

2017 Long-Term Energy Plan (Part 2)

Cabinet July 26, 2017	Cabinet August 31, 2017	Cabinet Fall 2017	Public Release Fall 2017
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This government's commitment	“Building on the processes and principles used in the 2010 and 2013 plans and the new legislation, work with partner agencies and energy sector agencies to consult with consumers and stakeholders, and engage with Indigenous communities to develop Ontario’s next Long-Term Energy Plan (LTEP) to be released in 2017” Minister of Energy Mandate Letter, September 2016.
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SUMMARY OF PROPOSAL

This note contains the final proposed minute.

The Ministry of Energy (ENERGY) is seeking policy approval to finalize components of Ontario’s next Long-Term Energy Plan (LTEP). The LTEP is the energy sector’s roadmap and generally identifies the needs for investments over the shorter term, while broadly mapping out the direction of the energy sector over a 20-year timeframe. The Ministry received approval on July 26, 2017 for the overarching themes of the next LTEP as well as approval of programs and initiatives to be announced through the document.

At this time, the Ministry is seeking Cabinet approval of modelling outlooks and forecasts to be incorporated in the 2017 LTEP, including:

- Electricity Supply and Demand
- Electricity System Greenhouse Gas (GHG) Emissions
- Typical Residential Electricity Bill
- Industrial Electricity Costs

Context

The province has previously released two LTEPs, in 2010 and 2013, which included modelling outlooks for typical residential electricity bills, electricity demand, electricity supply, and emissions. In line with the increased focus on the fuels sector for the 2017 LTEP, the Ministry is proposing to provide information on the current state of demand and supply in the fuels sector and include a discussion on longer term options for the sector in the document.

What is the regulatory impact of this proposal?

The LTEP has been developed as per the legislative process outlined in the *Electricity Act, 1998*. A regulation is also required under the *Electricity Act, 1998* to specify how often the government would release the LTEP. The Ministry brought forward the proposed frequency regulation to Legislation and Regulations Committee (LRC) on August 29, 2017. Once the regulation is filed, the government will have 3 months to publish the 2017 LTEP.

What is the expected cost to government?

Cost impacts of initiatives contained under the LTEP were addressed in the July 26, 2017 policy submission. ENERGY received TB/MBC program design approval on August 16, 2017 for the renewed Smart Grid Fund (SGF) proposal. Funding for the SGF and International Energy Demonstration Fund pilot will be sought through the 2018-19 Program Review, Renewal and Transformation process.

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 to ratepayers. Uncertainty related to electricity demand and the possibility of needing to contract for additional supply outside of current models could have electricity rate impacts over the longer term (See page 12- Rate Impacts). Impacts from the Ontario Fair Hydro Plan (OFHP) are included in the proposed modelling.

How will the changes be communicated?

The Ministry is working towards public release of the 2017 LTEP in October. Communications will be proactive and sustained in anticipation of high stakeholder and public interest. Themes in the LTEP will be leveraged to create a strong narrative, and messaging will highlight the benefits for consumers, including improved affordability, innovation and customer choice.

In addition to a News Release and Backgrounder issued the morning the LTEP is released, proposed tactics include a technical briefing for media, and separate discussions with stakeholders and Indigenous leaders. In the days following launch, 2017 LTEP initiatives will be announced through smaller, community based announcements similar to the new Pricing Pilots announced in Barrie. A robust issues management plan is also in development to mitigate potential negative reaction to components of the plan.

CABINET OFFICE ANALYSIS

Introduction:

It is anticipated that there will be increased public interest in the 2017 LTEP over previous plans given the connection to Ontario's Climate Change Strategy, cap and trade program and Climate Change Action Plan (CCAP), and the profile of energy affordability concerns which led to the development of Ontario's Fair Hydro Plan (OFHP), which will feature prominently in the 2017 LTEP.

The 2017 LTEP will highlight various key policy initiatives which are intended to send clear signals to the public, partners, and sector participants regarding the province's direction for

the energy sector. On July 26, 2017, the Ministry received approval for the overarching themes of the next LTEP as well as approval of programs and initiatives to be announced through the document.

