one or several LDCs to administer the Fund.
- Funding would be available over the next two to three years, or sooner if fully deployed.

C. Establishing a New LDC Affordability Fund

Implementation (cont'd)

- Funding for the Affordability Fund will be provided as a one-time transfer of \$200 million in FY 2016/17. Given the scope of the Fund, an LDC would need a firm financial commitment up front before implementation.
 - LDCs rely on rate-payer funding for most of their activities. The Affordability Fund is a unique venture from an LDC perspective given that it is tax funded.
 - To ensure effective implementation, an LDC(s) will need to undertake significant pre-planning and ensure all necessary resources are in place. This includes hiring of back office administration staff (e.g. application evaluators, contract analysts etc.) and implementing the necessary reporting and auditing protocols.
 - The LDC(s) will need to undertake these actions in a relatively short timeline to ensure support is available to targeted customers as soon as possible.
 - There is an immediate need to address customers at risk of electricity service disconnection.
- The TPA would articulate a program plan that includes clear expectations for the use of funds and an outline of how the program will ensure the stated objectives are met.
- LDCs would apply for funding to the Fund administrator, to offer energy efficiency measures to those customers that meet the targeted eligibility criteria.
 - Recipients could receive measures similar to those available in the Home Assistance Program, e.g., weatherization, energy efficient appliances and lighting controls ranging from \$3,500 to \$5,000 per customer, at no or minimal cost. Consideration could also be given to including cold climate air source heat pumps for electrically heated homes.
 - As an illustration, with \$200 million, the estimated reach of the fund could be 15,000 to 65,000 households, depending on measures and uptake.

D. Implementing On-Reserve First Nations Rate

- First Nation and Political-Territorial Organization leaders have advocated for the review of delivery charges associated with transmission and distribution assets within the context of historical grievances and the need for electricity rate relief for on-reserve customers.
- The Minister committed to consider options for addressing the issue at the Apr. 18, 2016 First Nations-Ontario Energy Table meeting and was also discussed during the Hydro One negotiations with the Chiefs of Ontario (COO).
- In June 2016, the Minister of Energy issued a letter directing the OEB to prepare a report providing “*advice on options for an appropriate electricity rate (or rate assistance) for on-reserve First Nations electricity consumers.*”
 - OEB engaged with First Nations, including remote communities, the distributors serving them, and consumer groups such as the Low Income Energy Network. It also established an Advisory Committee with the Chiefs of Ontario’s Grievance Committee.
- The OEB report recommended:
 - Eliminate the delivery charge for all on-reserve First Nations residential customers and eliminate the monthly service charge for customers of licensed distributors which charge a bundled rate. The OEB estimates this would provide residential customers an average monthly benefit of \$85 at a total annual cost of up to \$20 million or 11 cents a month for a typical residential electricity consumer, in funding through the tax-base.
 - Automatically qualify on-reserve First Nations residential customers (~21,500 customers).
 - Enable greater information sharing between distributors and band councils to identify all on-reserve First Nations customers.
- The OEB suggested the program should be funded from the tax-base as it is targeted to a particular segment of the provincial population.
- ENERGY recommends moving forward with this program.

BENDING THE FUTURE COST CURVE OF ELECTRICITY

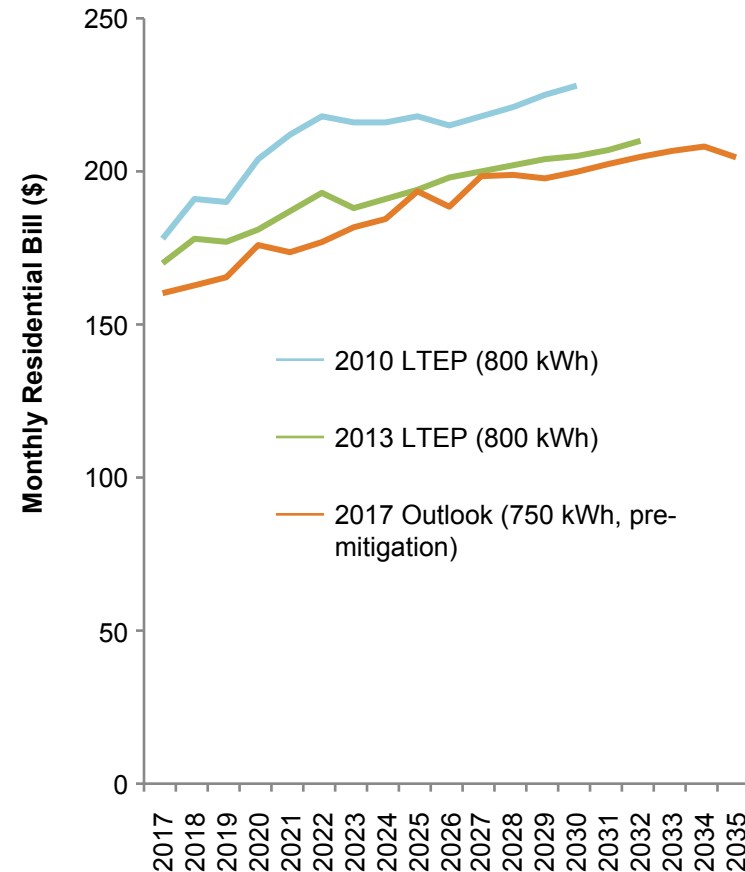
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Overview – Bending the Future Cost Curve of Electricity

- Slide that explains what in the section
 - A. OEB
 - B. IESO
- Policy rational

Existing Rate Mitigation Actions To Bend The Cost Curve

- The government has taken a number of actions to reduce electricity ratepayer costs, including:
 - Renegotiating the Green Energy Investment Agreement to reduce contract costs by \$3.7 billion.
 - Reducing Feed-In Tariff (FIT) prices saving ratepayers at least \$1.9 billion.
 - Introducing a competitive Large Renewable Procurement (LRP) process to drive down costs approximately \$1.5 billion lower than the 2013 LTEP forecast.
 - Suspending the second round of the LRP process and the Energy-from-Waste Standard Offer Program, which is expected to save up to \$3.8 billion in costs.
 - Deferring the construction of two new nuclear reactors at Darlington, avoiding an estimated \$15 billion in new construction costs.
 - Maximizing the value of our existing nuclear fleet by starting Bruce refurbishments in 2020 instead of 2016, thus helping to achieve \$1.7 billion in savings and by continuing to operate Pickering up to 2024, pending regulatory approvals, which could save ratepayers as much as \$600 million.



