

2017 Long-Term Energy Plan

Part 2 – Outlooks and Forecasts

Ministry of Energy

August 31, 2017

WORKING DRAFT

Minister

Deputy Minister

Agenda for Discussion

1. Overview of Request
2. 2017 Long-Term Energy Plan (2017 LTEP) Outlooks and Forecasts:
 - A. Electricity;
 - B. Fuels; and
 - C. Greenhouse Gas (GHG) Emissions
4. Rate Mitigation Initiatives
5. Communications
6. Next Steps
7. Proposed Cabinet Minute

1. OVERVIEW OF REQUEST

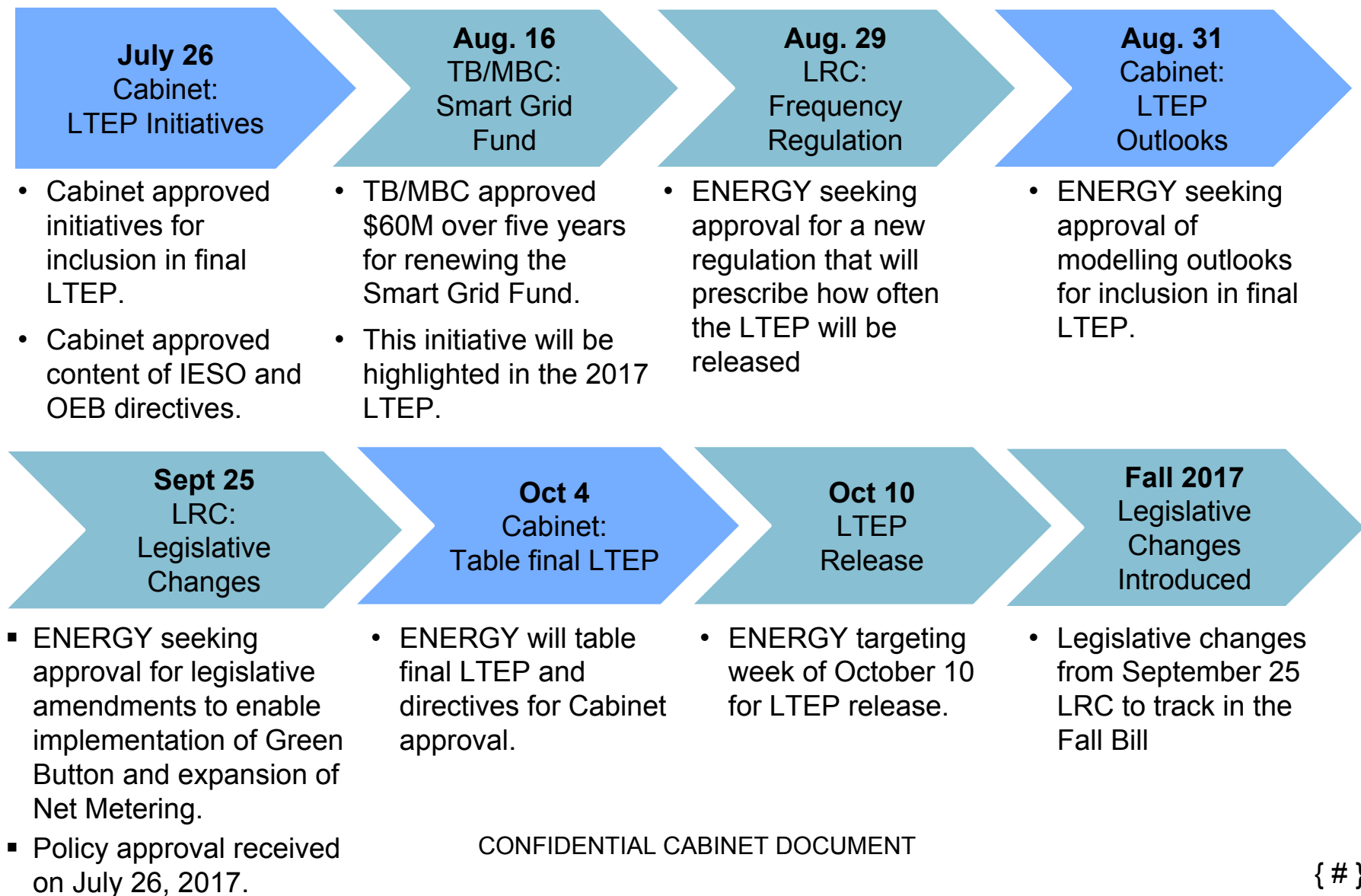
Overview of Request

- In July 2017, Cabinet approved the policy and program initiatives to be highlighted in the 2017 Long-Term Energy Plan (2017 LTEP).
 - At the time, the Ministry Energy (ENERGY) indicated that it would return to Cabinet to seek approval on proposed “outlooks and forecasts” that would be highlighted in the 2017 LTEP (i.e., for supply, demand, price and emissions).
- The Ministry of Energy has prepared the following for Cabinet approval:
 1. 2017 LTEP modelling outlooks and forecasts for:
 - Electricity;
 - Fuels; and
 - Greenhouse Gas (GHG) Emissions.
 2. Communications strategy for the 2017 LTEP release.
- The Ministry of Energy will return to Cabinet in October 2017 to table the final 2017 LTEP and implementation directives to the Independent Electricity System Operator (IESO) and Ontario Energy Board (OEB).

Key Results of 2017 LTEP Modelling

- While a moderate growth in electricity demand is expected, Ontario is able to comfortably accommodate these increases.
- Ontario is in a strong electricity supply situation and maintains the flexibility to respond to future variations in the demand forecast.
- Electricity prices for typical residential consumers reflect Ontario's Fair Hydro Plan (OFHP), which lowers electricity bills by 25 per cent. Following the four year inflationary cap, residential electricity rates increase at an average rate of about 5 per cent over a 7 year period (from 2021 to 2027).
- While the fuels sector continues to be an important player in Ontario's economy, declining demand for conventional fuels contributes to the fuels sector being the primary contributor to greenhouse gas (GHG) emission reductions in the province.
- Ontario's GHG emissions will continue to decline over the planning horizon, and supports the provincial target of reducing emissions to 37 per cent below 1990 levels by 2030.
- Natural gas bills are expected to significantly increase over the planning horizon.

Linkage to Other Cabinet Approvals



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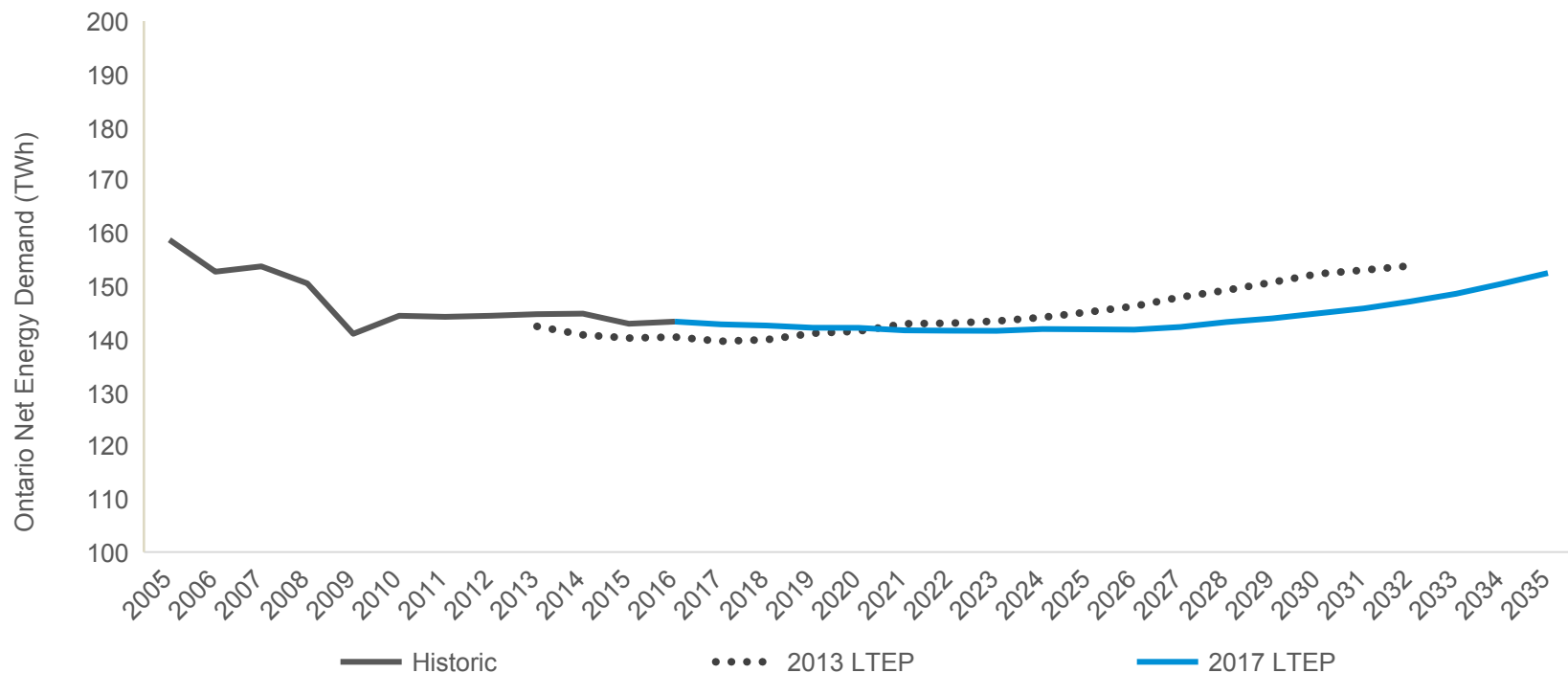
3. OUTLOOKS / FORECASTS – ELECTRICITY AND FUELS

A. Electricity Outlook – Overview

- The LTEP is the energy sector's roadmap. It includes 20-year outlooks / forecasts, and identifies initiatives to position the energy sector for the future. Past LTEPs have included:
 - Electricity Demand Outlook;
 - Electricity Supply Outlook;
 - Forecast of Typical Residential Electricity Bill; and
 - Emissions Outlook.
- The introduction of OFHP has impacted the residential electricity bill by reducing costs in the near term. Over the long term the incurred debt with interest will be repaid by electricity consumers.
- In 2016, IESO released the Ontario Planning Outlook (OPO) to assist the development of the 2017 LTEP. The IESO's OPO included a range of demand scenarios:
 - Outlook A: Lower electricity demand;
 - Outlook B: Level of long-term demand that roughly matches the level of demand that exists today;
 - Outlook C: Higher levels of demand driven by 5 per cent fuel switching to electricity and 2.4 million EVs by 2035; and
 - Outlook D: Higher levels of demand driven by 10 per cent fuel switching to electricity and 2.4 million EVs by 2035.