At the start of the 2017 LTEP process, two technical documents were prepared to provide baseline information about the energy sector and set the stage for the extensive engagement process that the Ministry undertook with stakeholders, the public and Indigenous communities. The Independent Electricity System Operator (IESO) prepared the Ontario Planning Outlook (OPO) for the electricity sector, and external consultant Navigant prepared the Fuels Technical Report (FTR). Both documents contained various interrelated modelling “outlooks” for the energy sector based on the best information and assumptions at the time, and were released publicly for the consultations.

Since then, revised outlooks were prepared by the Ministry and IESO that reflect updated information and assumptions. The Ministry is seeking approval of the modelling outlooks to be included in the 2017 LTEP based on the updated information and assumptions which show projections from 2017 to the end of the planning period in 2035.

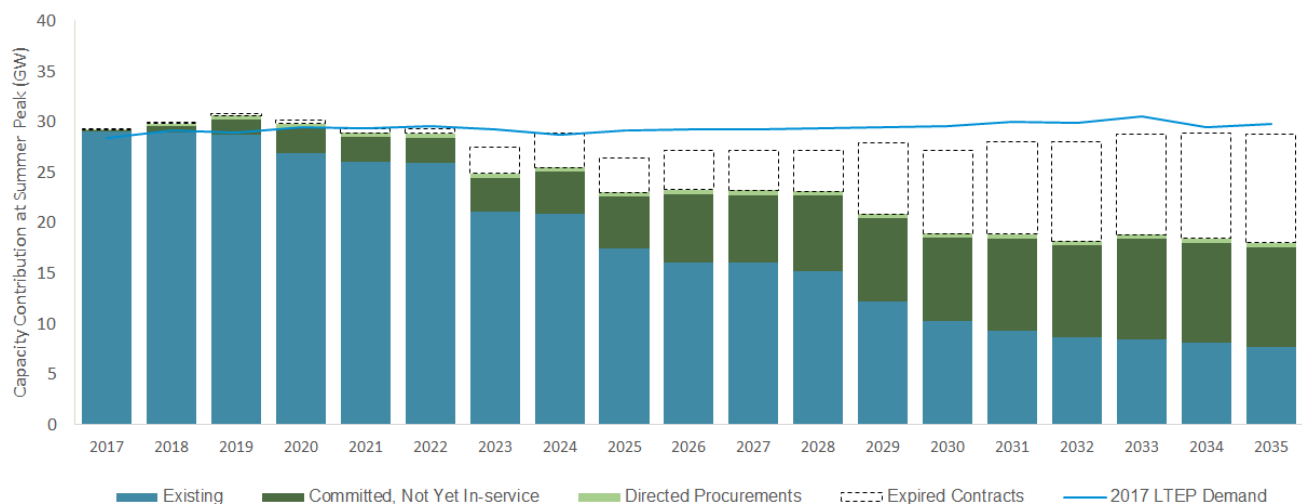
Proposed Outlooks

Supply and Demand

Integrated Electricity Supply and Demand

The Ministry advises that the proposed supply outlook over the planning horizon meets the projected demand while maintaining the flexibility to respond to future variations in the demand forecast.

ENERGY advises that 18 GW of supply resources will reach the end of their contact 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 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.