Sources: 2010 LTEP (800 kWh/month); 2013 LTEP (800 kWh/month); Revised Ontario Planning Outlook (750 kWh/month as of December 2016).

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A. OEB – Red-Tape Reductions / LDC Efficiencies and Rates

Leveraging the OEB

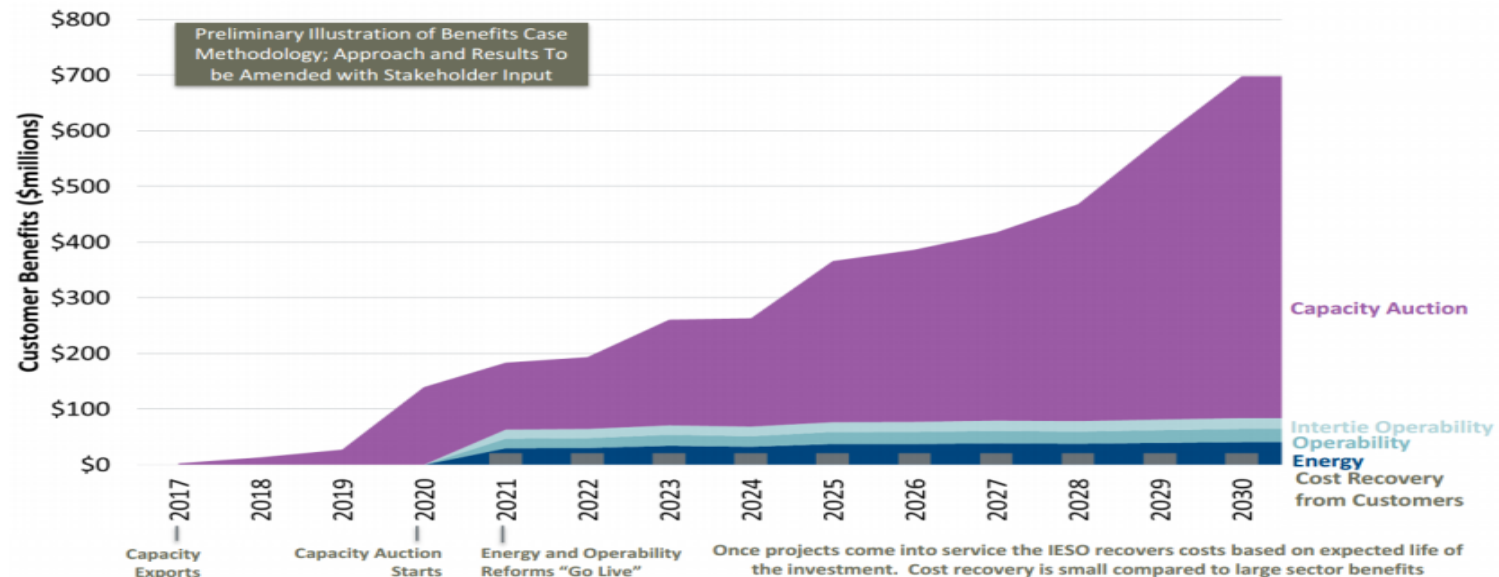
- The Ontario Energy Board (OEB) has a mandate to regulate the electricity distribution sector in the public interest, ensuring the financial viability of the sector while promoting reliable service to customers at just and reasonable rates.
- The OEB, through the Renewed Regulatory Framework for Energy (RRFE), has since 2012 attempted to move the distribution sector towards a performance/outcomes-based regulatory framework.
 - While new reporting requirements such as the LDC performance scorecard are positive developments, RRFE does not tie these system performance expectations to LDC financial performance.
- Encouraging shared partnerships on services between utilities will help reduce costs in the back end and encourage further innovation for small to medium sized utilities.

Opportunities

- ENERGY could help promote or accelerate these efforts by asking the OEB to look at opportunities to further drive LDC efficiencies and productivity.
- In parallel, the OEB could be instructed to review business cases behind its own regulatory requirements to reduce “red tape” and eliminate costs that LDCs indicate are creating pressures on operating expenses.
- This could be done through the Minister’s letter, the LTEP Implementation Directive, s. 35 of the *Ontario Energy Board Act, 1998*, and/or the 2017 Mandate Letter and other agency business planning processes.

B. IESO – Market Renewal

- Continue to move forward with Independent Electricity System Operator's (IESO) Market Renewal initiatives
 - Market Renewal encompasses projects such as a single-schedule system (from the current two-schedule system), more frequent intertie scheduling to better align with other jurisdictions and a day-ahead market. There will be up front capital costs to enable the initiative. IESO is currently assessing these costs.
 - Moving to "technology-agnostic" procurements will provide new opportunities for innovation and modernization and ensure ratepayers receive the best prices possible.
- Changes related to IESO's Market Renewal initiatives, reflected in HOEP and uplifts, are estimated to save up to \$300 million per year, starting in 2021, leading to a reduction of:
 - About \$1/month or less than 1% at current retail prices for a typical residential bill; and
 - About \$1.30/MWh at current all-in prices for industrial and SME electricity consumers.



