
Proposed Initiatives to Transform Ontario's Electricity Sector

Working Draft

December 5, 2016

CONFIDENTIAL DRAFT

Context

- Electricity costs are increasing as the necessary investments are made to decarbonize and modernize the province's electricity infrastructure.
 - Since 2003, the Province has invested more than \$35 billion in over 16,000 megawatts (MW) of new and refurbished cleaner generation, including nuclear, natural gas and renewables.
 - Over the same period, Hydro One has invested \$15.5 billion to enhance and renew its transmission and distribution systems.
 - As additional electricity generation comes online, nuclear units are refurbished and distribution and transmission investments are made, prices are forecast to continue to increase.
- Actions have been taken to drive down electricity costs, including deferring investments in generation (e.g., new build nuclear), improving market efficiency (e.g., introduction of wind dispatch) and decreasing the cost of renewable procurements (e.g., **Green Energy Investment Agreement** ~~GEIA~~ renegotiation, decreasing FIT prices).
- Additional steps have been taken to increase cost effectiveness and improve efficiency by adopting new electricity market approaches, such as:
 - Enhancing competition between developers of large renewable projects through the Large Renewable Procurement (LRP) process to drive down price and secure clean, reliable generation for the province;
 - Directing IESO to end the process of negotiating new NUG contracts pending the development of a Capacity Auction (i.e., Market Renewal); and
 - Launching the first IESO Demand Response Auction (i.e., a competitive process through which demand-side resources are selected to be available to reduce their electricity consumption as needed).

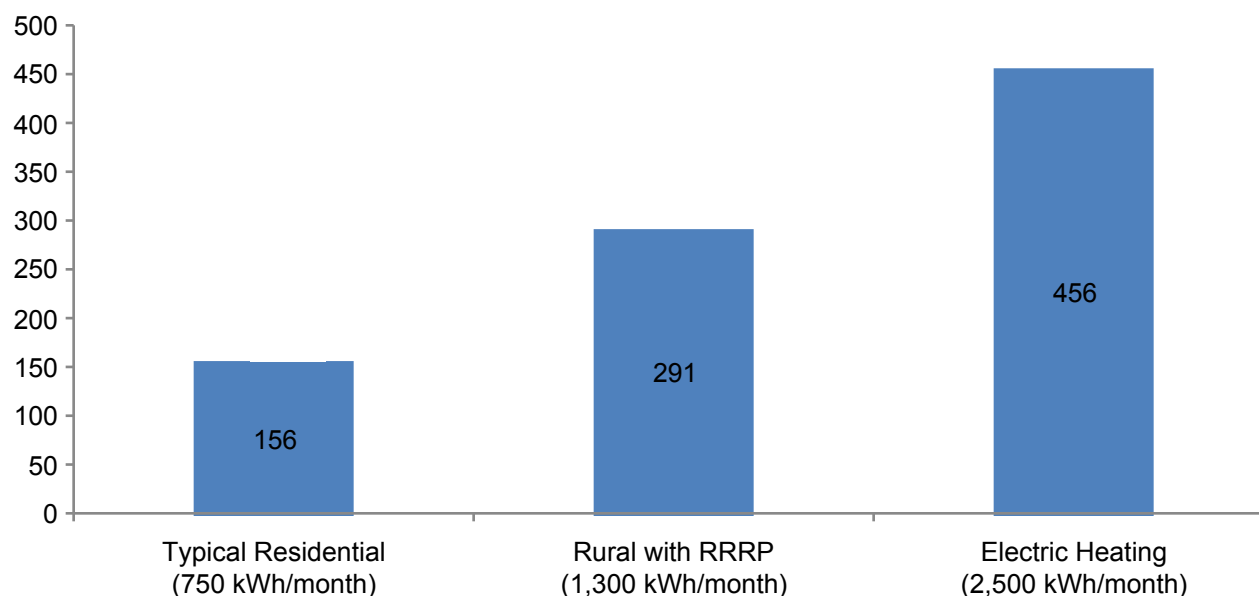
Context (Cont'd)

- Following the 2016 Throne Speech, a number of actions were announced to further reduce electricity costs, such as:
 - Providing an 8 per cent rebate **before tax**, equivalent to the provincial portion of HST, for approximately 5 million eligible electricity consumers including residences, small businesses and farms;
 - Increasing the amount of rate protection available to approximately 330,000 eligible rural customers living in low-density areas by updating the Rural or Remote Rate Protection (RRRP) program;
 - Lowering the Industrial Conservation Initiative (ICI) threshold to 1 MW and removing sector restrictions so that more consumers can benefit;
 - Suspending the second round of the Large Renewable Procurement (LRP II) **and the Energy-from-Waste Standard Offer Program to save up to \$3.8 billion in costs**; and
 - Recycling a portion of cap and trade auction proceeds to keep rates affordable for industrial and commercial electricity consumers.
- On November 28, 2016, the Minister of Energy announced the need for changes in how electricity resources are procured and the need for wholesale market renewal.
- 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.

Current Electricity Prices – Residential

- Residential consumers electricity prices continue to be a concern for many Ontarians, particularly those that rely on electric heat.
 - Note:** The typical residential bills are currently below the 2013 Long-Term Energy Plan (2013 LTEP) forecasts (\$159 / 750kWh)

Residential Electricity Bills
in \$/month

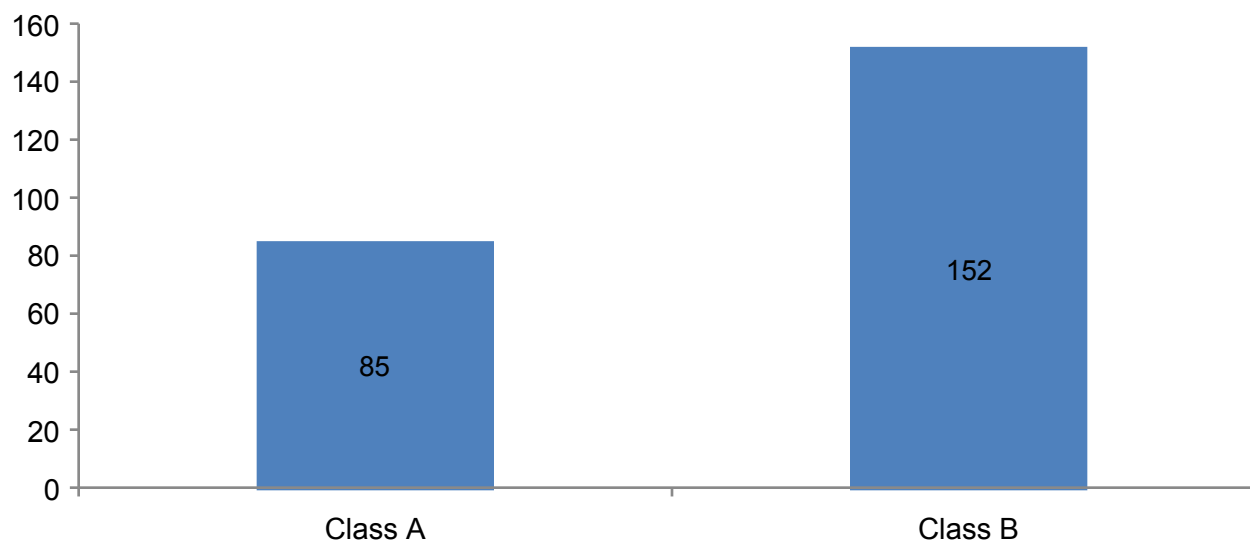


Note: Typical residential and electric heating shown above are based on Toronto Hydro; rural is based on connection to Hydro One as a R2 customer eligible to receive the Rural or Remote Rate Protection (RRRP) credit of \$31.50.