A. Electricity Outlook – Demand

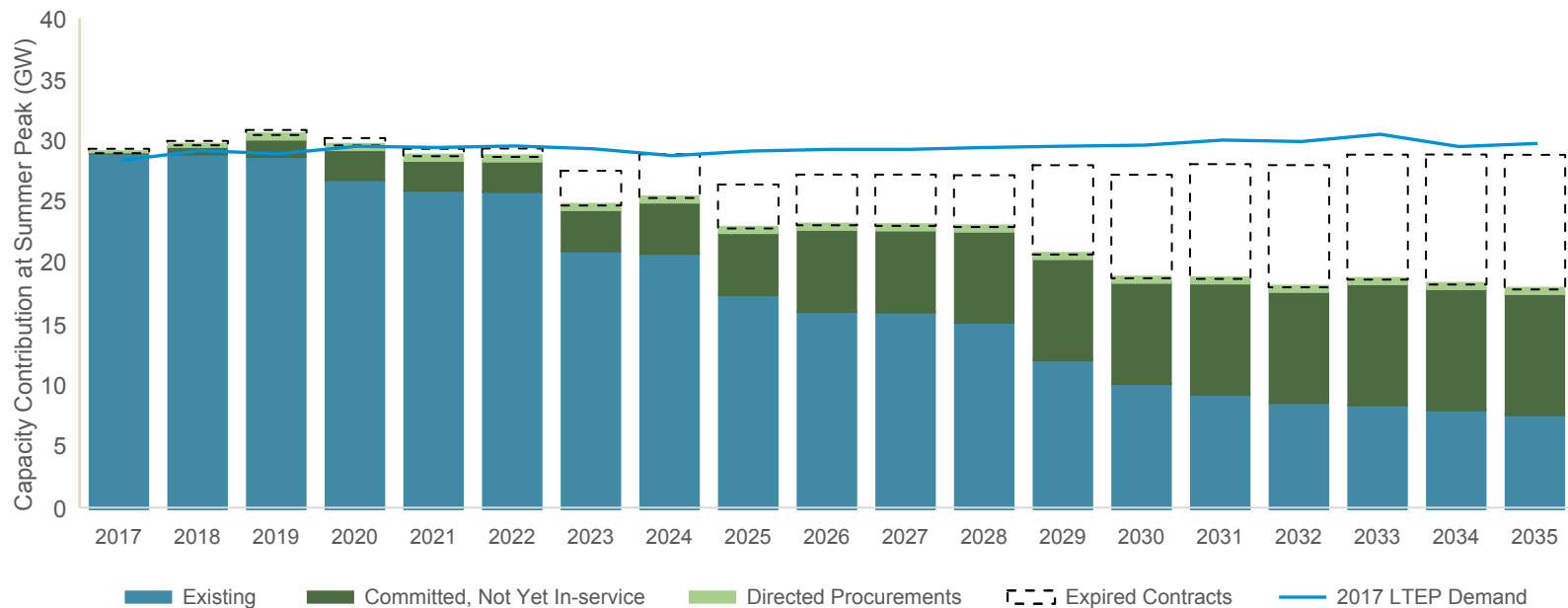
- The 2017 LTEP demand outlook over the planning horizon reflects continued conservation savings and increased electrification of the transportation sector.
- The following chart shows that there are moderate increases in electricity demand. This demonstrates the important and vital role that conservation and energy efficiency will continue to play in the province.



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A. Electricity Outlook – Supply

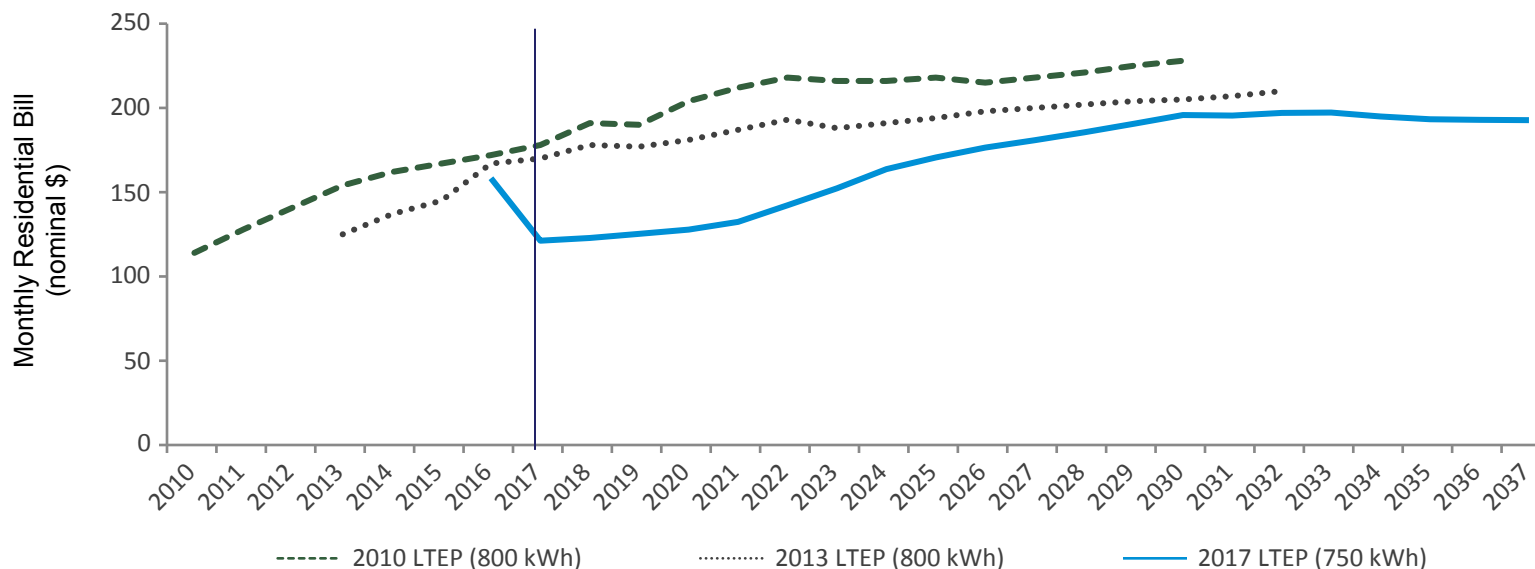
- The 2017 LTEP supply outlook over the planning horizon meets the projected demand while maintaining the flexibility to respond to future variations in the demand forecast.
- 18 GW of supply resources will reach the end of their contract term by 2035. There will be a need for additional resources in the early 2020s if demand materializes.
 - These resources could offer into the electricity and/or capacity market to provide additional supply as required.
 - Maintaining flexibility allows for the electricity system to meet increases and decreases in future demand.
 - This “planned flexibility” in supply planning will be crucial given that the development and commercialization of new disruptive technologies could lead to lower than forecast electricity demand.



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A. Electricity Outlook – Residential Prices

- The 2017 LTEP residential price outlook shows progress at lowering costs relative to the 2013 LTEP.
- The modelling assumptions for 2017 LTEP Residential Electricity Price Forecast include:
 - Benefits from implementing IESO's Market Renewal which includes a number of initiatives focused on more efficiently meeting demand; and
 - Ontario's Fair Hydro Plan (OFHP), which lowers typical residential electricity bills by 25 per cent. Following the four year inflationary cap, residential electricity rates increase at an average rate of about 5 per cent over 7 years period (from 2021 to 2027), which is lower than what was forecast in previous March 2017 OFHP Cabinet Submission (i.e., 6.5 per cent).



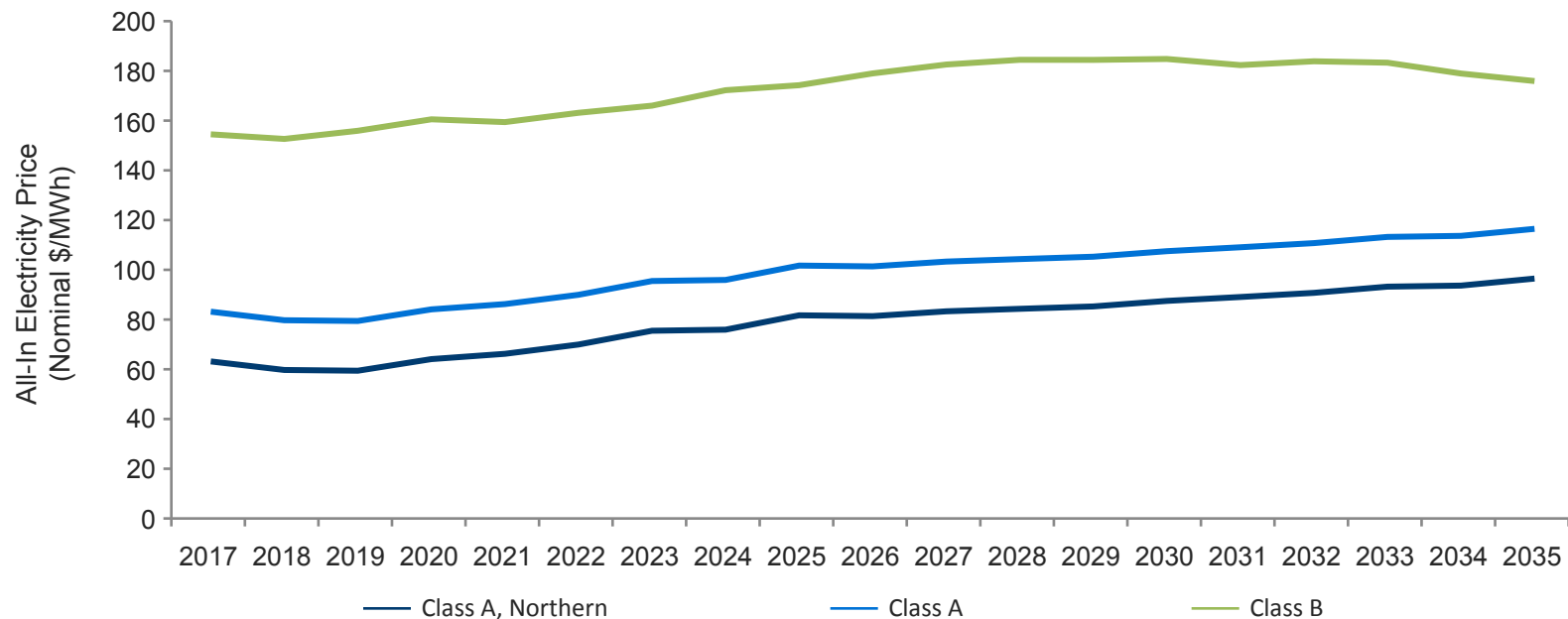
	2017 July (No OFHP)	2017 July (OFHP)	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
Monthly Bill	162	121	123	125	128	132	142	152	164	171	176	181	186	191	196	195	197	197	195	193	193	193
per cent Change		-25%	2%	2%	2%	4%	7%	7%	7%	4%	3%	2%	3%	3%	3%	0%	1%	0%	-1%	-1%	0%	0%

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Notes: With the exception of 2017, estimated bills reflect annual averages for the 2017 LTEP figures above. Other options have been considered to remove costs from the electricity system.