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GLOBAL ADJUSTMENT (GA) SMOOTHING

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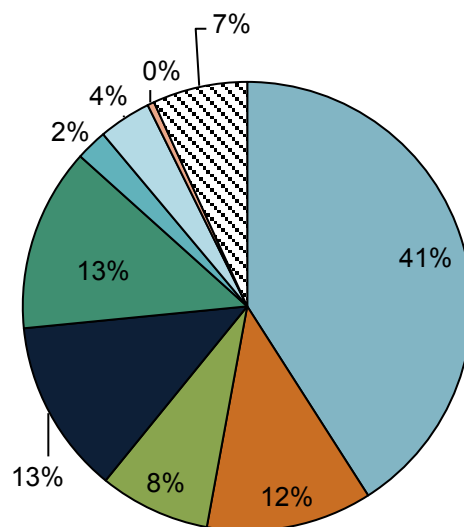
Overview – GA Smoothing

- The Global Adjustment (GA) has risen over the past decade as the province's electricity system has decarbonized.
 - The vast majority of GA costs now stem from greenhouse gas (GHG) emissions-free renewable and nuclear generation facilities.
 - The GA recovers the fixed costs of running the province's generation fleet, as well as the cost of conservation programs.
- The majority of the province's electricity generators are under 20-year contracts. Some of these generators will continue to provide value to the electricity system beyond their contract lives (i.e., beyond 20 years).
 - There is an opportunity to recognize the long-term benefit of these assets to the electricity system and “bring forward” that benefit for ratepayers today by deferring some of the current costs.
 - GA Smoothing would spread these costs over a longer period and provide immediate ratepayer relief (i.e., similar to re-financing a mortgage). By recognizing that generation assets are expected to continue to provide residual benefit to future ratepayers, beyond the term of current contracts, future ratepayers are expected to be able to utilize these assets and reduce the need to finance the development of new generation assets.
- The GA Smoothing options under consideration show potential rate mitigation measures to meet a targeted 25% and 20% reduction from the projected residential bill in 2017.
 - These residential impacts are based on a forecast for a household connected to Toronto Hydro that consumes 750 kWh per month.
 - Actual ratepayer savings would vary due to differences in consumption patterns.

GA Smoothing – Cost Breakout

- The Global Adjustment (GA) accounts for the fixed costs, including capital costs, of running Ontario's generation fleet, as well as the cost of conservation programs. The GA is instrumental in maintaining a reliable electricity system by ensuring that sufficient generating capacity is available.
- Chart below shows the breakout of the GA by generator and program types. In 2016, the GA costs were \$12.3 billion. These costs will evolve over time as 2,181 MW of previously contracted generation comes online in the coming years.

2016 GA Cost: \$12.3 billion



■ Nuclear
■ Hydro
■ Natural Gas
■ Wind
■ Solar
■ Biomass, Landfill and Byproduct
■ Conservation
■ IEI Program
■ OEFC*

GA (\$M)	
Nuclear	5,053
Hydro	1,473
Natural Gas	985
Wind	1,552
Solar	1,630
Biomass, Landfill and Byproduct	278
Conservation	467
IEI Program	60
OEFC*	842

*OEFC indicates the cost of generator contracts managed by the OEFC which include contracts for natural gas, hydro and biomass generators .

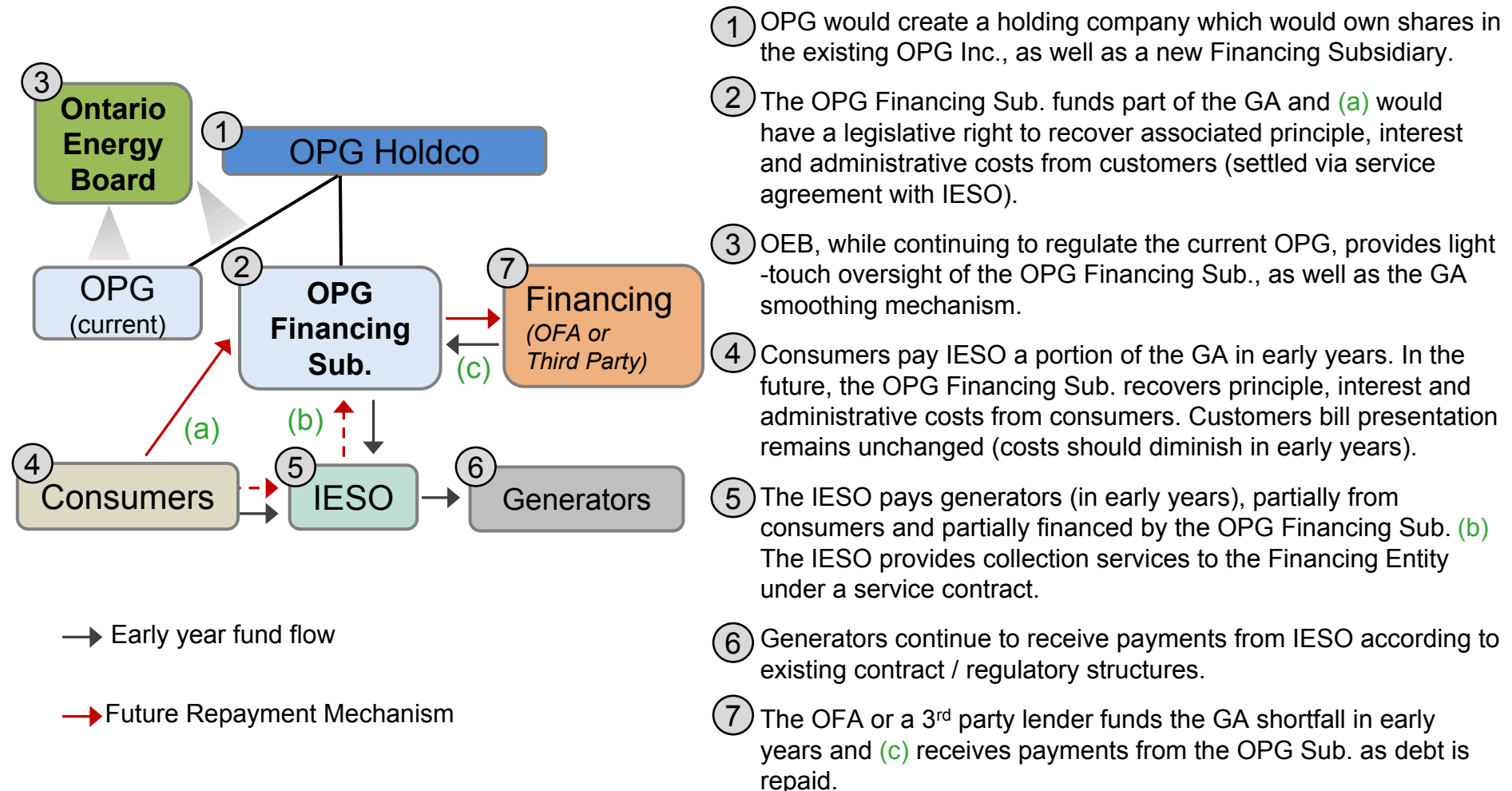
** Conservation measures, not quantified here, serve to reduce Ontario energy demand. Actual electricity generation would be larger than 155 TWh in the absence of conservation programs.