Current Electricity Prices – Industrial and Commercial

- While large industrial electricity consumers (i.e., Class A) rates are competitive with other jurisdictions, rates for commercial/small industrial consumers (i.e., Class B) are higher by comparison.
 - Note:** Current industrial and commercial prices are below 2013 LTEP forecasts (\$96 / MWh)

Current All-In electricity Price
in \$/MWh



Note: Based on year-to-date (YTD) September 2016 prices. Class A reflects a transmission-connected consumer. Class B reflects a 1 MW load operating at 56% load factor and connected to Toronto Hydro.

Current Status on Taxpayer Funded Electricity Price Mitigation

(\$M)	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17 ¹	2017-18 ¹
OCEB	1,033	994	1,006	1,078	860	-	-
OREC	-	-	-	-	-	300	1,100*
Ending DRC²	-	-	-	-	85	330	330
NIERP	120	120	115	108	120	120	120
NOEC	23	24	25	24	26	25	25
OEPTC³	354	406	418	429	444	450	460
TOTAL	1,530	1,544	1,564	1,639	1,525	1,195	2,005

1. 2016-17, 2017-18 based on forecasted numbers

2. 2015-16 estimated for 3 months of reduced DRC revenue

3. OEPTC amounts in all years based on energy component of the rebate.

* Sourced from Energy PRRT Submission

OCEB – Ontario Clean Energy Benefit

OREC – Ontario Rebate for Electricity Consumers

DRC – Debt Retirement Charge

NIERP – Northern Ontario Electricity Rate Program

NOEC – Northern Ontario Energy Credit

OEPTC – Ontario Energy and Property Tax Credit

- The table above shows the annual amount of taxpayer funded electricity price mitigation from 2011 - 12 to 2017-18.
- From 2011-12 to 2015-16 there has been an annual fiscal impact of approximately \$ 1.5 billion due to electricity price mitigation programs.
- In 2016-17, the fiscal impact due to electricity price mitigation programs is estimated at approximately \$1.2 billion.
- In 2017-18, due primarily to the start of the Ontario Rebate for Electricity Consumers, the expected fiscal impact due to electricity price mitigation programs is approximately \$2.0 billion and before considering any additional funding from the tax base.

Proposed Initiatives – Overview

- The suite of proposed initiatives are intended to:
 - Transform how the electricity market operates in Ontario;
 - Re-set how ~~government~~ **electricity sector** programs are funded (i.e., rate-base vs tax-base);
 - Provide system benefits (e.g., industrial load retention); **(NTD: If it provides system benefits, why not paid through the rate base)**
 - Lower the cost of electricity for residential and industrial consumers; and
 - Increase cost effectiveness and improve efficiency.
- The proposed initiatives include:
 1. Implement Market Renewal Initiatives
 2. Fund Electricity Support Programs Through The Tax-base
 3. Eliminate the Industrial Conservation Initiative (ICI)
 4. Amortize Conservation Program Costs
 5. LDC Efficiencies
 6. Rate Design Initiatives
 7. Reduced Cost of OPG Borrowing
 8. End Debt Retirement Charge (DRC) Early for Commercial/Small Industrial Class B Electricity Consumers
 9. Dedicate Departure Tax
 10. Cancel/Adjust Renewable Energy Procurements
- The proposed initiatives provide opportunities to reduce electricity costs for residential and industrial consumers while at the same time transforming the province's electricity market and yielding benefits for the electricity system.

Proposed Initiatives – Impacts

- Each of the proposed initiatives under consideration target different government programs and different parts of the electricity bill. The proposals impact different classes of electricity consumers to varying degrees.

Proposal	Program / Initiative	Line on Bills	Who Benefits
1. Implement Market Renewal Initiatives	Market Renewal	Electricity, Global Adjustment, Regulatory	Market Renewal: All electricity consumers
2. Fund Electricity Support Programs Through The Tax-base	OESP, RRRP	Regulatory	All electricity consumers evenly
3. Eliminate the Industrial Conservation Initiative (ICI)	ICI	Electricity, Global Adjustment	Only Class B electricity consumers (i.e., residential) Note: Will have a negative impact on Industrial consumers.
4. Amortize Conservation Program Costs	Amortization	Electricity, Global Adjustment	Class B electricity consumers and to a lesser extent Class A consumers
5. LDC Efficiencies	Distribution efficiencies	Delivery	All embedded consumers
6. Rate Design Initiatives	Rate structures	Electricity, Global Adjustment	Rate Design Initiatives: Participating electricity consumers
7. Reduced Cost of OPG Borrowing	n/a	Electricity, Global Adjustment	Class B electricity consumers and to a lesser extent Class A consumers
8. End DRC Early for Commercial/Small Industrial Class B Electricity Consumers	Debt Retirement Charge (DRC)	DRC	Class B consumers (i.e., small business and commercial consumers, etc)
9. Dedicate Departure Tax	Departure Tax	TBD	TBD
10. Cancel/Adjust Renewable Energy Procurements	FIT, LRP	Electricity, Global Adjustment	Class B electricity consumers and to a lesser extent Class A consumers

Proposed Initiatives – Potential Savings for Typical Residential Electricity Consumers

\$/750kWh	2017	2018	2019	2020	2021	2022	Timing of Benefit
1. Implement Market Renewal Initiatives	-	-	-	1.58	1.59	1.60	Longer-Term
2. Fund Electricity Support Programs through the Tax-base	2.18	2.30	2.31	2.45	2.48	2.51	Immediate
3. Eliminate the Industrial Conservation Initiative (ICI)	4.40	4.24	4.10	4.24	3.73	3.58	Immediate
4. Amortize Conservation Program Costs	1.67	1.56	1.21	0.81	0.54	0.3	Immediate
5. LDC Efficiencies	TBD	TBD	TBD	TBD	TBD	TBD	Near-Term
6. Rate Design Initiatives*	-	-	-	-	-	-	Immediate
7. Reduced Cost of OPG Borrowing	0.13	0.13	0.13	0.18	0.18	0.18	Immediate
8. End DRC Early for Class B Electricity Consumers**	-	-	-	-	-	-	n/a
9. Dedicate Departure Tax	TBD	TBD	TBD	TBD	TBD	TBD	Immediate
10. Cancel / Adjust Renewable Energy Procurements	-	-	TBD	TBD	TBD	TBD	Longer-Term
Total <u>decrease</u> on typical monthly bill	8.38	8.23	7.75	9.26	8.52	8.17	

Note: The above initiatives will provide similar benefits for non-RPP Class B electricity consumers. Proposal 2 assumes OESP participation of 50% and 5-year maturity . *Savings estimates do not include changes related to rate design . ** Class B includes small-medium enterprises (SMEs).

Proposed Initiatives – Potential Savings for Average Industrial Electricity Consumers

\$/MWh	2017	2018	2019	2020	2021	2022	Timing of Benefit
1. Implement Market Renewal Initiatives	-	-	-	2.11	2.12	2.13	Longer-Term
2. Fund Electricity Support Programs through the Tax-base	2.91	3.06	3.17	3.27	3.33	3.38	Immediate
3. Eliminate the Industrial Conservation Initiative (ICI)	(24.12)	(23.21)	(22.45)	(23.23)	(20.42)	(19.61)	Immediate
4. Amortize Conservation Program Costs	1.15	1.08	0.84	0.56	0.37	0.25	Immediate
5. LDC Efficiencies	n/a	n/a	n/a	n/a	n/a	n/a	Near-Term
6. Rate Design Initiatives*	-	-	-	-	-	-	Immediate
7. Reduced Cost of OPG Borrowing	0.10	0.10	0.10	0.15	0.15	0.15	Immediate
8. End DRC Early for Class B Electricity Consumers**	-	-	-	-	-	-	n/a
9. Dedicate Departure Tax	TBD	TBD	TBD	TBD	TBD	TBD	Immediate
10. Cancel / Adjust Renewable Energy Procurements	-	-	TBD	TBD	TBD	TBD	Longer-Term
Total increase on industrial bill	19.96	18.97	18.34	17.14	14.45	13.7	

Note: Proposal 2 assumes OESP participation of 50% and 5-year maturity. Proposal 3 reflects the elimination of ICI, as opposed to moving ICI cost shift to the taxbase. The \$1.75/MWh savings associated with Proposal 7 in 2018 accounts for the fact that under the status quo, DRC will be removed from bills in April 2018. *Savings estimates do not include changes related to rate design. ** Class B includes small-medium enterprises (SMEs).