A. Electricity Outlook – Large Business & SMEs

- The 2017 LTEP price outlook for an illustrative large business and small and medium enterprises (SMEs) reflects average increases in line with inflation over the forecast period.
- The actual commodity price for large businesses is dependent on their operational requirements and ability to shift electricity consumption to off-peak hours.
- SMEs are not eligible for the refinancing of Global Adjustment (GA) under OFHP, but are benefiting from the tax-basing of social programs and will benefit from the elimination of the Debt Retirement Charge (DRC) in April 2018. In addition, ENERGY will work with Ministry of Economic Development and Growth (MEDG) and other ministries to identify opportunities to decrease electricity costs for SMEs that currently do not benefit from rate mitigation programs.



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Note: Commodity price based on forecast HOEP and GA averaged across Class A and Class B. Actual prices for Class A are dependent on each consumer's ability to shift consumption to off-peak hours to reduce their GA under the Industrial Conservation Initiative (ICI). Class A above reflects a transmission-connected facility. Participants in the Northern Industrial Electricity Rate Program (NIERP), which is funded through provincial revenues, receive a \$20/MWh reduction. Illustrative distribution charge is based on a 500 kW consumer connected to Toronto Hydro operating 55 per cent of the time. Line losses are excluded.

A. Electricity Outlook – Considerations

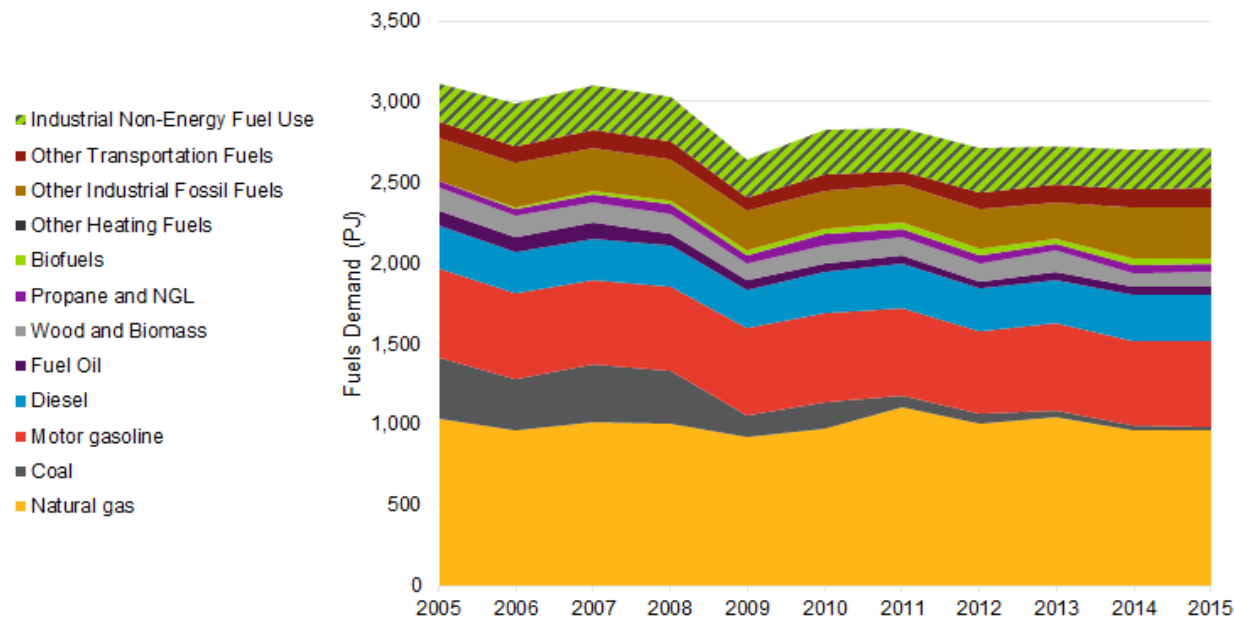
- Under the 2017 LTEP, the outlooks for electricity demand and supply are stable. This stability enables progress at lowering costs relative to the 2013 LTEP.
- Following the four year inflationary cap under OFHP, residential electricity rates increase at an average rate of about 5 per cent over a 7 year period (from 2021 to 2027).
- As the electricity system is relatively well supplied over the 2017 LTEP forecast period, any new procurements would represent upward pressure on the total cost of electricity, including electricity generation, transmission and distribution infrastructure.
- Electricity prices for large business are expected to remain low due to the Industrial Conservation Initiative (ICI). While SME rates are expected to increase below the rate of inflation on average over the planning period, they will remain relatively high. ENERGY is working with MEDG and other ministries to find for opportunities to decrease costs for SMEs that currently do not benefit from rate mitigation programs.
- ENERGY agencies (i.e., IESO and OEB) will continue to identify future opportunities options to remove costs from the electricity system through efficiencies, other funding sources and supply mix decisions.

B. Fuels Outlook – Overview

- Ontario's fuels sector is multi-faceted in its sources and uses. See next slide.
 - Fuels are necessary for two main uses – as a source of energy (e.g., space and water heating, cooking, transportation, industrial processes) and as feedstock in the manufacture of consumer products (e.g., plastics).
 - Fuels sources are numerous – a small number of fuels (i.e., natural gas, gasoline and diesel) account for the majority of supply, but there are a variety of “niche” fuels that supply diverse uses (e.g., propane, wood, aviation fuel).
- Fuels are produced and delivered through a variety of means and markets. As such, the fuels sector is influenced by factors and trends outside of Ontario's control. Compared to the electricity sector, the government has fewer policy levers to affect the planning of future fuels use and supply.
 - The government has directive authority with the Ontario Energy Board (OEB) to set conservation requirements for regulated electricity and natural gas utilities.
- In 2016 to assist the development of the 2017 LTEP a Fuels Technical Report (FTR) was prepared.
 - The FTR outlined five scenarios based on the same primary assumptions contained in IESO's OPO for electricity with additional “fuels only” initiatives considered in FTR Outlooks E and F.
- Ontario's cap and trade program provides efficient, market-based incentives to transition from conventional fuels to renewable and lower-carbon sources. In addition, programs and initiatives in the Climate Change Action Plan (CCAP) and delivered by the Green Ontario Fund (GOF) will further support efforts to decarbonize the fuels sector.
 - The GOF is planning to offer low-carbon technology incentives for homes, multi-unit residential buildings and small and medium sized businesses for low-carbon technologies. These programs will offer consumers choice and help them transition to a low-carbon economy.

B. Fuels Outlook – Overview (cont'd)

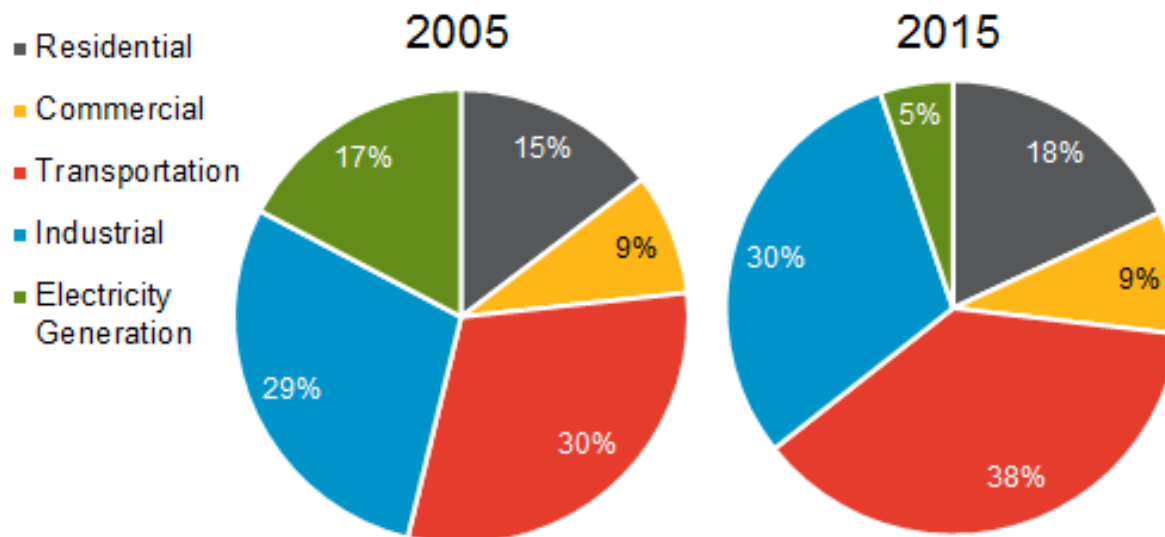
- Natural gas and transportation fuels (e.g., gasoline, diesel) represent the largest components of Ontario's total fuels consumption, accounting for 36 per cent and 35 per cent respectively in 2015. Note: About 10 per cent of Ontario fuels consumption is for non-energy uses (e.g., feedstock for manufacturing).
- Fuels consumption has generally trended downward between 2005-2015, largely due to the retirement of coal-fired generating stations. In the past few years, fuels consumption is relatively flat with lower use of natural gas being offset by higher use of transportation fuels.
 - The FTR indicates that residential fuels use per square metre has declined by 11 per cent between 2005-2015 due to conservation and improved energy efficiency.
- Today, Ontario electricity sector GHG emissions represent about 2 per cent of Ontario's overall economy-wide GHG emissions.