A. GA Smoothing – Implementation

- The Province continues to consider mechanisms to finance and administer GA smoothing. The leading option under consideration is to allow Ontario Power Generation (OPG) to assume responsibility for GA smoothing.
 - Other options considered have included using the Independent Electricity System Operator (IESO) and/or creating a new special purpose entity, independent from the Province that would be dedicated to GA smoothing.
- OPG is potentially positioned to administer GA Smoothing for the following reasons:
 - OPG represents about one-third of GA costs and should have a role in smoothing. It is also well placed to forecast future GA expenses;
 - Currently, jointly managing \$18 billion nuclear fund, therefore has infrastructure and expertise;
 - Regulated by OEB and OPG has experience with regulatory deferral and variance accounts; and
 - OPG borrows from Province, and from 3rd parties, allowing to access lowest cost financing option.

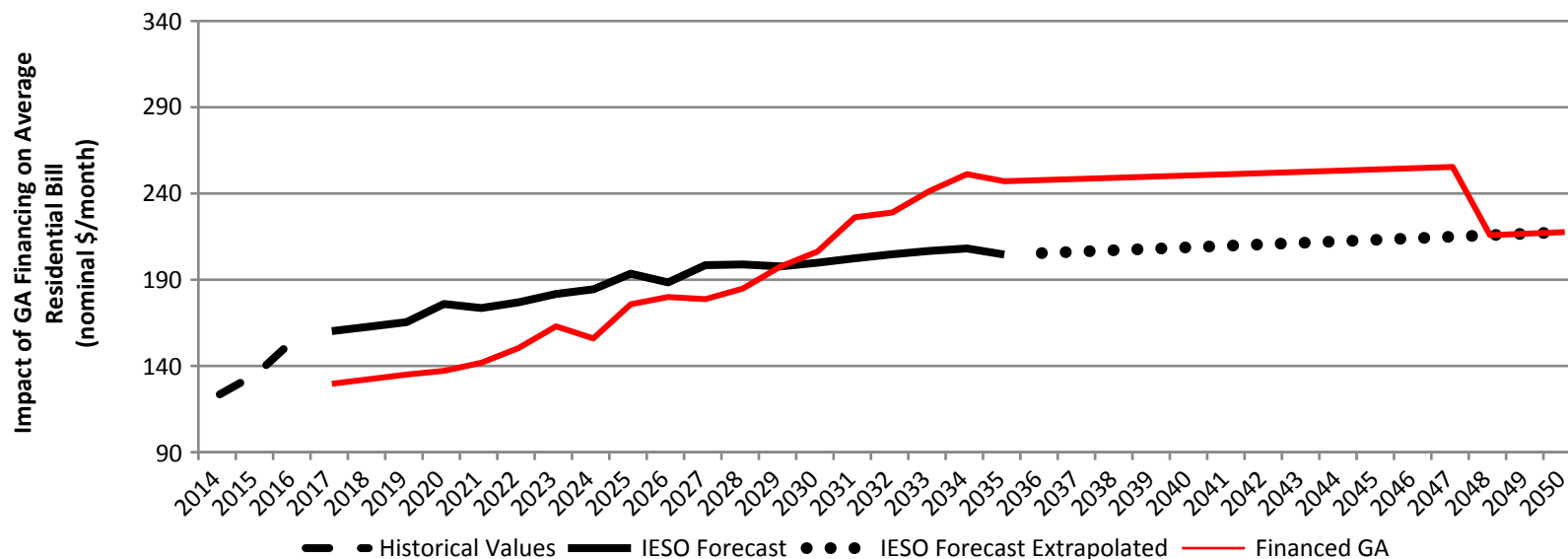
A. GA Smoothing – OPG Model

- The diagram outlines a implementation approach that includes a Financing Subsidiary of OPG.



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B. Option 1: GA Smoothing for RPP Only (Borrow \$2.2 billion in 2017, Residential Bills Lowered 25%)



	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048
Average Monthly Residential Bill Impact pre-tax (\$/month)	-27.0	-26.9	-26.9	-34.3	-28.1	-23.5	-16.6	-25.2	-15.7	-7.5	-17.4	-12.4	-0.1	5.7	21.1	21.4	30.7	38.1	37.6	37.5	37.3	37.2	37.0	36.8	36.7	36.5	36.4	36.2	36.1	35.9	35.8	0.0
Total Accumulated Debt (\$ billion)	2.2	4.6	7.0	10.2	13.1	15.7	17.8	20.8	23.2	25.0	27.7	30.1	31.7	32.8	32.7	32.6	31.7	30.1	28.4	26.6	24.8	22.8	20.8	18.6	16.3	13.9	11.4	8.8	6.0	3.1	0.0	0.0
Total Change in Accumulated Debt (\$ billion)	2.2	2.3	2.4	3.2	2.8	2.6	2.2	3.0	2.4	1.8	2.7	2.4	1.6	1.1	-0.1	-0.1	-0.9	-1.6	-1.7	-1.8	-1.9	-2.0	-2.1	-2.2	-2.3	-2.4	-2.5	-2.6	-2.8	-2.9	-3.1	0.0

Notes: Assumes 30 year financing period and a nominal interest rate of 5% (compounded monthly). Ratepayer GA payments increase annually beyond 2021 at the rate of inflation with a limit of \$3.2 billion above the true cost of GA in any given year. IESO forecast is based on IESO's revised OPO forecast as of December 2016. Includes the cancellation of LRP II and EFW, expansion of ICI. Does not include smoothed OPG rates. Above residential bill is based on a 750 kWh per month Toronto Hydro customer. RPP does not include customers on retail contracts.

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B. Option 1: GA Smoothing for RPP Only – Residential Bills Lowered 25% (with Tax-Base Funded 8% Rebate and Social Programs, 2% increase)

- Total bill below is based on a revised IESO forecast. See footnotes for more information.