Fiscal Considerations

- Funding electricity support programs (i.e., OESP, RRRP, First Nations Delivery Rate) from the tax-base represents approximately \$440 million on average annually.
- Ending the Debt Retirement Charge (DRC) for commercial and small industrial electricity consumers (i.e., Class B) early would represent an additional fiscal pressure of **about \$450 million** ~~[placeholder for OFA]~~ on the **Province**.
- If the Industrial Conservation Initiative were funded through the tax-base instead of being eliminated, this would represent a \$900 million annual cost to the fiscal plan **(before the planned ICI expansion)**.
- Reducing OPG borrowing costs to the Province's cost of funds is expected to result in a **\$30 to \$35 million annual fiscal pressure in 2017** to the province ~~[TBC by OPG / OFA]~~ **based on new borrowing and increasing to about \$70M by 2021.**
- Fiscal impacts of allocating a portion of the departure tax to ratepayers will depend on the size of the allocation, as well as timing for the flow of value. The maximum, direct one-time impact is \$2.6 billion, with potential ancillary impacts on residual stranded debt defeasance.
- **A summary of the annual fiscal impacts of the proposed initiatives is presented in the next slide.**

Proposed Taxpayer Funded Electricity Price Mitigation

(\$M)	2016-17 ¹	2017-18 ¹	2018-19 ¹	2019-20 ¹	2020-21 ¹
OCEB	-	-	-	-	-
OREC	300	1,100*	1,100*	1,200*	1,200*
Ending DRC ²	330	330	--	--	--
NIERP	120	120	120	120	120
NOEC	25	25	25	25	25
OEPTC ³	450	460	470	481	481
CURRENT TOTAL	1,195	2,005	1,715	1,826	1,826
1. OESP		106	119	127	132
2. RRRP		292	300	306	315
3. First Nations Delivery Rate		18	18	18	18
4. Fund ICI through Tax Base		900+100	900+100	900+	900+
5. Departure Tax		TBD	TBD	TBD	TBD
6. Conservation Amortisation	TBD	TBD	TBD	TBD	TBD
7. DRC Ended for Class B	110	450	--	--	--
8. Other		30	45	60	70
TOTAL	1,305	3,901	3,197	3,237	3,261

1. 2016-17, 2017-18 based on forecasted numbers
2. 2015-16 estimated for 3 months of reduced DRC revenue
3. OEPTC amounts in all years based on energy component of the rebate.

- As shown above if various measures proposed in this deck were to be accepted, taxpayer funded contributions to electricity price mitigation would increase to about \$3.4 – 3.9 billion in 2017-18. That is a 65-95% increase from the current forecast for 2017-18.
- These amounts were not considered in the 2016 Fiscal Plan and could put at risk the Province's fiscal objectives for 2017-18 and beyond.

1. Electricity Market Renewal Initiatives

- Continue to move forward with IESO's 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.

Considerations

- 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 2020, leading to a reduction of:
 - About \$1.60/month or about 1% at current retail prices for a typical residential bill; and
 - About \$2/MWh or more than 2% at current all-in prices for industrial and SME electricity consumers.
- The IESO's Market Renewal is a broad initiative that will impact all aspects of Ontario's electricity market. Ontario has had a uniform price since market opening.
- Adopting a technology-agnostic stance will lower the overall cost of providing electricity service by selecting the most cost-effective resources to fulfill various system needs.

2. Fund Electricity Support Programs Through the Tax-Base

- Propose to fund electricity support programs, including Ontario Electricity Support Program (OESBP) and Rural or Remote Electricity Rate Protection (RRRP), through the tax-base instead of a regulated charge. This would allow the OESP and the RRRP charges to be removed from the Regulatory line on electricity bills.

Considerations

Consumer Impacts and implementation

- Transitioning OESP and RRRP to the tax-base would reduce a typical residential bill by about \$2.35/month by 2020, and delivering the First Nation rate reduction through tax base would avoid about \$0.10/month for a potential total savings of \$2.45/month by 2020). As all programs provide strong social benefits, there is precedent for funding these programs through the tax-base.
- To address concerns from low income electricity consumers improvements to OESP could be implemented by increasing credits (could be up to double the current credits)
 - Single low income consumer would see a change from \$30 to \$45/ month (\$540/year):
 - Family of four with electric heat could see a credit of \$82.50/month (\$990/year); and
 - Would mean no impact on consumer bills and no change to current OESP charge.
- RRRP and OESP are included in the “Regulatory” line on bills. If RRRP and OESP were eliminated from bills, the Regulatory line would decrease; however, as the Regulatory line is the smallest line item component of invoices, there is risk the decrease may not be perceived by customers.
- The RRRP regulation provides a funding mechanism for transmission infrastructure required to grid connect remote First Nation communities. Considerations for how that funding will be supported by the tax base will need to be determined.
- The non-rate mechanism to remove delivery charges from on-reserve First Nation customer monthly bills needs to be further explored. Funding RRRP and/or OESP with tax revenue would require amendments to existing legislation and regulations.

2. Fund Electricity Support Programs Through the Tax-Base (cont'd)

- Table below shows estimates of program costs up to 2020:

Year	OESP	RRRP	First Nations Delivery Rate	TOTAL
2017	\$106M	\$292M	\$18M	\$416M
2018	\$119M	\$300M	\$18M	\$437M
2019	\$127M	\$306M	\$18M	\$451M
2020	\$132M	\$315M	\$18M	\$465M

1) Ontario Electricity Support Program (OESP)

- After almost a year in market, close to 30% of potentially eligible customers are signed up.
- The cost projections below assume the program grows to 50% of eligible consumers by 2020 (also assumes 10% administration costs).

2) Rural and Remote Rate Protection (RRRP)

- Provides benefits to R2 Hydro One consumers, Algoma, and remote communities.
- Includes the expanded coverage that will begin on January 1, 2017.

3) First Nation rate reduction (currently under development)

- On November 14, 2016, OEB presented options to the Ministry on reducing costs for on-reserve First Nation customers.
- OEB's recommended option to provide 100% delivery rate credit, which is estimated at \$18.4 million per year.
 - Other options includes a seasonal fixed credit to account for demand changes over the year (\$13 million) or a 50% total bill reduction (\$23 million).

3. Eliminate the Industrial Conservation Initiative (ICI)

- The cost shift from the Industrial Conservation Initiative (ICI) could be removed from electricity bills by eliminating ICI.
 - The ICI allows large electricity consumers to lower their electricity costs by reducing their demand during peak hours.