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B. Fuels Outlook – Overview (cont'd)

- Since 2005, sectoral shares of total energy consumption have changed, with the most significant change in the amount of fuels energy used for electricity generation.
 - Fuels energy used for electricity generation in 2015 declined by three-quarters relative to 2005, primarily due to the retirement of coal-fired generating stations.
- The residential and transportation sectors have both experienced modest growth in fuels use in this period and the commercial and industrial sectors have experienced a small decline in fuels use.
- Relative to 1990, the transportation sector's share of fuel use increased by over 10 percentage points in 2015. Conversely, the electricity sector experienced a **10 percentage point decline** in its share of fuel use. Residential and commercial sectors were relatively unchanged.



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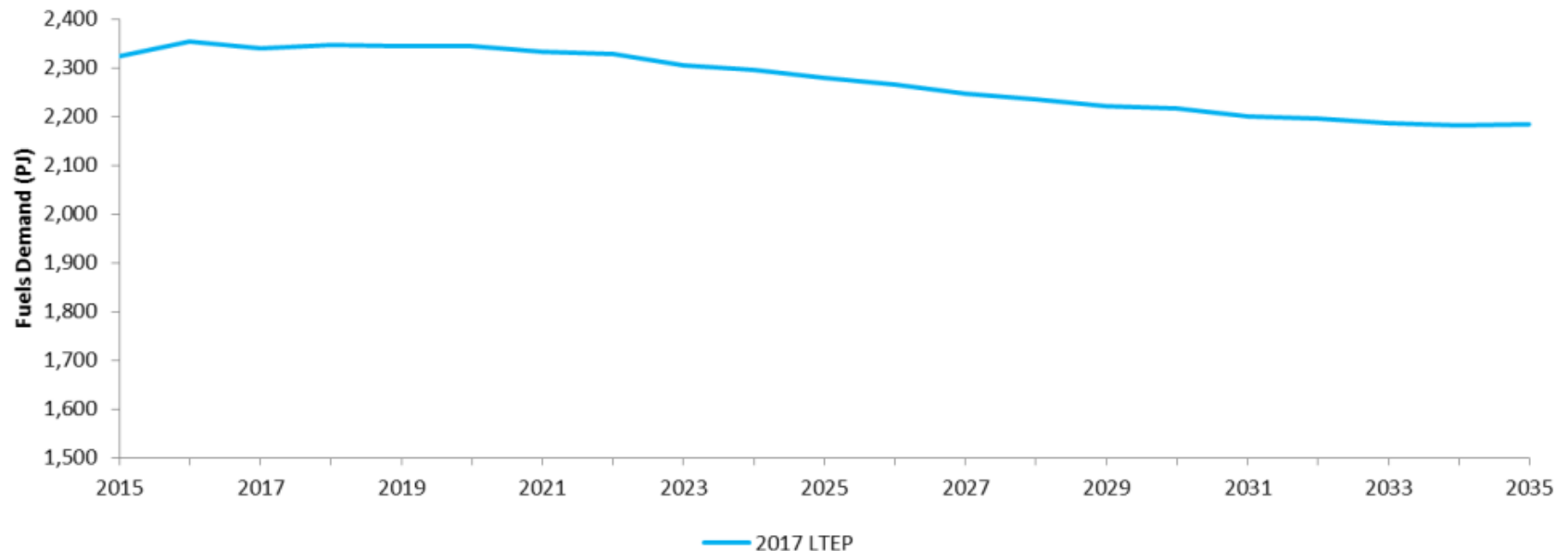
B. Fuels Outlook – Overview (cont'd)

- Implementation of the province's climate change policies consistent with the cap and trade program and the CCAP will have an impact on the supply and demand for fuels.
- The fuels Outlook modelling for 2017 LTEP aligns with IESO's Outlook for electricity (i.e., increased electrification of transportation and updated prices for carbon and natural gas).
- In addition, the fuels Outlook GHG-emissions without additional impacts on the electricity sector. Involves fuels sector initiatives such as:
 - Natural gas demand-side management (e.g., conservation, building efficiency);
 - Renewable natural gas; and
 - Lower-carbon fuels for transportation (e.g., natural gas, ethanol, biodiesel, hydrogen, etc).
- The Ministry retained Navigant, an expert third-party research firm, to provide additional advice and analysis on a set of fuels assumptions. Note: Navigant was original retained to develop the FTR.
- In addition, ENERGY and MOECC have explored opportunities to ensure fuels Outlook modelling for 2017 LTEP continues to align with CCAP (i.e., policies, programs and initiatives).

B. Fuels Outlook – Demand

- The 2017 LTEP fuels demand outlook over the planning horizon shows a steady decline due to:
 - Continued conservation savings (i.e., building envelope improvements and increased efficiency of equipment in the residential, commercial and industrial sectors); and
 - Increased electrification of transportation (i.e., equivalent to 2.4 million EVs by 2035).

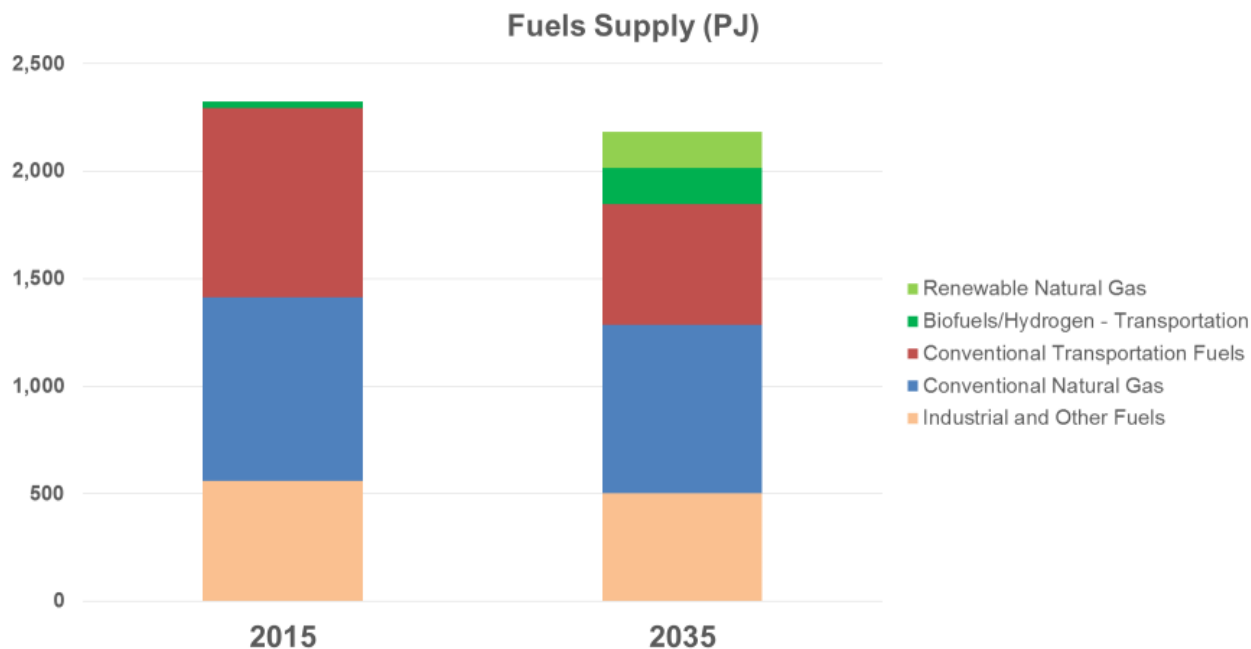
Note: GHG emissions from the fuels sector would decline more than demand due to switching from conventional fuels to lower-carbon sources.



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B. Fuels Outlook – Supply

- The 2017 LTEP fuels supply outlook over the planning horizon shows supply that meets demand (i.e., 2,184 petajoules (PJs) in 2035) while demonstrating a steady transition to renewable and lower-carbon fuels.
- The share of renewable natural gas and bio-fuels/hydrogen for transportation in Ontario's fuel supply increases from 1 per cent in 2015 to 16 per cent in 2035. The share of conventional transportation fuels declines from 38 per cent to 26 per cent.

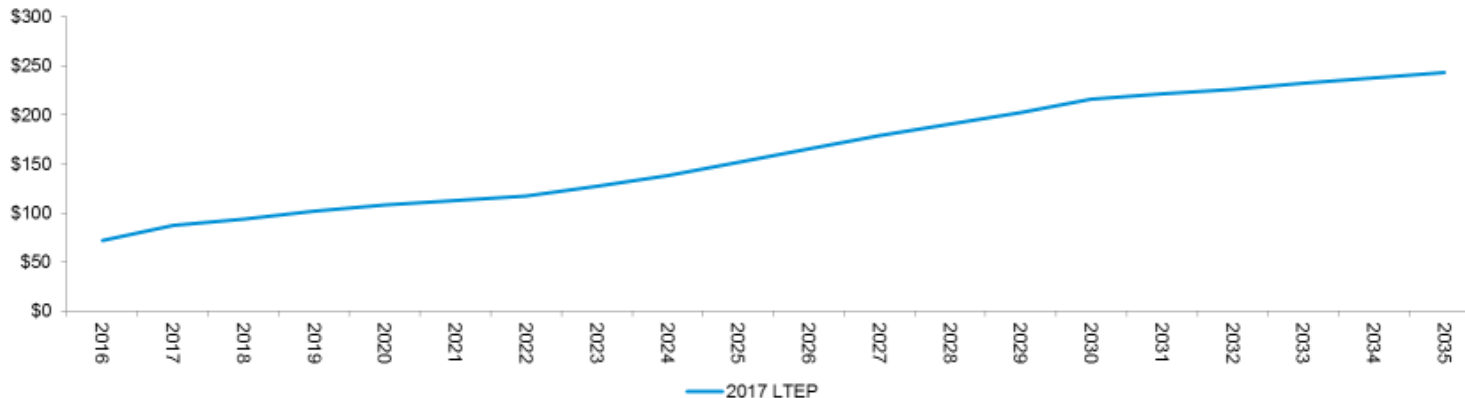


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Fuels Outlook – Prices

- The 2017 LTEP outlook for residential natural gas notes that gas bills are steadily increasing due to:
 - Increasing commodity price for conventional natural gas;
 - Increasing cost of emission allowances for conventional gas; and
 - Substitution of conventional natural gas for higher-cost renewable natural gas (RNG).
 Note: The chart assumes a constant monthly consumption each year.
- There would be similar trends in the cost of transportation fuels (e.g., gasoline) due to higher commodity costs, emission allowances, and substitution for higher-cost renewable sources (e.g., ethanol blending).
- GGRA funding could help mitigate the cost increases related to RNG for natural gas consumers.