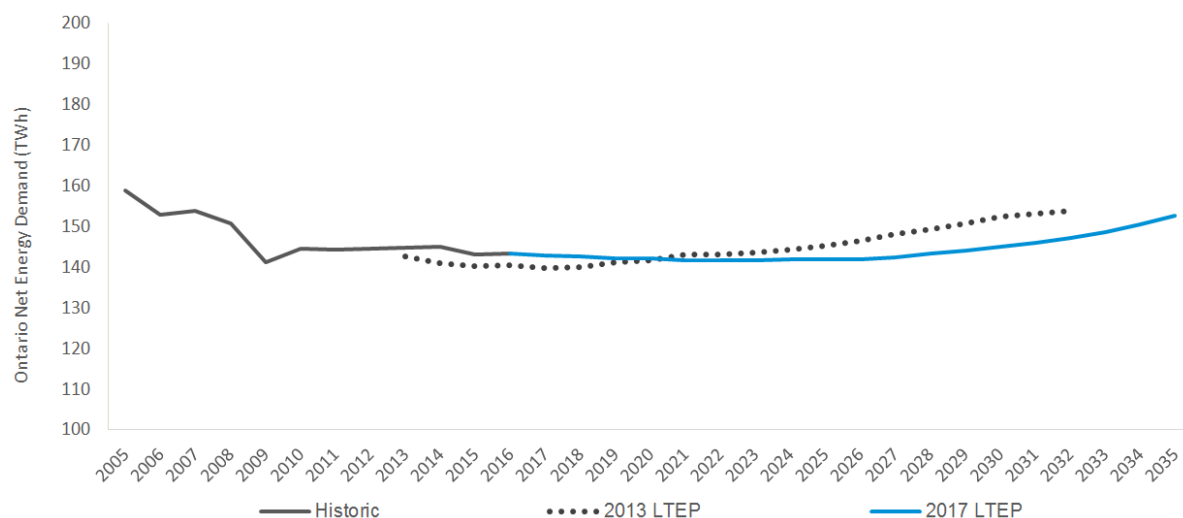


Assumptions for the supply forecast include the most recent nuclear refurbishment and operations timelines, suspension of the Large Renewable Procurement II, (LRP II) and Energy From Waste Standard Offer Program (EFWSOP) and the December 2016 Ontario-Québec electricity trade agreement (See Appendix B- Key Modelling Assumptions). Ontario is currently engaged in discussions with Québec on the possibility of an extended electricity trade agreement. If an agreement is reached, it would likely impact the electricity supply and related GHG emissions modelling.

There remains significant uncertainty regarding what energy demand will be over the coming decades linked to the emergence and adoption of new technologies as well as uncertainty regarding industrial demand. In the past the province has prescribed a specific supply mix of different electricity generation resources to meet forecasted demand. Going forward, the Ministry is proposing a less prescriptive approach as to how future demand scenarios will be managed, which will provide greater flexibility to IESO to make these decisions. This mitigates some of the risk of the general uncertainty as to whether demand levels will be as forecasted, or if demand may be met by innovative and emerging technologies such as distributed generation or storage. The approach is sometimes described as “technology neutral” where the policy framework guides certain objectives, but leaves the actual choice as to what technology will meet those needs open. There may be some concern that this approach would be seen as Ontario backing away from renewable energy, and by extension the province’s climate commitments.

However, Ontario’s cap and trade program provides efficient, market-based incentives to transition from conventional fuels to renewable and lower-carbon sources. In addition, Ontario’s CCAP will be renewed every five years, and the next three CCAPs over the LTEP forecast period will be developed to assist the transition to a lower carbon economy. Additionally, as part of its Market Renewal initiative, IESO is exploring options to reflect the government’s priority for clean energy in new supply commitments (or procurements) while maintaining the competitive tension required to bring down electricity system costs. Careful messaging in the 2017 LTEP will be needed to underscore the province’s continued commitment to low and zero GHG emitting technologies with positive environmental attributes in support of the CCAP objectives.