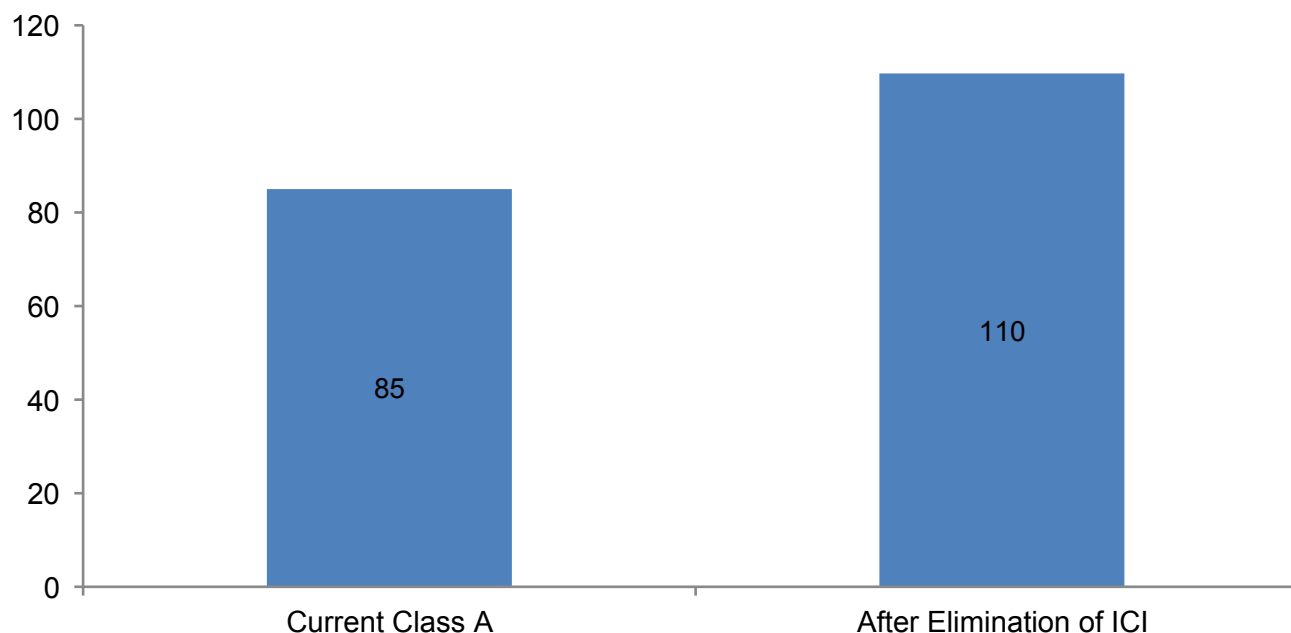
Considerations

- Eliminating ICI would result in a benefit of more than \$4/month for residential electricity consumers in 2017.
 - However, unless government took action to mitigate the associated cost shift back to industrial consumers, typical industrial prices would increase by about one-third. Such a price increase would pose significant challenges for energy-intensive consumers.
- Industrial stakeholders have indicated that ICI as an integral factor in maintaining competitiveness and retaining industry in the province.
 - Eliminating ICI would limit the “cost shift” onto residential consumers, but it would also lead to a reduction in industrial demand. The large industrial contribution to the fixed costs of running the electricity system would then need to be covered by remaining consumers.
- If ICI is retained, current IESO projections indicate that the cost shift will decrease each year going forward as Global Adjustment (GA) decreases (due to an expected increase in HOEP).
- Alternatively, ICI could be funded through the tax-base at a cost of \$900 million annually. There is precedent to use the tax-base for industrial support programs, including the Northern Industrial Electricity Rate Program (NIERP) and the Jobs and Prosperity Fund.

3. Eliminate the Industrial Conservation Initiative (cont'd)

- ICI currently provides a benefit of about \$25/MWh to Class A electricity consumers.

All-In Electricity Price
in \$/MWh



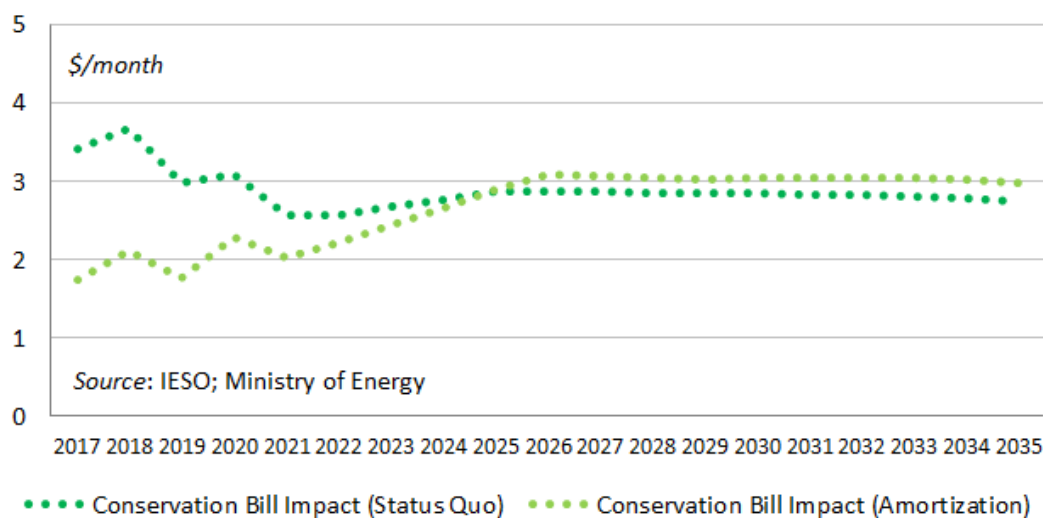
Note: Based on year-to-date (YTD) September 2016 prices. Class A reflects a transmission-connected consumer.

4. Amortize Conservation Program Costs

- ~\$3 billion from the electricity ratepayer base will be spent on conservation programs delivered under the Conservation First Framework and the Industrial Accelerator Program (IAP) between 2015 and 2020.
- Currently, Conservation and Demand Management (CDM) program costs are recovered from the Global Adjustment (GA) mechanism about one month after expenses are incurred.
- As a potential rate mitigation measure, certain CDM costs could be amortized.
- Amortizing a portion of conservation spending would produce a benefit for electricity ratepayers in excess of \$1/month at the outset. Over time, the benefit would decrease and turn into a cost, as interest charges begin to grow.

Conservation Residential Bill Impact

Status Quo and 10-Year Amortization



Note: Chart assumes that conservation incentive costs are available for amortization while administration cost are not. Although there is variable from year to year, incentives represent about two-thirds of conservation spending in Ontario. Chart assumes conservation spending continues at a similar rate beyond 2020. Chart assumes a 10-year borrowing rate of 3.0%.

4. Amortize Conservation Program Costs (cont'd)

Considerations

- Under **Public Sector Accounting Board (PSAB) accounting standards**, used by both the Province and IESO, only certain assets can be amortized: 1) pensions and 2) tangible capital assets. Under PSAB an asset must meet several criteria to be considered a capital asset, including:
 - A tangible capital asset must be tangible and substantive and the Ontario government must have title and operate the asset.
 - A tangible capital asset must bring a tangible benefit to the government or to Ontario.
- CDM costs, on their own, do not meet the criteria of a tangible capital asset because customers would have ownership and control of installed CDM measures, not the Province or IESO.
- **Rate-regulated accounting** was developed to recognize the unique nature of regulated entities (e.g., electricity generators, LDCs). Under rate-regulated accounting certain costs can be treated as amortizable assets that would not normally be considered assets under accounting principles.
 - Over the past several years, the Auditor General (AG) has expressed concerns about the appropriateness of recognizing rate-regulated assets in the Province's consolidated financial statements.
 - Rate-regulated accounting is currently under review by international accounting standard setting bodies and is currently permitted only on an interim basis, so its future is unclear at present.

4. Amortize Conservation Program Costs (cont'd)

Considerations

- If some of Ontario's CDM costs could be amortized, analysis shows that ratepayer impacts would be reduced in the short-term but interest charges on the loan would result in increased overall ratepayer costs in the longer-term.
- Legislative amendments would be needed to allow recovery of loan interest charges from GA.
- If there is a desire to proceed:
 - Formal accounting advice will need to be sought from IESO's external auditor as well as the Ontario Provincial Controller (OPC) to determine whether CDM costs could be amortized according to rate-regulated accounting standards.
 - Further legal analysis would also be required to confirm legal viability and possible approaches to implementation.

5. LDC Efficiencies

- Consider opportunities for future LDC cost reductions and efficiencies through the regulatory framework.

Considerations

- The Ontario Energy Board 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.
- Since 2012, the OEB has taken action – through the Renewed Regulatory Framework for Energy – to more closely link rate regulation with performance measures and outcomes.
- There maybe opportunities to promote further cost reductions and performance improvements within the distribution sector as there is continued evolution of the regulatory framework in Ontario.
 - Tightening LDC requirements may also indirectly incent other desired policy outcomes, such as LDC consolidation and grid modernization to realize further cost reductions.
- ENERGY could help promote or accelerate these efforts by asking the OEB through the LTEP Implementation Directive, s. 35 of the *Ontario Energy Board Act, 1998*, and the 2017 Mandate Letter and other agency business planning processes.
- In addition, further changes to the departure and transfer tax regimes could be considered to provide a further incentive for LDC mergers and acquisitions.