Typical Residential Natural Gas Bill (with tax, nominal \$ per month)



	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Monthly Bill	\$72	\$87	\$94	\$102	\$108	\$113	\$117	\$128	\$138	\$152	\$166	\$179	\$191	\$203	\$216	\$221	\$226	\$232	\$238	\$243
per cent Change		21%	8%	8%	6%	5%	4%	9%	8%	10%	9%	8%	7%	6%	6%	3%	2%	3%	2%	2%

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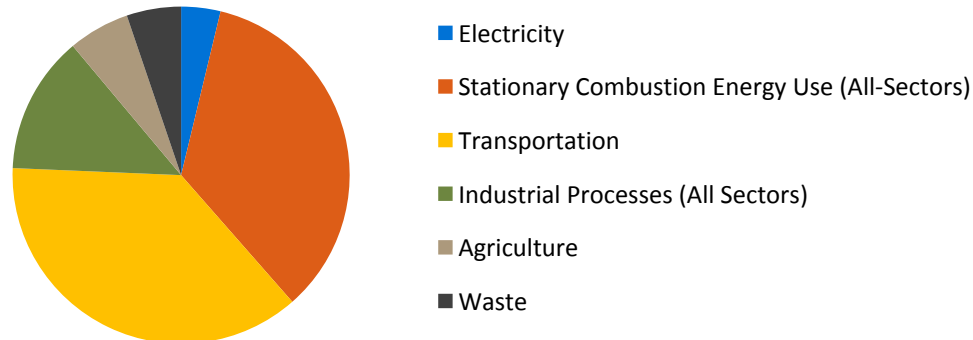
B. Fuels Outlook – Considerations

- The 2017 LTEP fuels outlook:
 - Shows declining demand due to continued conservation and increased electrification of transportation;
 - Shows supply that meets demand while demonstrating a steady transition to renewable and lower-carbon fuels;
 - Does not result in the need for incremental electricity generating capacity beyond the planned supply resources outlined in IESO's Outlook (i.e., no additional electrification of home heating and industrial processes); and
 - Will have cost implications for consumers of fuels (i.e., transportation and home heating).
- Compared to the electricity sector, the government has fewer policy levers to address the planning of future fuels use and supply. However, Ontario's cap and trade program, CCAP and the Green Ontario Fund (GOF) will help to decarbonize the fuels sector and support consumers in shifting from conventional fuels to renewable and lower-carbon alternatives.
 - The GOF Fund is planning to offer low-carbon technology incentives for homes, multi-unit residential buildings and small and medium sized businesses for low-carbon technologies.

C. Greenhouse Gas (GHG) Emissions

- As the province transitions to a low-carbon economy, the electricity system is well positioned to support increased electrification and adapt to new technologies that are cost-effective and enhance the reliability of the electricity system.
 - Ontario met its 2014 emissions target of 6 per cent below 1990 levels, in large part due to coal phase-out.
 - From 1990-2015, electricity sector GHG emissions decreases from approximately 26 MT to 6 MT.
 - Today, Ontario electricity sector GHG emissions represent about 2 per cent of Ontario's overall economy-wide GHG emissions.
- Ontario's current emissions targets are 15 per cent and 37 per cent reduced emissions from 1990 levels by 2020 and 2030 respectively.
 - As shown in the chart below, 72 per cent of Ontario's total emissions in 2015 were from the fuels sector (i.e., stationary combustion and transportation).
- As electricity has been largely decarbonized, emission reductions to achieve upcoming targets will need to come primarily from the fuels sector through conservation and alternative fuels, as well as reductions in industrial processes, agriculture and waste.

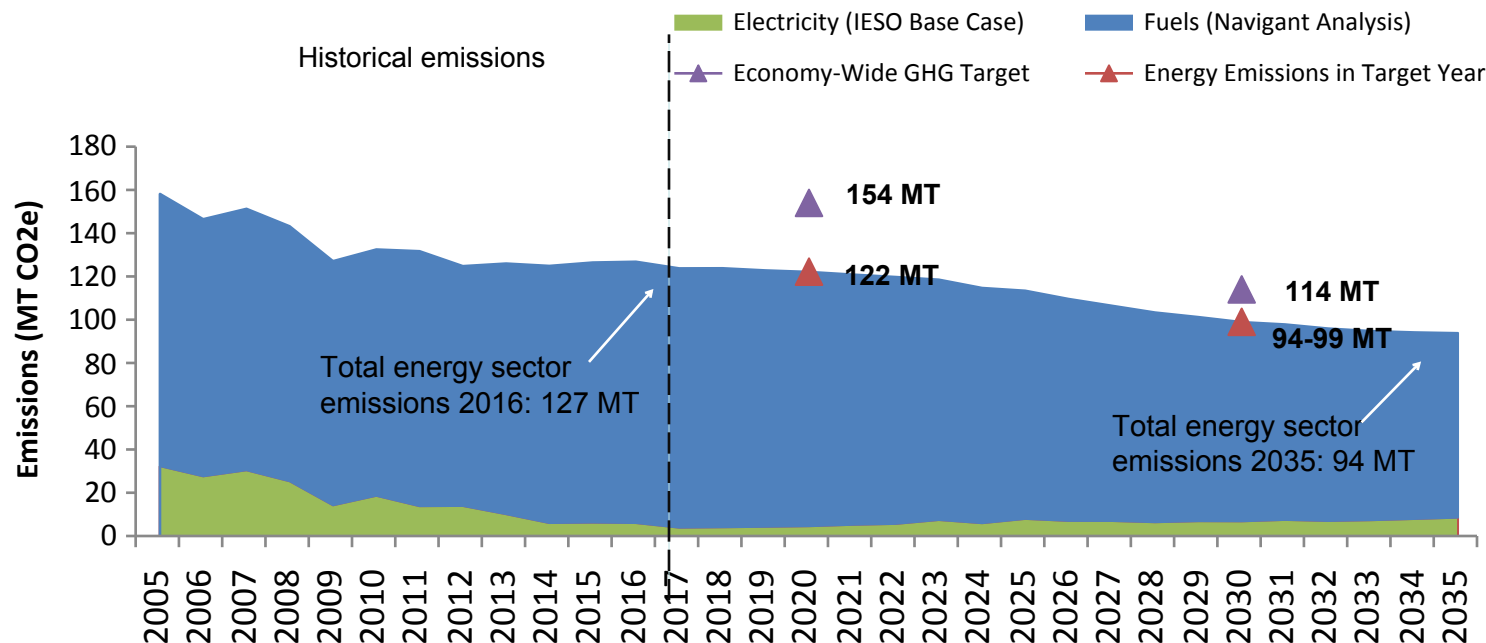
Ontario Emissions, 2015
(in megatonnes CO₂e)



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C. GHG Emissions – Integrated Outlook

- The combined GHG emissions from Ontario's energy sector (i.e., electricity and fuels) would decrease by 26 per cent by 2035 relative to 2016 levels, and would remain below the economy-wide target for 2030 established under the *Climate Change Mitigation and Low-carbon Economy Act, 2016*.
- By 2030, energy sector emissions are forecast to decrease by 25 per cent relative to 1990.



- Ontario set targets of 15 and 37 per cent reductions from 1990 GHG levels by 2020 and 2030 respectively.

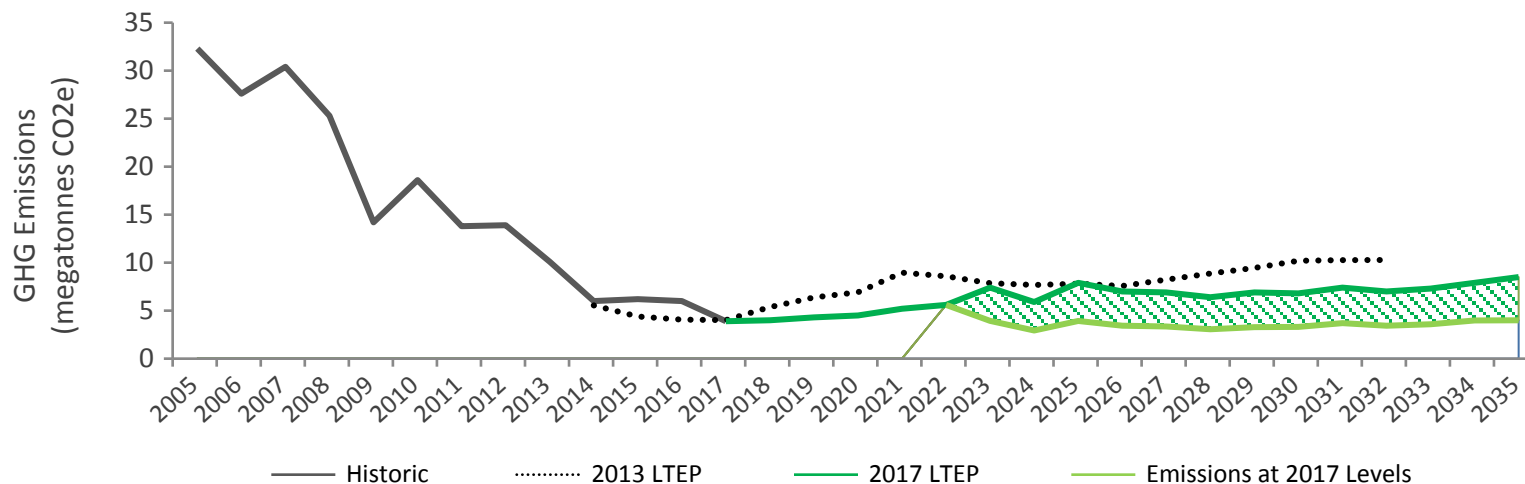
- Total Ontario economy-wide emissions were 182 MT in 1990, making the targets 154 and 114 MT.