Electricity Demand



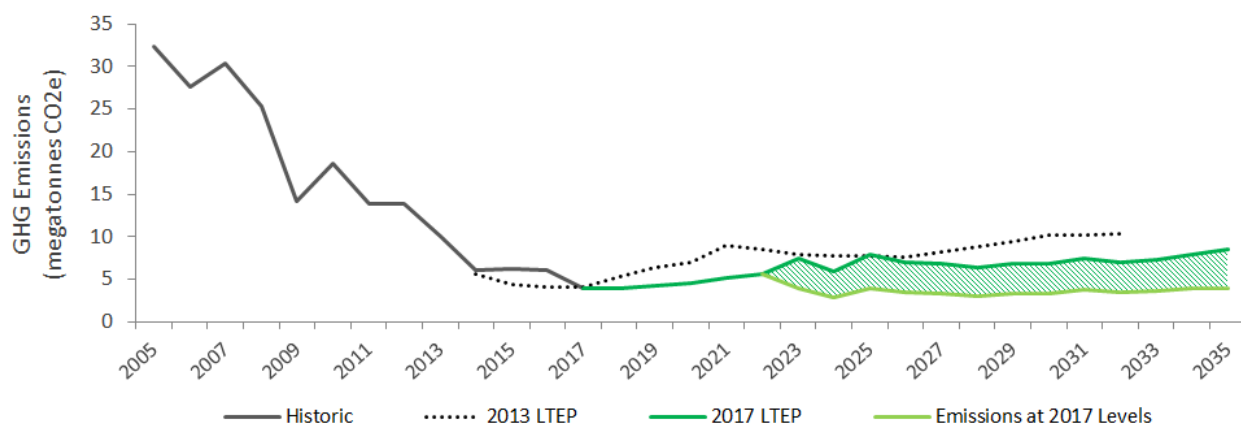
The IESO's OPO modelled 4 possible outlooks using different assumptions. The updated outlook proposed for the 2017 LTEP is based on "OPO Outlook B" (i.e., flat demand outlook), which explores a level of long-term demand that roughly matches the level of demand that exists today with the addition of increased electrification of transportation (i.e., equivalent to 2.4 million electric vehicles (EVs) by 2035) and recent sector updates, and is about 5 Terawatt hours per year (TWh/y) higher than OPO Outlook B by 2035. The relatively flat demand projection includes reductions associated with incremental conservation improvements, which is countered by increased demand from electrification and increased economic activity over the planning period. Due to the planning uncertainty and intentional flexibility to meet demand in a variety of ways, significant electrification of home heating and industrial processes has not been assumed in the projection of demand.

While fuels outlooks are not proposed for inclusion in the 2017 LTEP, there is an important interplay between the fuels and electricity sectors (see page 7- Fuels Sector).

GHG Emissions

Electricity GHG Emissions

GHG emissions from the electricity sector have dropped by over 80% since 2005, largely due to the retirement of the coal plants. Today, the ministry reports that Ontario electricity sector GHG emissions represent about 2% of Ontario's overall economy-wide GHG emissions.



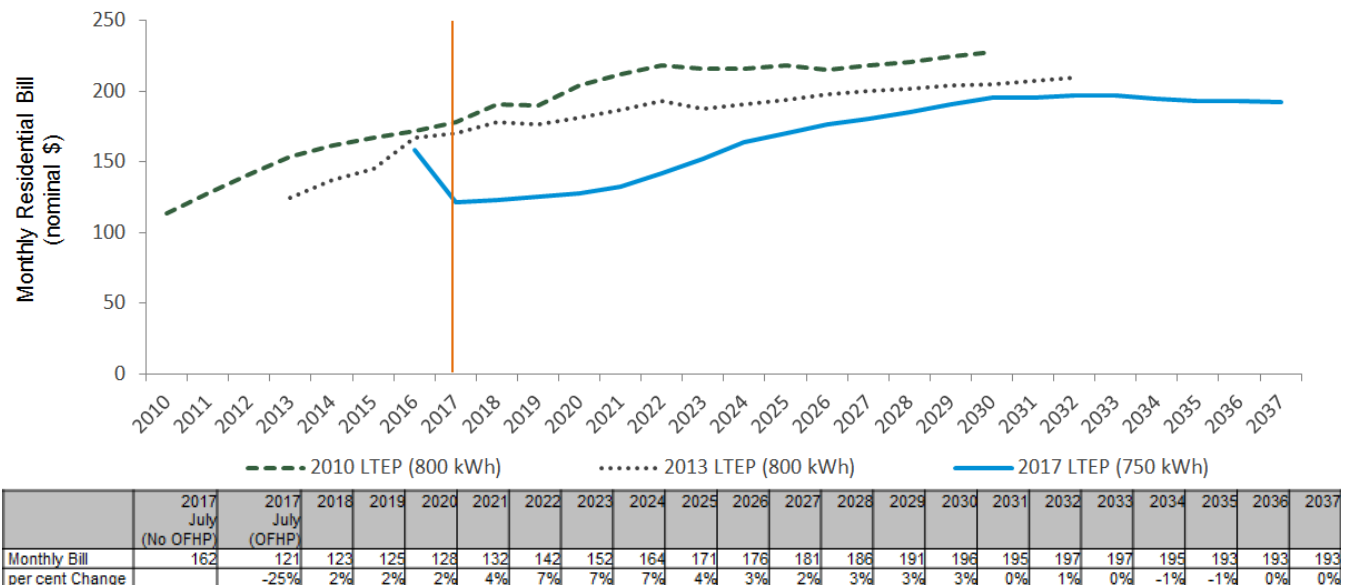
The trend for lower emissions is forecasted to continue over the planning period, with a range of potential emissions outcomes beyond 2023. The range of emissions is projected to be somewhat lower than the previous projections made under the 2013 LTEP. However, it also outlines a slight increase in emissions from the sector due to the retirement of the Pickering nuclear station and an assumed increase in natural gas generation to economically meet the increased demand. This will likely be viewed as inconsistent with the province's climate change objectives, but is also mitigated in part by the fact that the increased demand projected by 2035 is largely tied to projected increased electrification of transportation the significant reductions from the electricity sector already achieved, and that the province is projecting an overall reduction of emissions from the electricity sector of 73% by 2030 relative to 1990 levels.