6. Rate Design Initiatives

- OEB continues to move forward with its Regulated Price Plan (RPP) Roadmap:
 - The OEB is undertaking a comprehensive review of the RPP, including exploring the introduction of offering different pricing plan options for customers following the completion of pilot programs in 2018. The plan is expected to be implemented over a 3-5 year period.
- Until new pricing plans are available, the OEB could provide an “opt-in flat rate RPP” structure that could be made available to residential, farm and small business consumers on an interim basis (2-3 years) until a wider range of price plans are available.
- Time-of-Use (TOU) pricing could also be introduced for non-RPP Class B consumers to reduce Global Adjustment (GA) volatility and reduce system costs.

Current TOU	New Flat Rate
On: 18.0 ¢/kWh	11.1 ¢/kWh
Mid: 13.2 ¢/kWh	
Off: 8.7 ¢/kWh	

Considerations

- The OEB has indicated that the option would lead to no overall change in system costs. Consumers with higher peak and mid-peak usage patterns would see a decrease in their electricity bills, while those with higher off-peak usage patterns would see an increase.
 - While the current strong supply conditions may allow for such an RPP structure (i.e., peak demand requirements can be easily met), administrative costs could be high (distributors would need to design/implement an opt-in process and associated billing system on an interim basis).

	Current TOU	New Flat Rate
1) Monthly electricity bill- higher peak and mid-peak usage patterns	\$172	\$163
2) Monthly electricity bill- higher off-peak usage patterns	\$152	\$163

***Note:** 1) assumes a consumer consumption pattern of 45%:30%:25% (Off-peak: Mid-peak: On-peak), while 2) assumes consumer consumption pattern of 80%:10%:10% (Off-peak: Mid-peak: On-peak). Estimates are based on OEB's online electricity bill calculator (for Toronto Hydro-November 2016 rates)

6. Rate Design Initiatives (cont'd)

Considerations

- The decision to undertake smart meter investments was partly justified on the basis of TOU pricing. If TOU pricing were to be made optional, some stakeholders could question the rationale for smart meter investments.
 - Rationale for offering a flat rate option could focus on providing customers with choice until new pricing plans are rolled out under the RPP roadmap.
- If a flat rate design is introduced, there could be significant consumer opposition to any return to a mandatory TOU.
- After the interim flat rate period, the OEB could offer a wider range of pricing plans to consumers.
 - As part of its RPP review, the OEB will be running pilots with LDCs to assess customer response to alternative time periods and pricing structures.
 - Learnings from these pilots will help inform potential changes to the RPP. Pilots are expected to be in market May 2017 and run for one year.
- Non-RPP Class B electricity consumers currently pay Global Adjustment (GA) on a volumetric basis. Moving them to TOU would provide an incentive to shift consumption to off-peak periods.
 - Consumers, including manufacturers, who are unwilling to shift would face higher costs and likely not be supportive of the changes.
 - The decision to pursue TOU pricing for non-RPP class B consumers will impact proceeds recycling as there is interplay between the two initiatives.

7. Reduced Cost of OPG Borrowing

- OPG currently borrows for corporate purposes from the OEFC
- Seek to reduce OPG's borrowing costs and pass on savings to ratepayers by:
 - Reducing or removing the spread that OEFC applies to OPG for any new corporate debt; or
 - Allowing OPG to refinance its existing debt at longer maturities through the OEFC in order to take advantage of the current, favourable interest rate environment.
- Assuming the full spread is removed from all OEFC debt, OPG borrowing costs could be reduced by 50-100 basis points, representing annual savings of about \$20-\$25 million, increasing to \$30-\$35 million, as OPG's outstanding OEFC debt rises from ~\$3.3 billion in 2016 to ~\$4.7 billion in 2020.
- OPG could apply to the OEB as part of its current rate application to flow this benefit to ratepayers.

Considerations

- Further work is required to determine potential OPG savings from these initiatives.
- Allowing OPG to refinance would have a negative fiscal impact on the Province.
- Spreads are expected to decline, reducing the relative impact of this change, given lower overall interest rates and reduced volatility.
- Providing OPG with greater access to longer term (20-30 year) debt may also reduce costs:
 - OPG's average term to maturity for OEFC debt is 5.7 years, as compared to 22.2 years for privately financed project debt. This contrasts with most corporations and government which have been working to extend average debt terms in order to take advantage of the low interest rate environment.
 - Longer terms would also better match to the life of OPG's assets.
 - Recently, OEFC has allowed OPG to apply for 50% of its financing requirements in the form of longer term (25-30 year debt). Moving closer to 100% would accelerate this transition.

8. End DRC Early for Commercial/Small Industrial Class B Electricity Consumers

- Propose to remove the \$0.07/kWh Debt Retirement Charge (DRC) from the bills of commercial/small industrial Class B consumers beginning in 2017, instead of April 1, 2018.
 - Note:** Class A consumers (e.g., large industrial) would continue to pay DRC until at least April 1, 2018.

Considerations

- For a Class B consumer currently paying about \$152/MWh, removing the DRC would represent a savings of about 5%.
 - A 50% reduction in the DRC charge would represent a savings of about 2%.
- Alternatively, the reduction of the DRC could be to \$0.035/kWh starting in 2017, to provide relief for cap and trade until proceeds recycling is fully operational.
- Residential consumers have had the DRC removed from bills since January 1, 2016. Taking DRC off commercial and small industrial bills would result in equal treatment for these groups of consumers.
- The savings for commercial and small industrial consumers associated with this proposal would drop to zero in April 2018, since this is the current planned date for removing the DRC from non-residential bills.
- Prior to moving forward with this proposal, additional analysis from Legal Services and the MOF would be needed.

9. Dedicate Departure Tax

- In connection with the IPO, as a result of leaving the PILs regime and entering the corporate tax regime, Hydro One was deemed to dispose of its assets for proceeds equal to its fair market value, triggering a PILs liability of \$2.6 billion (Departure Tax).
- This was paid to the Ontario Electricity Financial Corporation (OEFC), to be dedicated towards repayment of electricity sector stranded debt.
- The Province could explore repurposing some of those funds to the benefit of ratepayers.
- This may reduce the risk that the Ontario Energy Board (OEB) assigns to ratepayers the benefit from an associated tax asset, resulting in lower earnings and decreased share value for Hydro One. This decision is currently before the OEB, as part of Hydro One's Transmission rate application.

Considerations

- Cost savings to ratepayers would depend on timing and which ratepayers (e.g., Hydro One customers, or all Ontario customers) will benefit from some or all of the \$2.6 billion value.
- While this is a shift from messaging that value from the broadening of ownership of Hydro One is being used pay down debt and fund transit and transportation, the Province could link to electricity infrastructure investments (e.g., as an offset to infrastructure investments already made in the sector, or to specific initiatives such as conservation).
- These funds were paid to the Ontario Electricity Financial Corporation (OEFC), ~~to be~~ dedicated towards repayment of electricity sector stranded debt. Repurposing may have an impact on the **pay down** / defeasance of this debt.

10. Cancel/Adjust Renewable Energy Procurements

- The Ministry could consider the following actions to further mitigate future impacts to electricity bills:

Unallocated/Terminated Capacity	Announced Procurements	Executed Contracts
A. Do not procure unallocated or terminated capacity	B. Revise FIT 5 target	D. Cancel LRP I contracts
	C. Cancel FIT 6	

Overarching Considerations

- Cost savings associated with reducing or cancelling renewable energy procurements and programs will not reduce current electricity bills, but would result in future cost reductions relative to Ontario Planning Outlook forecasts.
- The IESO estimates implementing options A to C will reduce system costs by approximately \$592 million (\$2016) between 2019 and 2028, resulting in an average of approximately \$0.50/month in savings to a typical residential electricity bill over the same period. [cost reductions from LRP I contract cancellations TBC]
- The microFIT program is winding down end of 2017. Annual microFIT procurement targets have been undersubscribed.
- With a few exceptions (e.g., rollover of unallocated microFIT capacity; addition of terminated microFIT and small FIT capacity to FIT 5), plans for unallocated or terminated capacity are not defined in announcements or existing directions.