Notes: Emissions excludes non-energy sources including agriculture, waste and non-energy related industrial processes. Updated IESO base case for electricity and Navigant analysis for fuels subject to key assumptions. Historical emissions are from the OPO and FTR (original source: Environment Canada). Range of 2030 energy emissions reflects high and low estimated electricity emissions (see next slide for more details).

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C. GHG Emissions – Electricity Outlook

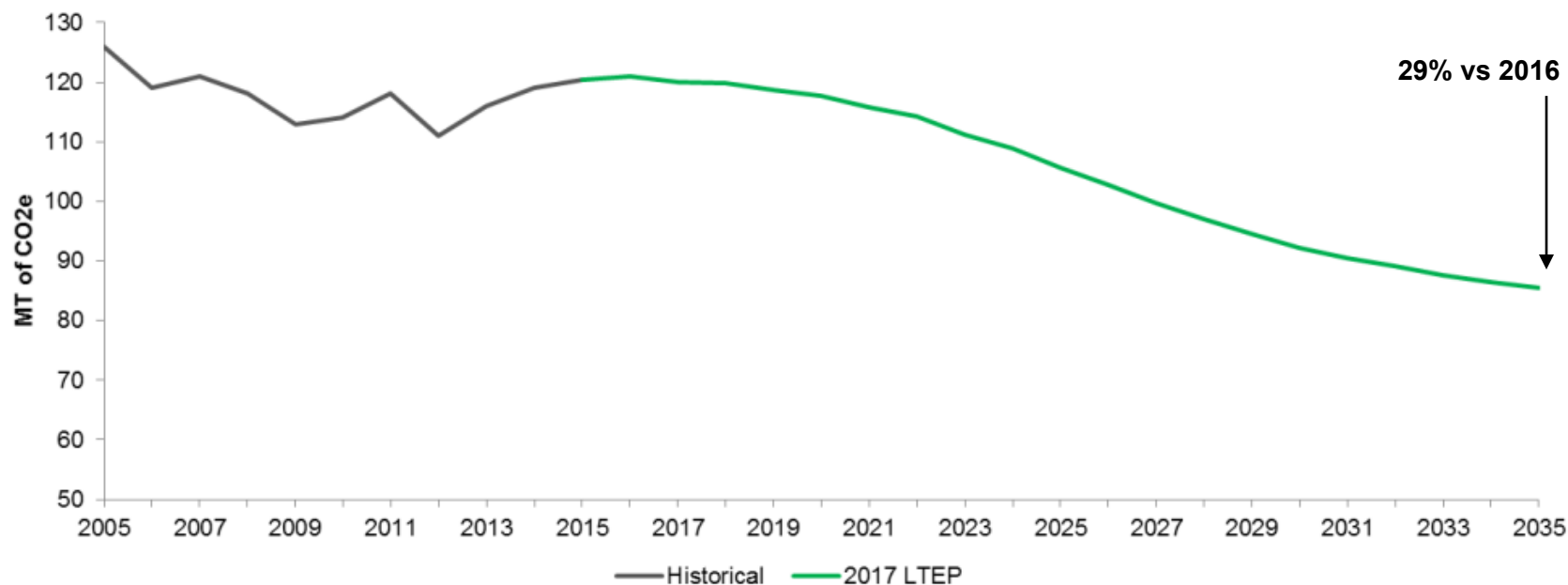
- With the retirement of coal plants, GHG emissions have dropped by over 80 per cent in the past 10 years. Today, Ontario electricity sector GHG emissions represent about 2 per cent of Ontario's overall economy-wide GHG emissions.
- The 2017 LTEP will highlight that the electricity sector will continue to emit low levels of greenhouse gas (GHG) emissions over the planning outlook, with a range of potential emissions outcomes beyond 2023. Note: Emissions may increase slightly post-Pickering closure.
- The range of emissions outcomes is *dependant on grid electricity demand, along with supply choices, market mechanisms and technological innovation*. Lowering emissions would likely increase ratepayer costs. Greenhouse Gas Reduction Account (GGRA) funds could be used to offset the cost of these emission reductions.
 - By 2030, electricity sector emissions are forecast to decrease by at least 73 per cent relative to 1990.
 - Note: Taking immediate actions to maintain current emissions levels could lead to a cost increase of about \$15 billion to \$20 billion between 2017 and 2035 according to preliminary IESO estimates.
 - Ontario will continue to explore opportunities to reduce system costs and GHGs in the future with Hydro Québec, storage providers and other electricity market participants.



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C. GHG Emissions – Fuels Outlook

- The 2017 LTEP emissions outlook for the fuels sector is expected to steadily decline as a result of electrification of transportation, conservation and a transition to renewable and lower-carbon fuels.
- Compared to 2016 levels, the emissions outlook for the fuels sector shows a reduction of 29 per cent by 2035.
- By 2030, fuels sector emissions are forecast to decrease by 13 per cent relative to 1990. Note: Ontario's cap and trade program sets a provincial limit on emissions that gradually declines to meet the GHG reduction targets.



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C. GHG Emissions – Considerations

- Ontario's cap and trade program provides efficient, market-based incentives to transition from conventional fuels to renewable and lower-carbon sources. Programs and initiatives in the CCAP will also further support efforts to decarbonize the fuels sector.
 - Ontario will renew the CCAP every five years. The next two CCAPs over the LTEP forecast period will be developed to assist the transition to a lower carbon economy.
 - In addition, IESO's Market Renewal initiative will not only result in a more competitive marketplace that efficiently meets system needs at lower cost, but also provide another market mechanism to assist in meeting Ontario's climate change goals (e.g., secure non-GHG emitting generating resources, etc.).
- Likewise in the electricity system, the existing cap and trade program incents the development and operation of zero-emission generation.
- Actual electricity emissions over the longer-term will be impacted by a number of factors including electrification, the development and commercialization of new disruptive technologies and introduction of new market based mechanisms. Lower emissions scenarios could lead to an increase in ratepayer costs. GGRA funds could be used to offset the cost of these emission reductions.
 - In addition, significant changes to Ontario's supply mix would require consideration of land use, siting, lead time for procuring resources and building transmission.
- The fuels outlook shows a steady decline in GHG emissions that supports the provincial target of reducing emissions 37 per cent below 1990 levels by 2030.
- The combined reductions from the electricity and fuels systems will help enable achievement of the province's climate change goals.

4. RATE MITIGATION INITIATIVES

Rate Mitigation Initiatives – Overview-

- The government has indicated publicly that the upcoming 2017 LTEP will continue the trend of taking costs out of the electricity system and making it more affordable for ratepayers.
- Actions have been undertaken to lower electricity costs for all consumers. Prior actions and current actions that are underway or have been agreed to bend the future cost curve, include:
 - Deferring investments in generation (e.g., new build nuclear), improving market efficiency (e.g., wind dispatch) and decreasing the cost of renewable procurements:
 - Renegotiating the Green Energy Investment Agreement with Samsung, reducing costs by \$3.7 billion; and
 - Annual price reviews, revised procurement totals and the introduction of competitive procurement for large renewable projects for FIT, microFIT and LRP I – resulting in at least \$3 billion in cost savings compared to 2013 LTEP.
 - Increasing cost effectiveness and improving efficiency by adopting new electricity market approaches (e.g., no Non-Utility Generator (NUG) contract extensions and demand response);
 - Suspending the LRP II and the Energy from Waste Standard Offer Program (EFWSOP) – up to \$3.8 billion in cost savings compared to 2013 LTEP;
 - IESO's Market Renewal; and
 - OEB Finding Greater Efficiencies and Distribution Sector Savings.
- The ENERGY and its agencies will continue to consider future options to remove costs from the electricity system through efficiencies, other funding sources and supply mix decisions.

Rate Mitigation Initiatives – Ontario's Fair Hydro Plan

- The Ontario Fair Hydro Plan Act, 2017 requires the Minister of Energy to calculate the “Fair Allocation Amount” (FAA) for each 6-month period to 2047.
 - The FAA is the accumulated difference between the allocation of clean energy costs and any associated financing costs payable by specified consumers under the OFHPA and the allocation of clean energy costs that would have been payable by those same consumers absent the OFHPA.
- The FAA aligns clean energy costs with clean energy benefits into the future.
- The Minister is required by the Act to provide the FAA to the Ontario Power Generator (OPG) as Financial Services Manager.
 - The FAA is expected to be set out in a letter from the Minister to OPG.
- The FAA is a constraint on the debt that the Financial Services Manager can finance.
- This is an important input in the development of the 2017 LTEP residential price forecast curve (i.e., the forecast cannot be finalized until the OFHP payback period is finalized).
- The FAA is necessary for the development of a Financing Plan by OPG and must precede the rating and sale of the asset (Summer/Fall 2017 TBC).

Rate Mitigation Initiatives – Current Actions

Current actions underway include Market Renewal and the OEB's process for finding greater efficiencies and distribution sector savings:

IESO – Market Renewal

- IESO's Market Renewal includes a number of initiatives focused on more efficiently meeting demand over the near and longer terms. Market Renewal includes the following:
 - Introduce a Day-Ahead Market based on a Single Schedule Market to provide greater certainty to market participants and lower the cost of producing electricity.
 - Reduce the cost of scheduling and dispatching resources to meet demand as it changes from hour to hour and minute to minute through Enhanced Real-Time Unit Commitment.
 - More efficiently manage unexpected short-term changes on the system by enabling More Frequent Intertie Scheduling.
 - Improve the way Ontario procures resources to meet our longer-term supply needs by implementing an Incremental Capacity Auction.

OEB – Efficiencies and Distribution Sector Savings

- Ontario's distribution sector represents \$3.6 billion in annual costs, and typically makes up ~20 per cent of the average residential electricity bill.
- The 2012 Ontario Distribution Sector Review Panel (ODSRP) Report proposed that there was opportunity for \$1.7 billion in savings over 10 years through capital planning optimization and operations, maintenance and administrative (OM&A) reductions as a result of LDC consolidation.
- While the ODSRP recommended legislating LDC consolidation, the majority of the savings they identified were in OM&A costs. These cost reductions could be targeted through other regulatory mechanisms, with a stretch savings target of about \$135 million, to be sustained year over year.