Emissions could come in lower than forecast, dependant on demand, supply choices, market mechanisms and technological innovation. Given this uncertainty, the ministry proposes to illustrate a range of possible GHG emissions over the planning outlook, and include messaging regarding continued work to remove GHG emissions from the sector. That said, at the moment, without other sources of revenues to offset impacts or reasonable assumptions as to how the demand can be met by alternate means, lowering emissions would result in increased costs for ratepayers. Taking immediate actions to maintain current emissions level could lead to a cost increase of about \$15 to \$20 billion between 2017 and 2035, according to preliminary IESO estimates. Ontario will continue to explore opportunities to reduce system costs and GHG emissions in the future with Hydro Québec, storage providers and other electricity market participants.

Typical Residential Bills

Typical Residential Electricity Bill

The OFHP has a significant impact on the modelling of the typical residential electricity bill. 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 OFHP, which lowers electricity bills by 25% for a typical customer. Following the four year inflationary cap, typical residential electricity bills would increase at an average rate of about 5% over 7 years from the end of the inflationary cap until the recovery period (i.e., 2021-2027), which is lower than previously forecast.

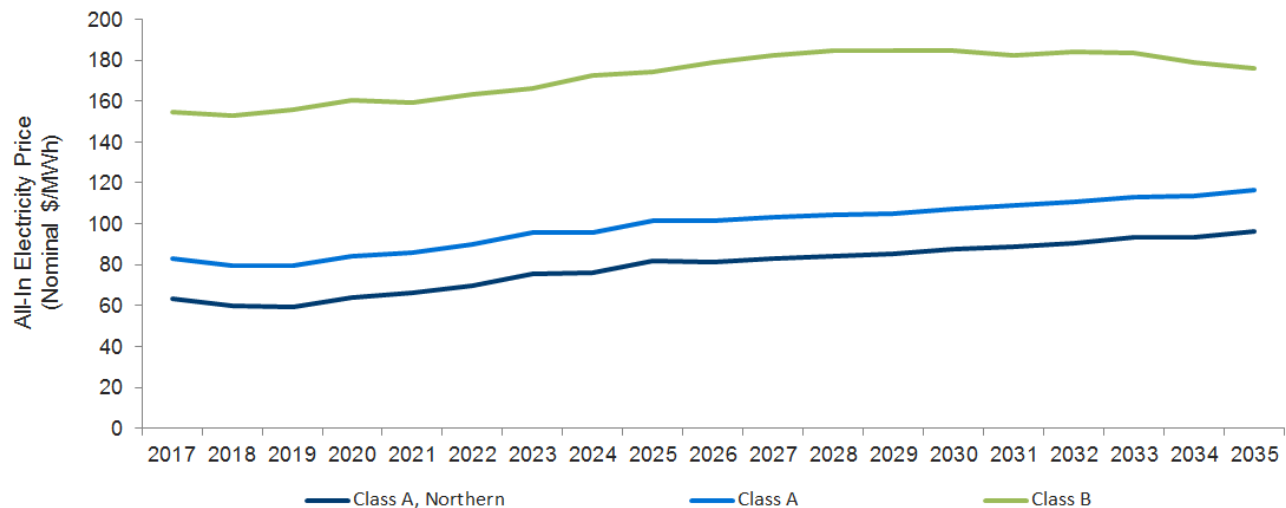


Note: With the exception of 2017, estimated bills reflect annual averages for the 2017 LTEP figures above. Other options have been considered to remove costs from the electricity system.