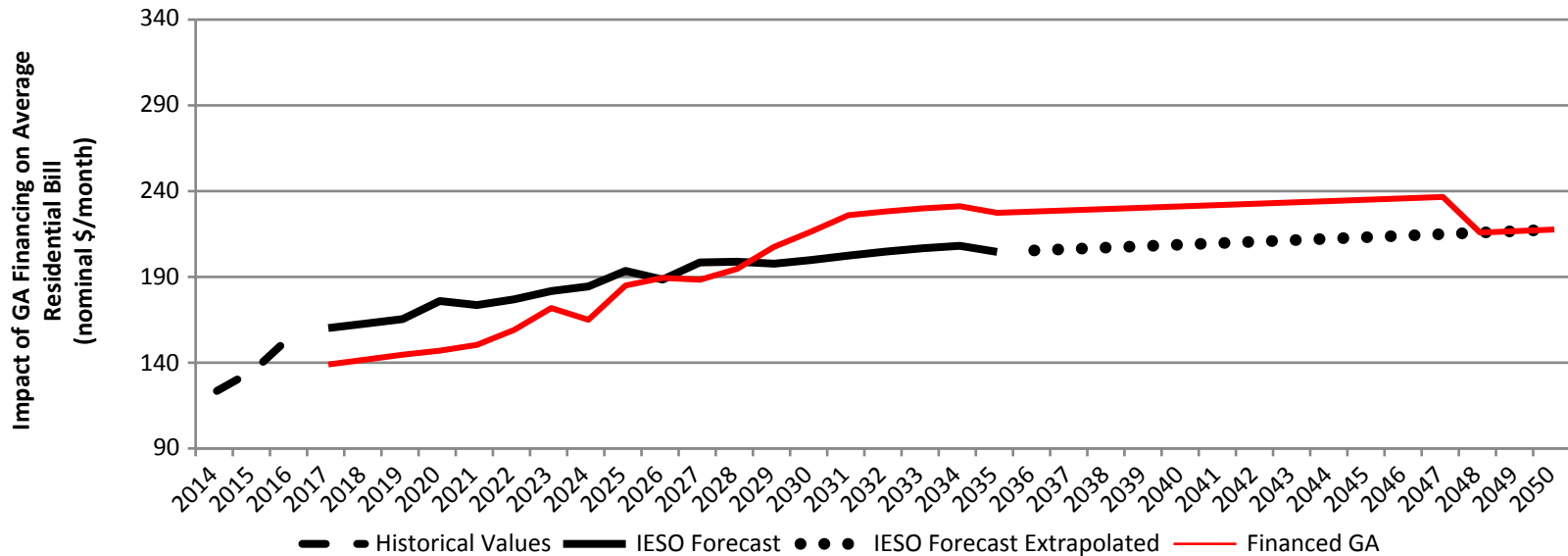
Residential (750 kWh/month)	Actual 2016	2017	2018	2019	2020	2021
Total Bill (includes HST)	163	172	175	178	189	187
Total Bill (excludes HST)	145	153	155	158	168	165
Impact of GA Financing		-27	-27	-27	-34	-29
Impact of Tax-Basing Social Programs		-2	-2	-2	-3	-3
Subtotal		123	126	128	131	133
8% rebate		-10	-10	-10	-10	-11
HST		16	16	17	17	17
Revised Bill (includes HST)	163	129	132	135	137	140
Year-over-Year Change		-21%	2%	2%	2%	2%
Change from Forecast		-25%	-25%	-24%	-28%	-25%

Commercial & Small Industrial (\$/MWh)	Actual 2016	2017	2018	2019	2020	2021
Class B Total (excludes HST)	160	165	160	162	173	169
Class B Revised Total (excludes HST)	160	162	157	159	170	166
Year-over-Year Change		1%	-3%	1%	7%	-2%
Change from Forecast		-2%	-2%	-2%	-2%	-2%

Large Industrial (\$/MWh)	Actual 2016	2017	2018	2019	2020	2021
Class A Total (excludes HST)	90	91	93	88	95	96
Class A Revised Total (excludes HST)	90	88	90	84	92	93
Year-over-Year Change		-2%	2%	-6%	9%	1%
Change from Forecast		-4%	-4%	-4%	-4%	-4%

Notes: Based on IESO's revised OPO forecast as of December 2016. Includes the cancellation of LRP II and EFW, expansion of ICI. Does not include smoothed OPG rates. Above residential bill is based on a 750 kWh per month Toronto Hydro customer. Above Class B estimate based on a 1 MW customer connected to Toronto Hydro, assumes delivery charge escalates as per residential forecast. "Social programs" refers to existing RRRP and OESP. While initiatives would take several months to implement, the above estimate for 2017 reflects a full-year impact. The 8% rebate above represents savings compared to status quo due to the reduction in the sub-total from GA financing. RPP does not include customers on retail contracts.

B. Option 2: GA Smoothing for RPP Only (Borrow \$1.6 billion in 2017, Residential Bills Lowered 20%)



	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048
Average Monthly Residential Bill Impact pre-tax (\$/month)	-18.8	-18.6	-18.4	-25.6	-20.5	-15.8	-8.8	-17.2	-7.5	0.9	-8.9	-3.7	8.7	14.7	20.9	20.7	20.6	20.4	20.2	20.1	20.0	19.9	19.8	19.7	19.7	19.6	19.5	19.4	19.3	19.3	19.2	0.0
Total Accumulated Debt (\$ billion)	1.6	3.2	4.9	7.2	9.3	11.0	12.3	14.4	15.7	16.5	18.0	19.3	19.5	19.3	18.6	17.8	17.0	16.1	15.2	14.3	13.3	12.2	11.1	10.0	8.7	7.5	6.1	4.7	3.2	1.6	0.0	0.0
Total Change in Accumulated Debt (\$ billion)	1.6	1.6	1.7	2.4	2.1	1.8	1.3	2.0	1.4	0.7	1.6	1.2	0.3	-0.2	-0.7	-0.8	-0.8	-0.9	-0.9	-0.9	-1.0	-1.0	-1.1	-1.2	-1.2	-1.3	-1.3	-1.4	-1.5	-1.6	-1.6	0.0

Notes: Assumes 30 year financing period and a nominal interest rate of 5% (compounded monthly). Ratepayer GA payments increase annually beyond 2021 at the rate of inflation with a limit of \$1.7 billion above the true cost of GA in any given year. IESO forecast is based on IESO's revised OPO forecast as of December 2016. Includes the cancellation of LRP II and EFW, expansion of ICI. Does not include smoothed OPG rates. Above residential bill is based on a 750 kWh per month Toronto Hydro customer. RPP does not include customers on retail contracts.