Note: Other options could be considered to further mitigate electricity rate increases. However, these would require additional funding from the fiscal plan or GGRA.

Rate Mitigation Initiatives – Considerations

- An independent third party report estimates that benefits from IESO's Market Renewal could reach up to \$5.2 billion over a ten-year period beginning in 2021. Note: IESO has incorporated some of this saving into its current Outlook for electricity system costs and residential bills (i.e., Through reduced capacity payments for generators once their contracts expire).
 - In addition to the up to \$5.2 billion in estimated benefits, non-quantified benefits are likely to deliver additional value. For example, inefficiencies in the current market design need to be managed using extensive time and resources including expensive external legal expertise and consultants.
- In other jurisdictions that went through similar Market Renewal changes, actual efficiencies realized have been greater than those expected often because of the non-quantifiable benefits. For example, Southwest Power Pool, a system operator covering 14 U.S. states, realized \$1 billion in savings over a two year period compared to an expected saving of \$400 million.
- Through the 2017 LTEP, the Ministry will request the OEB via the 2017 LTEP implementation directive to use its authority to create more effective tools to harvest more efficiencies and savings in the distribution sector. Examples of potential mechanisms include:
 - Financial penalties for LDCs who do not meet performance expectations;
 - Requiring LDCs to partner and share back office services; and
 - Modernizing regulatory compliance processes to reduce costs.
- The Ministry will also ask the OEB to reevaluate its performance mechanisms to ensure that high-cost LDCs are becoming more efficient through the years and ensure clear metrics are in place to allow for proper evaluations of the low performing LDCs (e.g. further strengthen the scorecard that is already in place by the OEB that evaluates LDCs on various metrics and make it publicly available).

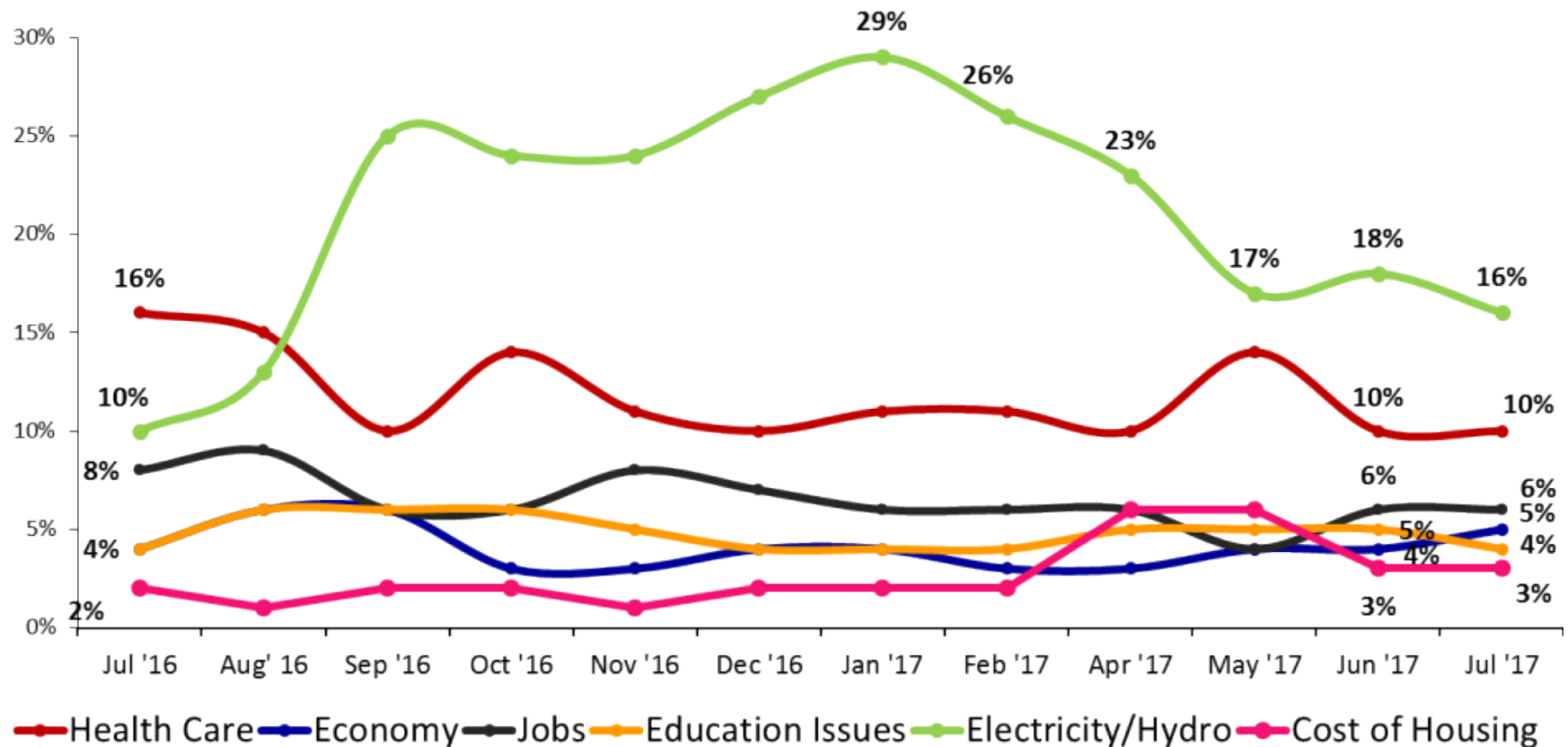
5. COMMUNICATIONS

Communications – Context

- Since 2006, electricity prices in Ontario have risen considerably. These costs have drawn criticism from ratepayers, industry, media and political critics.
- Government took action:
 - September 2016, introduced an 8 per cent rate subsidy for residential, farm and small businesses, taking effect on Jan 1, 2017.
 - March 2017, introduced OFHP reducing electricity costs by 25 per cent for typical residential consumers beginning July 1, 2017.
 - Other elements include:
 - Rate increases held to inflation for four years;
 - New cost mitigation for some rural customers, on-reserve First Nations communities and low-income customers; and
 - The cost of social programs moved to the tax-base.
- The intention was to bring rate relief immediately, and to more fairly and evenly share the cost of system improvement across generations – costs would have to be recovered, creating bill increases over time.
 - Media coverage of the OFHP has been neutral-to-negative in tone, focusing in large part on a leaked draft price forecast that showed a significant rise in electricity bills in coming years. Reports had rates rising by 6.5 per cent a year from 2022-27, and up to 10.5 per cent in 2028.

Communications – Context (cont'd)

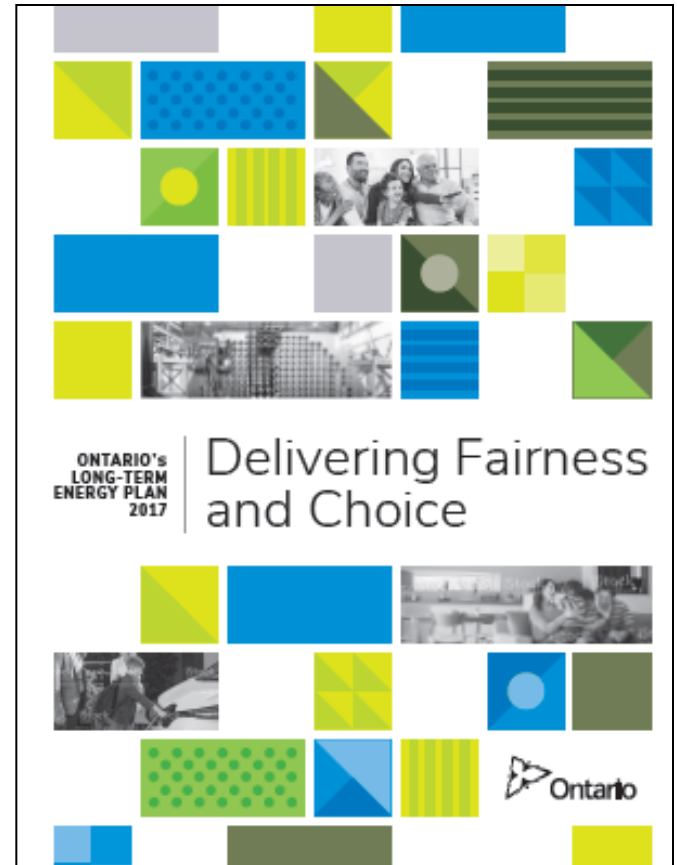
- Electricity issues continue to be most top of mind, but seem to have plateaued since May.



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Communication Goals

- Publish the 2017 LTEP in accessible formats targeted to stakeholders and ratepayers
- Recognize contributors and echo their feedback
- Sustain positive relationship with energy sector stakeholders
- Mitigate risks
- Be relevant – Tell stories. Stay local



Good News Stories in the 2017 LTEP

- There are a number of good news stories in the LTEP that the Ministry plans to leverage going forward, including:
 - Grid modernization and enhancement of the Smart Grid Fund;
 - A strengthened commitment to energy conservation and efficiency;
 - Expansion of net metering;
 - Innovative electricity price plan pilots;
 - Supporting Indigenous capacity and leadership;
 - Modernizing the utility business (i.e., bill redesign, efficiencies/red tape reduction, accountability); and
 - Protection of consumers through enhanced regulation of unit sub-meter providers.

Challenges for the 2017 LTEP

- The 2017 LTEP will draw public criticism, despite the substantial amount of good news in its actual content.
- Likely contentious items included in the 2017 LTEP will be:
 - A price curve, including OFHP impacts, that is better than was reported in media earlier this year, but still presents a communications challenge;
 - Emissions forecasts that could create vulnerabilities, including through implications for natural gas bills; and
 - A clear statement of the end to a number of energy sector procurements and associated economic development implications.

Key Messages – About the LTEP

- The Long-Term Energy Plan (LTEP) is a road map that sets out the direction for Ontario's energy future for the next 20 years.
 - We consulted with and listened to Ontarians in the development of our plan.
 - What we heard has led this LTEP to be focused on energy affordability, innovation and customer choice.
- We have made necessary investments in the energy system that will serve us for generations to come.
- Ontario's grid is reliable and ready for the technological innovations coming to the energy sector.
- This long term energy plan delivers fairness and flexibility to help Ontarians adjust to a rapidly changing energy future.