The OEB will continue to set rates based on demand and cost estimates. The residential bill outlook above includes assumptions about the impact of cap and trade and that generation assets will continue to be available for the duration of the planning outlook, among other things (See Appendix B- Key Modelling Assumptions).

Since the initial implementation of the OFHP, the Ministry has continued to investigate ways to take costs out of the system as well as work to implement initiatives such as IESO's Market Renewal. While the cost saving initiatives that require implementation over a longer time horizon (e.g. OEB work with LDCs on efficiency) are expected to have positive impacts on system costs, it is difficult to ascribe firm dollar projections for the purposes of modelling long-term outlooks. Note: Changes to demand, interest, financing, technology performance and system cost assumptions can significantly impact this price forecast.

Large Business and Small-Medium Enterprise Electricity Costs



Note: The outlook above reflects commodity prices 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% of the time. Line losses are excluded.

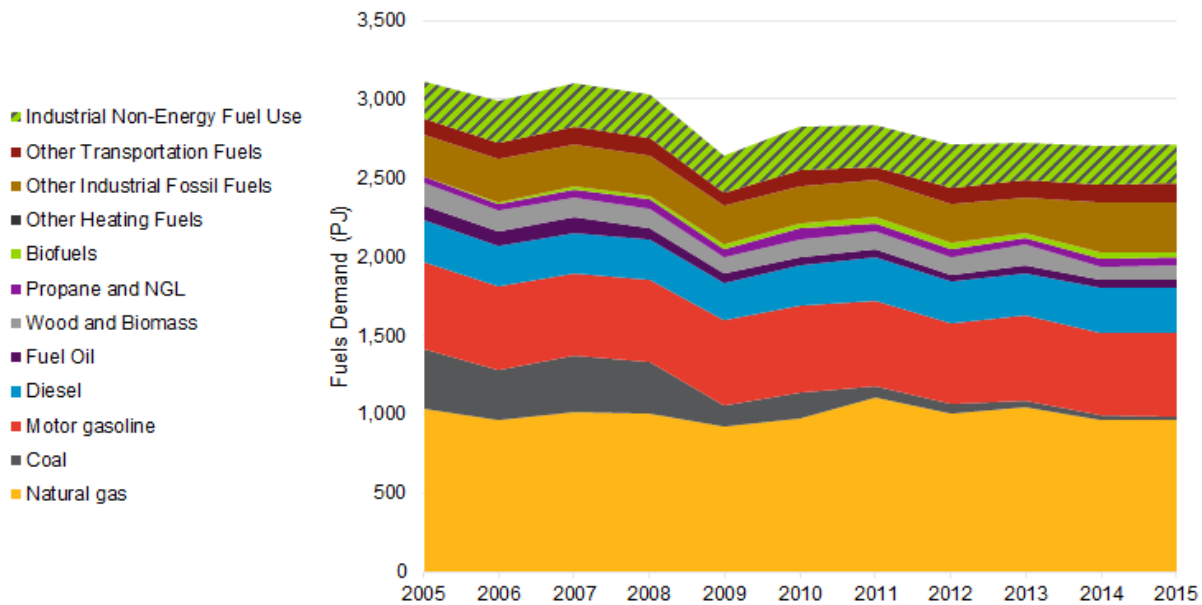
The 2017 LTEP price outlook for an illustrative large business (i.e., Class A electricity consumers) and small and medium enterprises (SMEs; i.e., Class B electricity consumers) reflects average increases in line with inflation over the forecast period. The actual commodity price for large businesses is dependent on their operational requirements and ability to shift electricity consumption to off-peak hours. The Ministry has provided the Class B cost outlook for information purposes and does not propose include it in the 2017 LTEP, but does propose to include Class A outlooks under an "industrial" cost outlook in the document.