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GA Smoothing – Considerations

- Borrowing money to smooth the Global Adjustment (GA), while lowering costs in the short term, results in a more rapid rise in electricity prices beyond the rate of increase already expected.
 - In addition, should Ontario electricity demand be lower than forecasted, the cost of paying off the debt will be spread over a smaller pool of consumption, further increasing future costs for individual ratepayers.
- The impacts are also based on a GA forecast. Since the GA fluctuates, actuals will vary based on demand, the addition of new generation and natural gas prices.
 - A “true-up” mechanism will be required to account for the difference between the “estimate” and “actual” GA costs.
- If Class B electricity consumers, such as commercial and small industries, do not receive the benefit of GA Smoothing (i.e., because it is only targeted to RPP consumers) – consideration could be given to provide tax-based measures to off-set electricity costs (e.g., tax-credits, programs, etc).
 - Class B consumers have raised concerns about the cost of electricity and its impact on their business competitiveness.
- Rating agencies and investors in the Province’s debt may view this borrowing as an obligation of the Province, regardless of accounting treatment. Depending on the magnitude of the debt to be incurred could have an impact on the Province’s borrowing cost.
- Further work is required to determine:
 - Form of the recovery mechanism – this will need to provide reasonable certainty to the lender, while providing flexibility to respond to changing interest rate and demand conditions;
 - OPG’s new corporate and governance structures – the new subsidiary needs to be sufficiently ring fenced in order to protect OPG’s existing business and enable 3rd party borrowing (if necessary); and
 - OPG’s capacity to hold the new liability – There is a limit of incremental debt that OPG can assume before its long term viability, credit ratings and stand-alone financial sustainability become challenging.
- Accounting treatment and associated fiscal impacts of GA Smoothing will depend in part upon the details of these elements. Further work is required to make this assessment.

Considerations

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Fiscal – Considerations

Fiscal Impact (\$M)	16-17	17-18	18-19	19-20	20-21
Legacy Rural or Remote Rate Protection (RRRP)*	-	126	130	133	136
RRRP 2016 – Speech from the Throne Expansion*	-	117	120	123	127
Accelerating Fixed Rates for Hydro One**	-	61	51	40	29
Harmonizing Fixed Rates for Hydro One and High Cost LDCs***	-	150	149	150	152
Ontario Electricity Support Program 50% Enhancement	-	178	239	290	334
First Nation Rate	-	20	20	20	20
LDC Affordability Fund****	200	-	-	-	-
Total	200	652	709	756	798

Notes:

*Current regulatory framework calls for RRRP to increase by average distribution rate increase. Forecast assumes 2.6% annually though is subject to OEB proceedings.

**Funding for accelerating fixed rate benefits is completed as the move to fixed rates is accomplished over OEB timelines.

***Cost forecasts assumes 2.6% annual rise in distribution rates; will be subject to 2017 Hydro One cost of service application. Until move to fixed rates is complete, fiscal projection is subject to consumer consumption patterns that may change due to extreme weather or other factors.

**** Funding for the LDC Affordability Fund is one-time in 2016/17.

Legislative Authority – Considerations

1. GA Smoothing

- **Amendments to *Electricity Act, 1998 (EA)* and *Ontario Energy Board Act, 1998 (OEBA)***
 - The EA allows the Lieutenant Governor in Council to cause an OPG Holdco to be created under the *Business Corporations Act*.
 - The mandate and governance of the Financing Subsidiary will be addressed through amendments to the EA. Governance provisions will be designed to address the accounting control indicators.
 - The Financing Subsidiary will require authority to recover principle, interest and administrative costs through GA from customers.
 - Legislation would authorize IESO to collect amounts on behalf of the Financing Subsidiary and settle accounts with the Financing Subsidiary as a service provider. Regulatory amendments to GA Regulations would require IESO to:
 - Separately settle and track amounts received from the Financing Subsidiary to lower GA (including maintaining variance accounts).
 - Separately settle and track amounts paid back to the Financing Subsidiary (including maintaining variance accounts).
 - Distributors would continue to collect from consumers and settle with IESO. Generators would continue to be paid by IESO.
 - OEBA-related amendments would allow for OEB oversight. Light touch would focus on the borrowing entity's recovery of administrative costs and its calculation of amounts owing in a period. Heavy touch would give OEB the discretion to determine repayment over time
 - The certainty of the legislative mechanism to recover the debt and interest, and the extent of discretion of the OEB to alter either amount over time, will have impacts on the availability and cost of capital.
 - Further legal analysis is required as the GA option is developed.

2. Electricity Support Programs

- **RRRP, OESP and First Nations Rate:** Moving costs to the tax base and creating a First Nations rate will require amendments to OEBA. Regulatory amendments (442/01, 314/15, 275/04) will be required to address program details.
- **LDC Affordability Fund (2c):** In order to implement new LDC affordability fund the Province would need to enter into Transfer Payment Agreements with qualified third parties to administer the fund.

3. Bending the Future Cost Curve of Electricity

- No specific legislative or regulatory amendments identified. IESO may need to amend market rules. Agency MOUs/MOAs may require amendment.

Communication Plan

Objective:

- Demonstrate Ontario's commitment to lower electricity costs for ratepayers through new rate relief initiatives.

Strategic Approach

- High-profile Premier's announcement on Feb. 16 to share information before the House resumes and not detract from the Ontario Budget and Long-Term Energy Plan announcements in Spring 2017
- News release, backgrounders, QA's are being prepared.
- A multimedia marketing and advertising campaign is being prepared on the topic of rate mitigation for electricity consumers.

Key Messages

- Ontario is committed to keeping electricity in Ontario clean, reliable and affordable. We are making needed investments to modernize the system and this has resulted in an increase in energy rates for almost all Ontario-based electricity consumers.
- We understand the rising costs are a concern, which is why we are bringing in savings now through new initiatives that will cut costs directly on your energy bill.
- The electricity assets that we have invested in will remain valuable past their contract life, so we can apply those future savings to consumers now by deferring the global adjustment costs.
- We have a robust energy supply and are in a good position for market innovation. An adaptive energy market has the power to remove inefficiencies, increase transparency, enhance opportunities for innovation and help keep competitive tension to reduce system costs.