Cancel/Adjust Announced Procurements

- Amendments to existing directions to the IESO would be required to reduce FIT 5 and cancel FIT 6.
- The FIT 5 procurement is underway with a base target of 150 MW and inclusion of any capacity available from contract terminations under prior small FIT and microFIT procurements. The application window closed on November 25, 2016.

10. Cancel/Adjust Renewable Energy Procurements – Existing Contracts

Cancel Existing LRP I Contracts

- 16 LRP I contracts (approx. 455 MW) have been executed and projects are under development.
- None have met Key Development Milestones. Total value of LRP I estimated at approx. \$1 billion (NPV to 2016).

[Placeholder for IESO: Cost calculation relative to OPO and associated bill impact]

Considerations

- To help inform a decision, IESO or OEB could be asked to evaluate and provide guidance to the Ministry on the system need for LRP I projects and potential ratepayer impacts/benefits.
- 13 of 16 LRP I contracts have Indigenous participation. Cancelling LRP I contracts would remove this economic development opportunity and likely damage relationships between Indigenous communities and the government.
- LRP I Contract includes an “Optional Termination” provision allowing IESO to terminate any contract prior to the “Commercial Operation Date” with 6 months written notice.
- The IESO obligations under the Optional Termination provision depend on whether the project has met all “Key Development Milestones”.
 - As no projects have met their Key Development Milestones, the estimated total cost payable to contract holders is about \$8 million.

10. Cancel/Adjust Renewable Energy Procurements – Existing Contracts (cont'd)

Legal Analysis

- Under the *Electricity Act, 1998*, the Minister has the authority to amend previous directions without approval from Cabinet. Although an amendment to an existing direction would not require Cabinet approval, it is unlikely that a direction to cancel LRP I contracts could be considered as amending an existing direction. The previous LRP directions set out the broad policy framework that was reflected in the procurement, but the contracts themselves, once executed, are stand alone documents which the IESO had legal authority to execute. Revoking previous LRP directions does not affect that authority or have the effect of cancelling the procurement.
- As a result, any new directive to cancel LRP I contracts would need to be approved by Cabinet, either as part of an LTEP implementation directive to IESO, or pursuant to the overall power to direct IESO with respect to procurements outside the LTEP process. However, there is a risk that such a directive could be subject to challenge.
- ENERGY has previously received advice that there is a high risk that a court would conclude that the Minister has no authority under the *Electricity Act, 1998* to issue a direction requiring IESO to terminate microFIT Conditional Offers and FIT Offer Notices that have already been issued to applicants, because these offers create vested contractual rights and the Minister would require clear legislative authority to interfere with those rights. This reasoning would likely apply equally to any direction or directive to IESO to cancel LRP I contracts.
- Previous advice has also flagged a moderately high risk that the Province could be liable for damages in tort for inducing a breach of contract if it issues a direction to IESO that interferes with vested contractual rights without clear statutory authority to do so. LRP I contract holders could also assert other claims, such as misfeasance in public office.
- The risk and costs associated with potential law suits resulting from the cancellation of contracts requires further analysis, including analysis of whether any statutory amendments would be required to provide clear authority to cancel the contracts. LSB recommends ENERGY seek an opinion from Crown Law Office Civil before proceeding.

Summary

- Reductions in electricity rates could be achieved by eliminating existing, planned or directed initiatives from the rate-base or shifting these costs to the tax-base.
- The timing of the impact of these rate mitigation initiatives varies.
 - Immediate and near-term impacts can be achieved by shifting costs to the tax-base or changing how certain costs are recovered from consumers or eliminating certain programs.
 - Over the longer term, changes to the electricity supply mix and achieving efficiencies in the electricity market could yield system savings.
- Pursuing the initiatives would require regulatory amendments and working with the electricity sector agencies, LDCs and other stakeholders to implement the initiatives.
- As shown before the positive impact to residential ratepayers is very limited from the proposals with ratepayer impacts estimated by Energy (between \$8 and \$9 per month) while the impact to the Province's fiscal position would be material (about \$1.2 to \$1.5 billion a year). If additional proposals are also fiscally-funded, the fiscal cost could be substantially higher from, e.g., accounting treatment of conservation amortisation or a class B DRC exemption.

Appendix

Electricity Consumer Classes

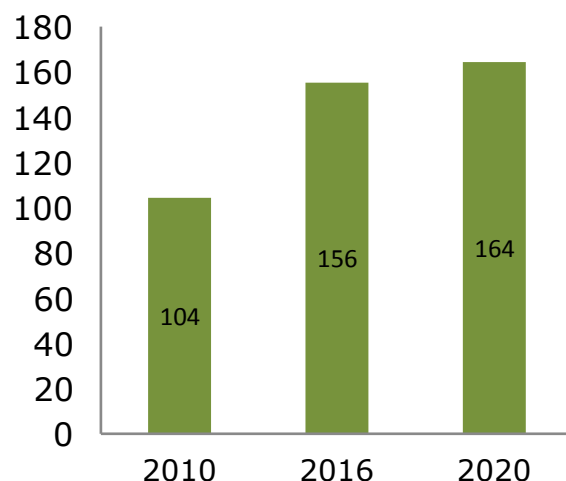
- In Ontario, there are three classes of electricity consumers:

	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%

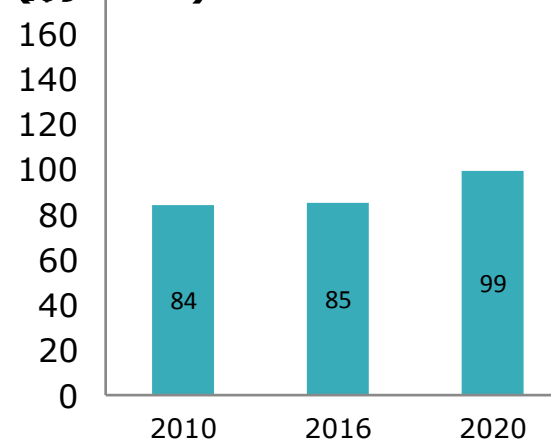
Prices by Electricity Consumer Class

- Since 2010, average bills for residential consumers (i.e., using 750 kWh/month) have increased by over 50%. Rates are forecast to continue to increase, with residential consumers paying an estimated 6% by 2020.
- Industrial electricity rates have remained relatively flat over the same time period, due primarily to the Industrial Conservation Initiative (ICI). ICI represents a cost shift of about \$5/month for residential electricity consumers. Industrial electricity consumers are forecast to see an increase of 16% by and 2020.

**Typical Residential Bill
(750/kWh per month)**



**Typical Class A
(Industrial) Price
(\$/MWh)**



Note: 2016 represents year-to-date September 2016 for industrial. Cap and trade proceeds recycling is included for the industrial consumer for 2020.

Rate Mitigation Levers

- To provide further rate relief to Ontario electricity consumers, the government can use one or more of the levers outlined below:
 - **Tax-based Lever:**
 - Provide rebates funded from the tax-base or transfer items currently paid through the rate-base to the tax-base.
 - **Rate-based Lever:**
 - Shifts costs within the rate-base from one customer group to another to achieve electricity system benefits and/or policy goals.
 - **Cap and Trade Proceeds Lever:**
 - Use cap and trade proceeds on initiatives that help reduce greenhouse gas (GHG) emissions from the electricity sector (e.g., recycling proceeds during off-peak periods) while providing benefits to some or all electricity consumers.