Reactive Messages – Forecast Bills

1. The government heard you, and took action:

- Ontarians said that their bills were too high. Relief was needed and something had to be done right away.
- We have spread out the costs of Ontario's clean energy investments over a longer period of time to allocate the costs of these investments more fairly among current and future ratepayers.
- The government delivered the Ontario's Fair Hydro Plan to save Ontario families, farms and small businesses 25 per cent on average on their bills.

2. Down the road, rates rise, but we are driving savings everyday:

- Ontario has already taken a number of actions to lower electricity costs and we've found billions of dollars in savings for all consumers by:
 - Not going ahead with new build nuclear generation and suspending most future renewable procurements.
 - Adopting new electricity market approaches that will improve cost effectiveness and efficiency, providing up to \$3.8 billion in cost savings.
- Over the coming years Ontario will continue to drive costs out of the electricity system:
 - The Minister has directed energy agencies to reform the energy market and find efficiencies and cost savings.
 - Future innovations will bring savings opportunities.
- The 2017 LTEP bill forecast is lower than the one in the 2013 LTEP thanks to our cost cutting efforts.

Reactive Messages – Forecast Bills (cont'd)

- 3. The government will continue to protect low-income, rural and remote families with programs like the Ontario Electricity Support Program (OESP), Distribution Rate Protection and the First Nations On-Reserve Delivery Credit:**
- We increased monthly OESP on-bill credits (between \$45 and \$75) to the most vulnerable among us who need a helping hand.
 - Ontarians living in the most remote communities, where power is expensive, are supported through lowered delivery costs.
 - On-Reserve First Nations families are already saving almost \$1,000 per year.

Reactive Messages – Emissions and Natural Gas Bills and End of Procurements

Emissions Forecast and Natural Gas Bills:

- Ontario is committed to doing its part to reduce GHG emissions and prevent climate change.
- The emissions forecast in the 2017 LTEP shows that we have a plan in place that will deliver real results.
- To get there, our approach to energy use will have to change, and the government will have the programs and supports in place to help Ontarians make that shift.

End of Procurements:

- Reducing electricity prices is our priority.
- We are now in a strong supply position. It is appropriate to slow down new procurement.
- We encourage our partners in the sector to participate in the market renewal process.
- The market renewal program underway will still provide opportunities for new development, within a framework of efficiency, technological specialization and cost competition.

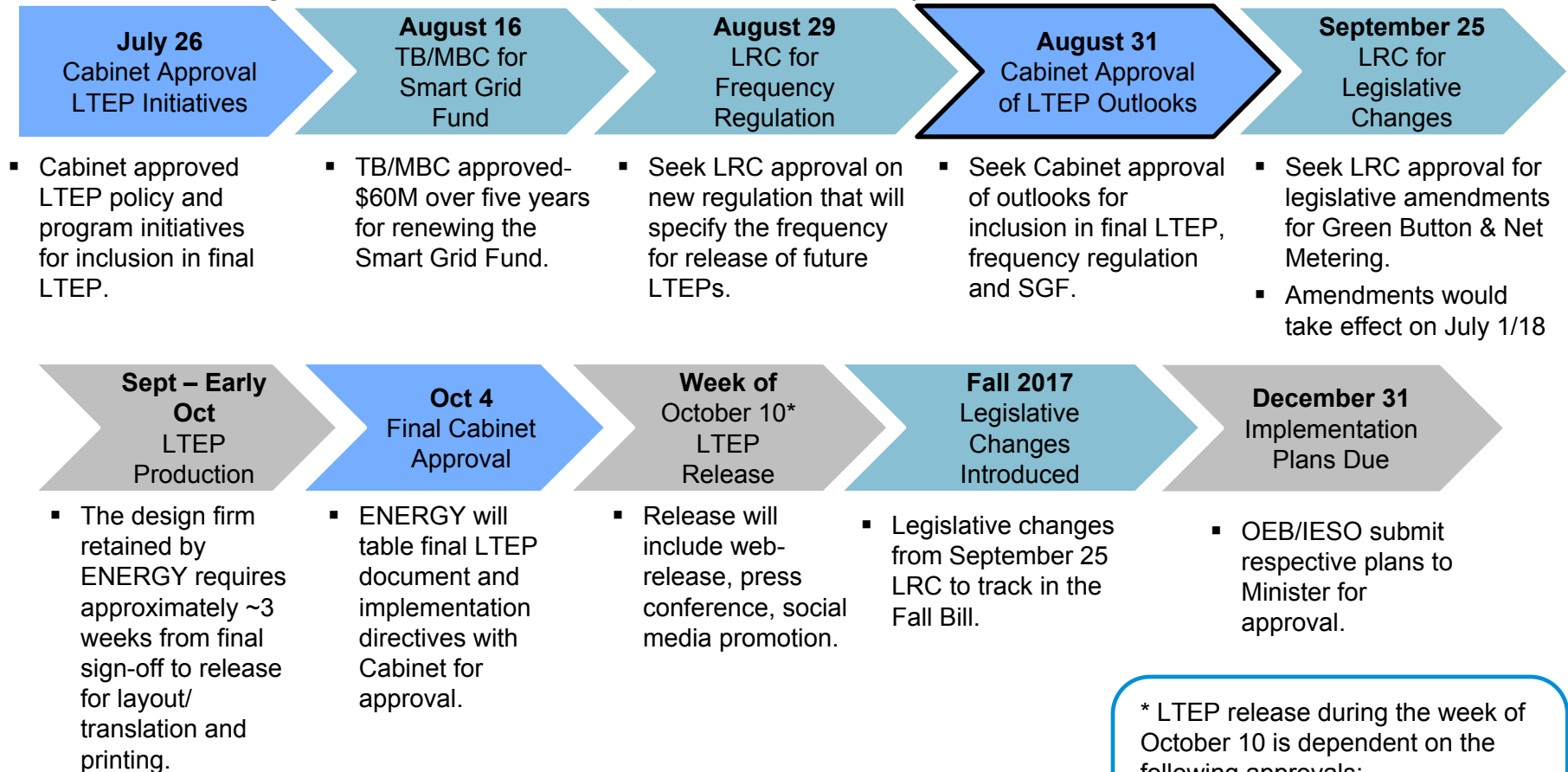
2017 LTEP – Modules

- Following the release of the 2013 LTEP, 6 modules were posted online with supporting data and commentary on the assumptions used to produce the content of the plan.
- Following 2013 LTEP, ENERGY introduced the quarterly Ontario Energy Report (OER) with regular updates on key electricity and fuels data along with links to other energy sector reports.
- Given that stakeholders (e.g., academics, utilities, industry groups, energy consultants, ENGOs, etc.) will expect a similar level of open data and transparency supporting the 2017 LTEP, potential modules could include:
 - Demand (gross and net);
 - Demand by sector (residential, industrial, commercial, transportation etc.);
 - Electricity Demand by industrial sector and subsector;
 - Energy efficiency achieved to date;
 - Peak electricity demand reduction associated with programs;
 - Electricity demand response;
 - Supply by fuel type;
 - Electricity resource requirements;
 - Electricity imports/exports by jurisdiction;
 - Emissions;
 - Total cost of electricity service by component and year; and
 - Unit cost by resource.

6. NEXT STEPS

Timeline of Next Steps

- The following timeline illustrates the steps needed for an early October LTEP release.



* LTEP release during the week of October 10 is dependent on the following approvals:

- Cabinet on Aug 31;
- CO/PO on Sept 6; and
- Cabinet on Oct 4.

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7. PROPOSED CABINET MINUTE

Proposed Cabinet Minute

CABINET AGREED THAT:

1. The Ministry of Energy (ENERGY) prepare for approval a 2017 Long-Term Energy Plan (2017 LTEP) that includes the following outlooks and forecasts:
 - A. For the electricity system:
 - i. A moderate demand outlook that accounts for significant electrification, in particular of the transportation sector, and continued conservation savings;
 - ii. A supply outlook that meets the projected demand while maintaining the flexibility to respond to future variations in the demand forecast;
 - iii. Residential cost outlooks that show progress from the 2013 Long-Term Energy Plan and reflect government initiatives to reduce costs, including through Ontario's Fair Hydro Plan; and
 - iv. An industrial cost outlook that is relatively flat in real dollars and reflect the elimination of the Debt Retirement Charge in April 2018.
 - B. For the fuels system:
 - v. A declining demand outlook that reflects continued conservation savings, fuel switching (i.e., including electrification), the Climate Change Action Plan implementation and the impact of carbon pricing; and
 - vi. A supply outlook that meets the projected demand while demonstrating a steady transition to renewable and lower-carbon fuels.

Proposed Cabinet Minute

- C. For the integrated energy system, a declining greenhouse gas (GHG) emissions outlook that:
- i. Identifies opportunities to align with the provincial target of reducing GHG emissions 15 per cent below 1990 levels by 2020 and 37 per cent below 1990 levels by 2030; and
 - ii. Is consistent with the implementation of the province's climate change policies (i.e., including the Climate Change Strategy, the cap and trade program and the Climate Change Action Plan).
2. ENERGY continue to work with Ministry of Economic Development and Growth (MEDG), the Ministry Responsible for Small Business, and other relevant ministries, to identify opportunities to decrease electricity costs for small and medium-sized enterprises that currently do not benefit from rate mitigation programs.
 3. ENERGY continue to work with the Ministry of Environment and Climate Change (MOECC) and partner ministries to identify opportunities to align the 2017 LTEP (i.e., including outlooks, forecasts, modelling assumptions and supporting modules) with the province's climate change policies (i.e., including the Climate Change Strategy, the cap and trade program and the Climate Change Action Plan).
 4. ENERGY continue to work with the Independent Electricity System Operator (IESO), the Ontario Energy Board and appropriate ministries to identify opportunities to remove costs and GHG emissions from the electricity system through efficiencies, other funding sources and supply mix decisions, consistent with government priorities (i.e., including ongoing discussions with Hydro Québec, storage providers and other electricity market participants).
 5. ENERGY report back to Cabinet on discussions with Hydro Québec in 2017.
 6. ENERGY work with the Premier's Office, Cabinet Office and MOECC on an integrated communications strategy.