Communication – Considerations

Issue/Consideration	Mitigation Strategy	Key Message
Saving money for consumers now will result in rising costs for future consumers	Emphasize market renewal and innovative technologies that could result in savings for future consumers	Extracting value from assets now gives us more time to innovate the market and bend the cost curve over time
Cost of these initiatives will stop Ontario from balancing the budget	Emphasize that it will help businesses stay competitive and reduce financial pressure on families	The government remains committed to balancing the budget by 2017-18 while continuing to invest in the economy, our people and a healthy, clean and prosperous low-carbon future.
Timeline may be too short to allow LDCs to adjust their billing systems for the rebate	Allow LDCs to provide retroactive payments if they can't update their systems by the implementation date	Consumers will receive the full amount of rebate to which they are entitled. We've made provisions to allow utilities to provide rebates retroactively.
Reducing bills by an additional \$20 a month is not enough. The government is providing a little relief to all consumers, when they could instead have done more for those that needed it most.	Draw attention to Ontario Electricity Support Program and other initiatives which are targeted at the most vulnerable consumers.	The Ontario Electricity Support Program provides targeted relief to low income consumers. In addition, special programs are available to assist low income consumers with energy conservation and in meeting unpaid bills. As well, the government has put in place the Ontario Trillium Benefit to assist families with low to moderate incomes.

Proposed Cabinet Minute

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Appendix

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Electricity Consumer Classes

- There are three classes of electricity consumers:

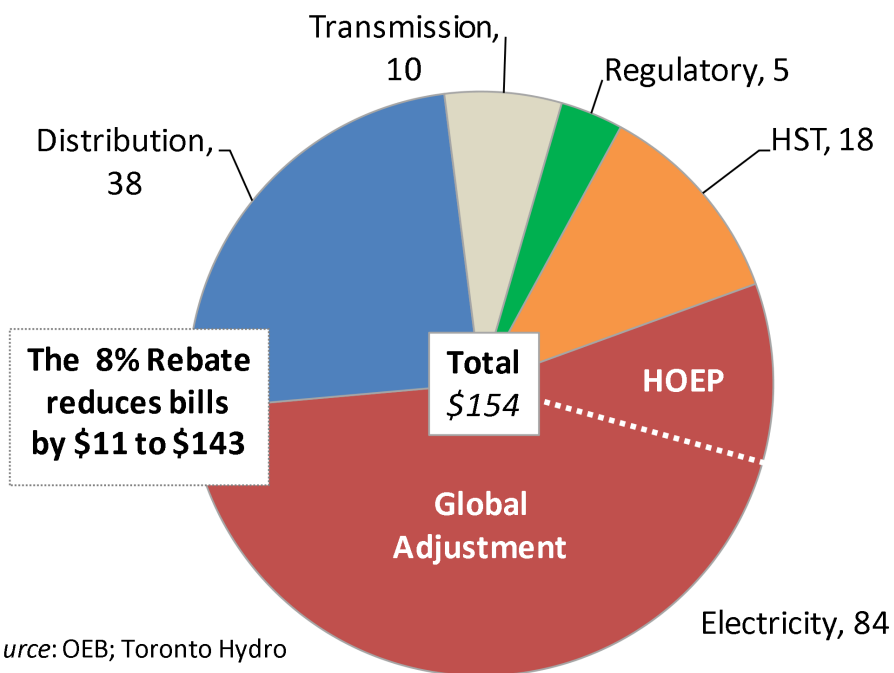
	Regulated Price Plan	Class B	Class A
Consumer Types	- Residential - Small Business - Farms	- Commercial - Institutional - Small industrial	- Large commercial - Large industrial
Load Size	Below 0.05 MW	Between 0.05 MW and 1 MW	Above 1 MW
Total Consumption	58 TWh	57 TWh	26 TWh
Share of Consumption	41.1%	40.4%	18.4%

Residential Electricity Prices

- There are approximately 4.5 million residential consumers in Ontario.
- The Regulated Price Plan includes nearly all residential consumers, as well as small businesses. Regulated Price Plan consumers pay a blended commodity rate regulated by the OEB, which is set every six months.
- For households, the Debt Retirement Charge (DRC) was removed from residential electricity bills as of January 1, 2016.
- In addition, the Ontario Electricity Support Program (OESP) provides an ongoing rate reduction directly on the bills of low-income electricity consumers who have applied and meet the eligibility requirements. The program is funded through the rate base.
- Rural customers, in particular those with electrical heating, pay higher monthly bills.

Typical Residential Monthly Bills (\$)

As of January 1, 2017 (750 kWh/month)



Commercial and Small Industrial Electricity Prices

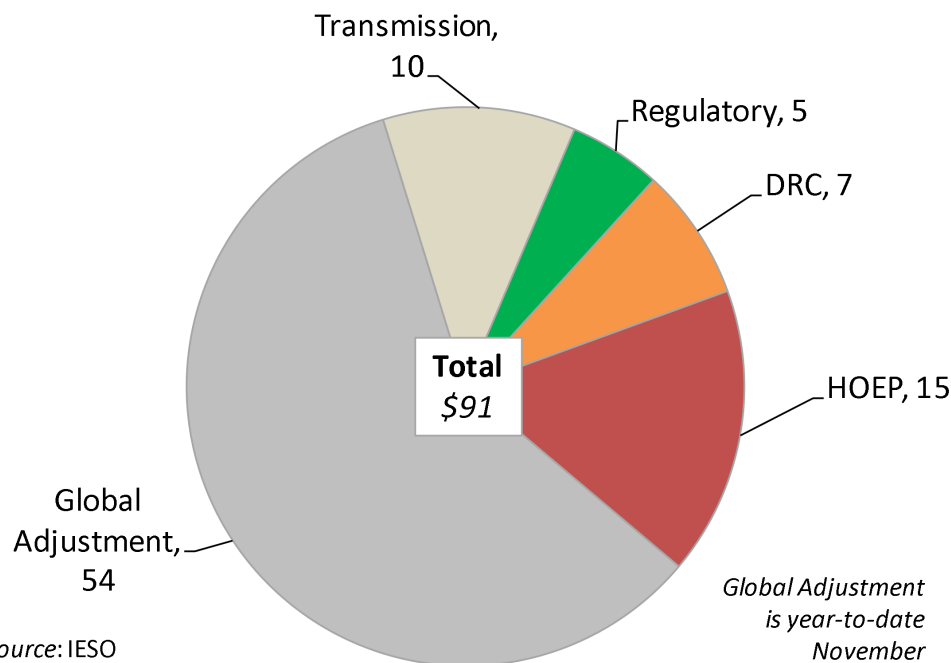
- There are approximately 55,000 commercial and institutional consumers in the province. These consumers are Class B consumers, and have separate line items on the electricity bill for HOEP and GA.
 - There is a high degree of differentiation amongst consumers within the commercial sector in terms of size and consumption patterns. For example, an elementary school has a much different hourly load profile compared to a full service restaurant. This is an important consideration when looking at the bill impacts of policy options.
 - Consumers in the commercial sector do not pay time-of-use prices and have little incentive to shift demand away from high demand hours.
 - Targeted pricing programs are currently not available for Class B consumers.
- * **Note:** Most commercial consumers receive input tax credits for their HST.