Traditional Rate Mitigation Programs

- Ontario has implemented a number of rate-based programs to help residential and industrial electricity consumers:
 - The Ontario Electricity Support Program (OESP) provides ongoing assistance directly on the bills of eligible low-income electricity consumers
 - The Rural or Remote Rate Protection (RRRP) program is provided to rural and remote residential and farm customers because the cost of distributing power to remote areas is much higher than for urban areas.
 - The Industrial Conservation Initiative (ICI) encourages Ontario's largest consumers to reduce consumption during peak periods while reducing system costs.
- There are also tax-base programs to help manage electricity prices:
 - Rebate the provincial portion of the HST from the electricity bills of residential, small business and farms as of January 1, 2017.
 - Northern Industrial Electricity Rate Program (NIERP), in which participants receive a rebate of two cents per kilowatt hour. On average, industrial electricity prices can be reduced by up to 20%.
- While rate-based programs provide relief to certain electricity consumers, they shift other costs to remaining ratepayers (See Appendix for additional details).

Driving Down Prices for Consumers

- Since 2013, a number of actions have been taken to drive down prices for consumers wherever possible:
 - Renegotiating the Green Energy Investment Agreement, reducing contract costs by \$3.7 billion;
 - Deferring the construction of two new nuclear reactors at Ontario Power Generation's Darlington facility, avoiding an estimated \$15 billion in new construction costs;
 - Approving Ontario Power Generation's plans to enable the ongoing operation of Pickering up to 2024, which is expected to save ratepayers as much as \$600 million;
 - Reducing Feed-In-Tariff (FIT) prices through annual price reviews, saving ratepayers at least \$1.9 billion relative to the 2013 Long-Term Energy Plan (2013 LTEP) forecast; and
 - Suspending the second round of the Large Renewable Procurement (LRP II) process and the Energy-from-Waste Standard Offer Program to save up to \$3.8 billion in electricity system costs relative to 2013 LTEP.

Cost Shifts in the Electricity Sector – Current Programs

- Several programs in the electricity sector “shift costs” from one group of electricity consumers to another:
 - **Rural or Remote Rate Protect (RRRP)** is a longstanding program that reduces the delivery charge for rural electricity consumers and is paid for by all consumers in Ontario through a regulatory charge on bills.
 - **Ontario Electricity Support Program (OESP)** is funded via a regulatory charge on consumer bills and provides support for qualifying low income electricity consumers.
 - **Industrial Conservation Initiative (ICI)** empowers large consumers to lower their costs by reducing their demand during peak hours. In the process, ICI shifts costs from large electricity consumers to all other consumers in Ontario.
 - **Industrial Electricity Incentive (IEI)** program, offers reduced electricity prices for companies starting or expanding operations in Ontario. All electricity consumers in Ontario pay for the price reduction that IEI participants receive.

Cost Shifts in the Electricity Sector (Cont'd)

- The tables on the right show the estimated cost shifts that result from existing government programs.
- ICI has had the largest cost shift of all the programs, due to the large size of Global Adjustment (GA) and the way that it is recovered from consumer classes.
- RRRP and OESP impact the regulatory line on consumer bills, while ICI, IEI and conservation affect GA (i.e., Electricity line on bills of Regulated Price Plan consumers).

Cost Shift Impacts - Residential Bill

Typical 750 kWh/month Toronto Hydro consumer

\$/month	2011	2012	2013	2014	2015	2016
ICI	2.65	3.25	3.88	3.53	4.75	4.77
RRRP	0.90	0.82	0.84	0.92	0.93	0.94
OESP	-	-	-	-	-	0.84
Conservation	1.85	1.92	2.00	1.58	2.43	2.45
IEI	-	-	0.08	0.09	0.11	0.12
Total	5.41	5.99	6.81	6.13	8.21	9.12

Cost Shift Impacts - Industrial Bill

Typical Class A consumer

\$/MWh	2011	2012	2013	2014	2015	2016
ICI	-22.17	-26.36	-30.29	-25.91	-33.79	-33.92
RRRP	1.20	1.10	1.12	1.23	1.24	1.25
OESP	-	-	-	-	-	1.13
Conservation	1.53	1.59	1.66	1.31	2.01	2.02
IEI	-	-	0.07	0.08	0.09	0.10
Total	-19.43	-23.67	-27.44	-23.29	-30.45	-29.43

Note: OESP did not come into effect until 2016. The 2016 values represent forecasts and are subject to change.

Cost Shifts in the Electricity Sector (Cont'd)

- The table on the right shows the total cost for various government electricity programs. These programs are currently funded through the electricity system ratebase.

Cost of Programs

By government program

\$M	2011	2012	2013	2014	2015	2016
ICI	506	615	736	670	890	893
RRRP	172	156	159	176	174	176
OESP	-	-	-	-	-	158
Conservation	329	339	354	280	425	428
IEI	-	-	15	16	18	19

- Funding of these programs through the fiscal plan would remove these costs from the electricity system (i.e., Placing these costs on the taxbase).
- For example, removing the roughly \$900 million of program cost from the Industrial Conservation Initiative (ICI) program would save the typical residential electricity consumer \$4.77 per month in 2016.

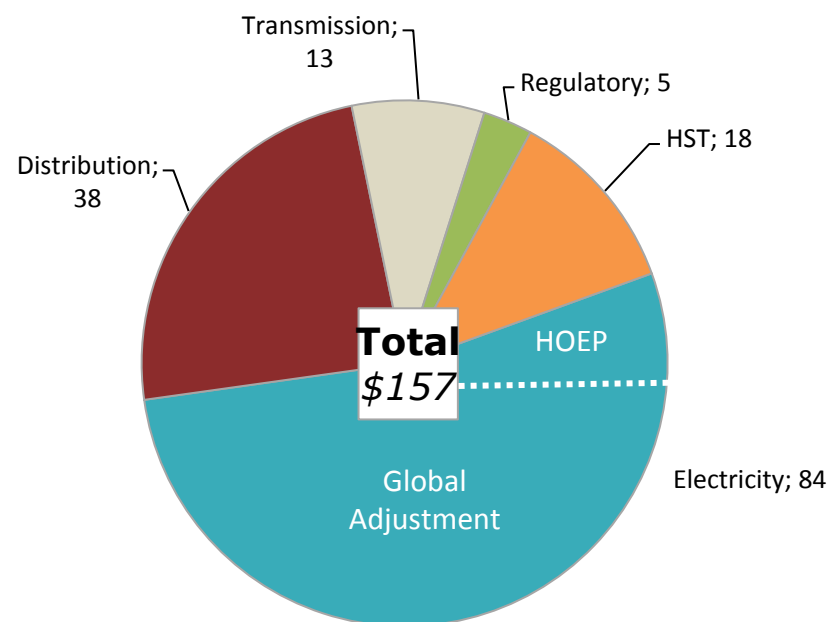
Note: OESP did not come into effect until 2016. The 2016 values represent forecasts and are subject to change.

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 November 1, 2016 (750 kWh/month)



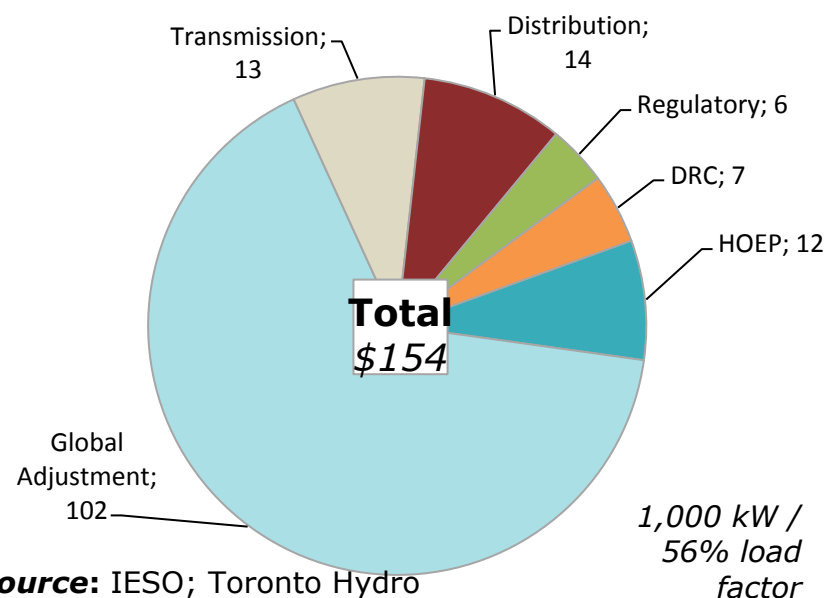
Source: OEB, Toronto Hydro

Commercial 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.