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Industrial Electricity Prices

- There are about 250 large industrial consumers in Ontario (i.e., peak demand above 5 MW), and many hundred more smaller industrial consumers.
- Measures in place to mitigate industrial electricity prices include ICI and NIERP.
- ICI lowers costs for eligible large electricity consumers (i.e., those with monthly peak demand exceeding 1 MW) that reduce consumption during peak periods.
 - ICI consumers reduce their electricity costs by up to one-third.

Typical Large Industrial Price (\$/MWh)
2016 Average



Source: IESO

- Participants in NIERP receive a rebate of \$20/MWh. On average, industrial electricity prices are reduced by about 20% through the program, reducing all-in prices to \$71/MWh for these consumers. The program is funded through the tax base.

* **Note:** Industrial consumers receive input tax credits for their HST.

APPENDIX – ELECTRICITY SUPPORT PROGRAMS TO HELP THE MOST VULNERABLE

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Current Low-Income Support Programs

- Ontario has implemented several programs to help electricity and natural gas consumers.
- These programs require participants to meet a mandated definition of low-income electricity or natural gas consumer.
- Under the 2015-2020 Conservation First Framework (CFF) and the Demand Side Management (DSM) Framework, conservation programs for low-income consumers are funded through electricity and natural gas rates:
 - The **Save on Energy Home Assistance Program (HAP)**, delivered by local distribution companies (LDCs) and the Independent Electricity System Operator (IESO) helps qualified homeowners, tenants and social housing providers improve the energy efficiency of their homes. It provides a free home energy audit, and wide range of free energy efficient measures, such as lighting, household appliances, and weatherization (if electrically-heated).
 - The Enbridge Gas Distribution **Home Winterproofing Program** and the Union Gas Home **Weatherization Program** offer eligible low-income customers free home energy assessment, weatherization services like insulation and air sealing, water conservation measures like showerheads and aerators, programmable thermostat, and a carbon monoxide monitor when one is not present.
- A number of other support programs are delivered by utilities with oversight by the OEB:
 - The **Ontario Electricity Support Program (OESP)** provides low-income consumers with a monthly on-bill credit to reduce their electricity bill.
 - The **Low-income Energy Assistance Program (LEAP)** provides emergency financial assistance through a one-time grant towards the electricity or natural gas bill to help in an emergency situation.
 - **Special Rules** are in place, whereby utilities have to follow these when dealing with customers with limited finances, for example waiving security deposits, allowing longer payment times, a longer grace period if facing disconnection, and more.

Low-income Eligibility Criteria

- Income eligibility criteria for conservation and financial support programs for low-income electricity customers are based on after-tax income for all household members aged 18 and older. The eligibility criteria is derived from Statistic Canada's measures. The most commonly used is the Low Income Measure (LIM).
- An example of the low-income eligibility threshold under HAP is provided below.

Home Assistance Program

Number of people living in home	After-tax annual household income
1 person	\$21,773
2 people	\$30,792
3 people	\$37,712
4 people	\$43,546
5 people	\$48,686
6 people	\$53,333
7 people	\$57,606
8 people	\$61,583
9 people	\$65,319
10 people	\$68,852

*OR, the individual has received a social program benefit from a list of Ontario programs, for example, National Child Benefit Supplement (NCBS), Allowance for Seniors, Ontario Works. There is inter-program coordination in that if an individual is eligible for LEAP EFA or OESP they are also eligible for the Home Assistance Program.

APPENDIX – BENDING THE FUTURE COST CURVE OF ELECTRICITY

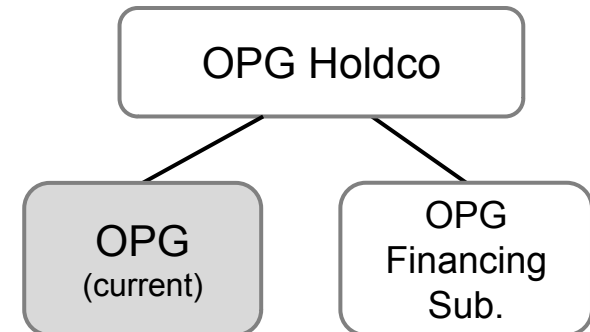
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APPENDIX – GLOBAL ADJUSTMENT (GA) SMOOTHING

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GA Smoothing – OPG Corporate Structure

- The diagram outlines a implementation approach that is currently being considered, where OPG would create a Holdco and would have a Financing Subsidiary of OPG
- The below summary balance sheet and income statement related to the current OPG business



Balance Sheet (\$M) As of December 31, 2015

Assets		Liabilities	
Current	2,390	Current	1,830
Property less depreciation	20,595	LT Debt	5,199
Nuclear Fixed Asset Removal/Waste Management	15,121	Fixed Asset Removal/Waste Management	17,028
Regulatory Assets	5,279	Other	12,170
Other Assets	917	Shareholder Equity	9,905
Total Assets	44,302	Total Liabilities & Equity	44,302

Income Statement (\$M) Year Ended December 31, 2015

Revenue Less Fuel	4,789
Expenses	
OM&A	2,783
Other	1,317
Interest	180
Income Tax	92
Net Income	417