Typical Commercial Price (\$/MWh)

YTD June 2016 (Non-RPP Class B)



- 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.

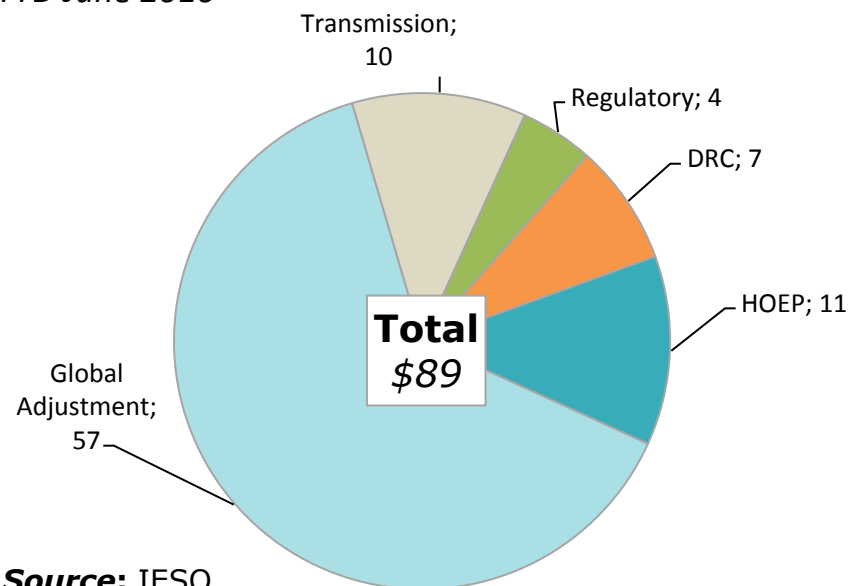
* **Note:** Most commercial consumers receive input tax credits for their HST.

Industrial Electricity Prices

- There are about 300 large industrial consumers in Ontario.
- 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 3 MW) that reduce consumption during peak periods.
 - ICI consumers reduce their electricity rates by 25% on average.

Typical Large Industrial Price (\$/MWh)

YTD June 2016



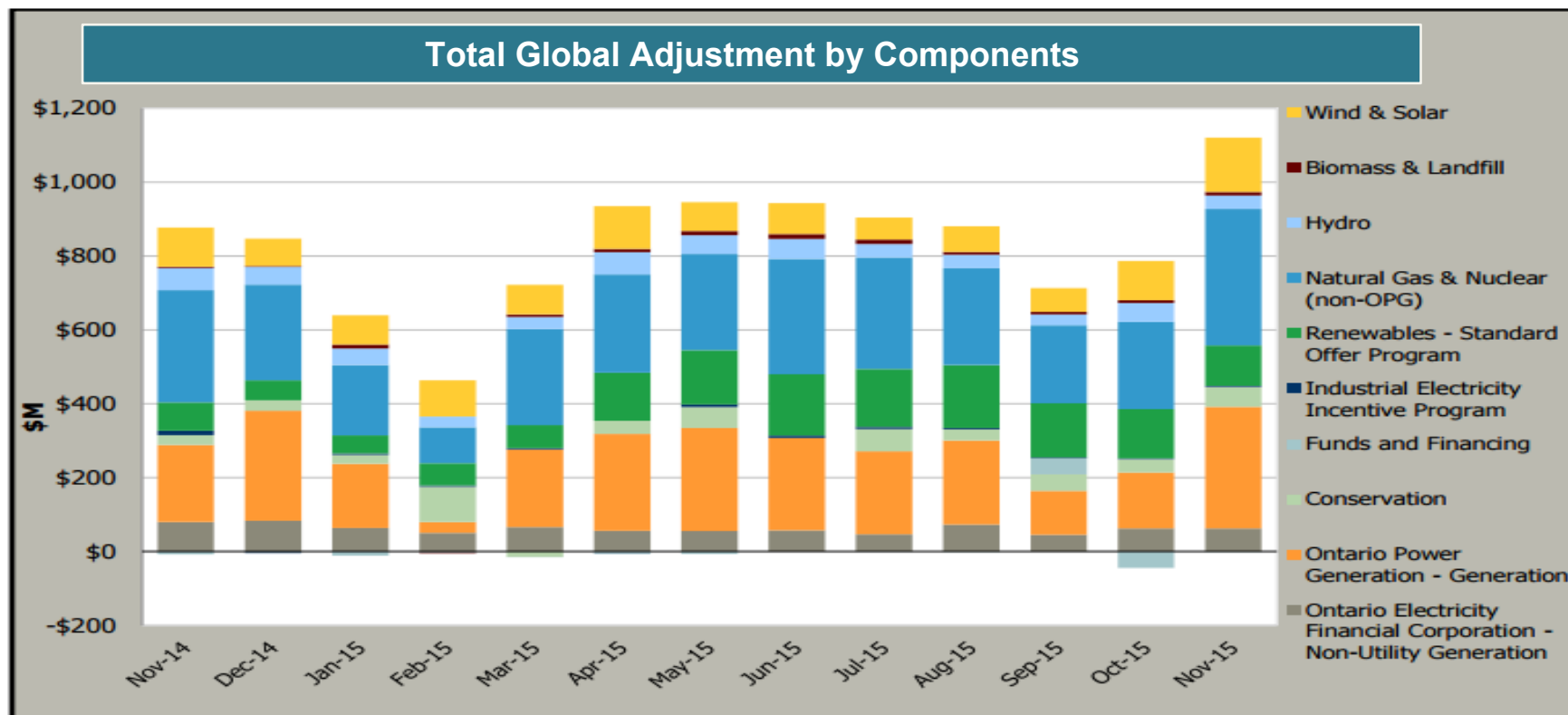
Source: IESO

- 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 \$69/MWh for these consumers. The program is funded through the tax base.

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

Total Components of Global Adjustment

- Global Adjustment (GA) is a market mechanism that recovers costs from electricity consumers, including the cost of almost all conservation programs in the province (i.e., approximately half a billion dollars in 2016).



Source: IESO Monthly Market Report (November 2015)

Cancel/Adjust Renewable Energy Procurements

LRP I Pre-Construction Liability Limits

- All 16 successful LRP I developers accepted Optional Termination Provisions when the LRP I Contracts were executed in April 2016.
- If IESO chooses to enact the Optional Termination provision before a project has met all Key Development Milestones, IESO is required to pay pre-construction development costs up to the Pre Construction Liability Limit.
- Pre-construction development costs include costs incurred for feasibility studies, obtaining site access rights, work towards environmental approvals, business development plans, negotiation of contracts for design, equipment, construction and financing, reasonable overhead expenses, and other reasonable costs incurred.
- The Pre Construction Liability Limits are:
 - Non-Rooftop Solar: \$250,000 plus \$10.00/kW of Contract Capacity
 - Waterpower: \$500,000 plus \$20.00/kW of Contract Capacity
 - On-Shore Wind: \$400,000 plus \$2.00/kW of Contract Capacity
- According to the LRP I Optional Termination provision, the developer has a duty to take reasonable steps to mitigate losses, liabilities, costs and damages incurred as a result of the Optional Termination.
 - The IESO will not provide compensation for amounts which are attributable to a developer's failure to take reasonable steps to mitigate.