Many SMEs are not eligible for the refinancing of Global Adjustment (GA) under Ontario's Fair Hydro Plan, but are benefiting from the movement of social programs to government funding and will benefit from the elimination of the Debt Retirement Charge (DRC) in April 2018. ENERGY will continue to work with the 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.

Fuels Sector

Natural gas and transportation fuels (e.g., gasoline, diesel) represent the largest components of Ontario's total fuels consumption, accounting for 36% and 35%

respectively in 2015. (Note: About 10% of Ontario fuels consumption is for non-energy uses such as feedstock for manufacturing). Fuels consumption has generally trended downward during 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 residential and transportation sectors have both experienced modest growth in fuels use between 2005 and 2015, and the commercial and industrial sectors have experienced a small decline.



The Ministry intends to provide an overview of the current state of the fuels sector in the 2017 LTEP and provide a high level narrative regarding the longer-term options and direction of the sector over the planning horizon. 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 outlook for fuels. However, modeling accurate long-term forecasts for the fuels sector presents a considerable challenge given the number of factors involved and the state of uncertainty with regards to new and emerging technologies.

Options for GHG emission reductions in the fuel sector, without additional impacts on the electricity sector, could include:

- 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 has retained Navigant, an expert third-party research firm, to provide additional advice and analysis on a set of fuels assumptions. ENERGY and MOECC will continue to work together to develop fuels modelling assumptions, options and opportunities for ongoing implementation of the provinces climate change policies and programs, including the Climate Change Strategy, the cap and trade program and CCAP. In addition, modelling and

future policy proposals for the fuels sector would take into account the impact of technological innovation and adoption over the next 20 years.

Stakeholder and Partner Considerations:

General public (including residential and small businesses) – Neutral to negative: it is expected that the general public will be primarily interested in electricity cost outlooks, and may be concerned about projected increases post-2021. The public may also be interested in supply choices, conservation and support programs and consequences with regards to natural gas costs, emissions, safety (e.g., nuclear), and local economic development opportunities/consequences.

Large Industrial and Commercial Consumers – Neutral to negative: it is expected that industrial and commercial consumers will be most interested in energy cost certainty during Ontario's transition to decarbonisation, and will be in general supportive of conservation initiatives. MEDG / Ministry of Research, Innovation and Science (MRIS) advise that some stakeholders will argue that the LTEP does not go far enough to make rates affordable and competitive with other jurisdictions and that new industry/ SME programs are needed to help Ontario's industries regain competitiveness, attract capital investment, and retain businesses / jobs in Ontario. Industrial consumers could criticize the elimination of incentives for behind the meter generation (BMG) projects that use supplied fossil fuels. Industrial consumers that rely on fossil fuels as feedstock for manufacturing could also criticize the potential for increasing costs associated with a transition to lower-carbon fuels (e.g., RNG). To address concerns, ENERGY plans to highlight in the 2017 LTEP, and IESO will implement a communications plan, to make businesses aware that they have until July 1, 2018 to submit applications to IESO and that waste energy recovery projects and projects using renewable sources continue to be eligible conservation measures.

SME Manufacturers – Neutral to negative: It is expected that SME manufacturers will be primarily concerned with electricity rates and those that are still not eligible for or are able to generate benefits under the expanded Industrial Conservation Initiative (ICI) are expected to have a negative response. This is of particular concern given comparisons with competing jurisdictions. For example, Ontario manufacturers are at a 15-30% electricity cost disadvantage with jurisdictions like New York, Pennsylvania, Michigan, and Ohio (2015 Navigant Consulting study), which offer significant incentive rates to attract and retain manufacturing investment. Price certainty/stability is important from a longer term planning perspective, however, rising electricity rates will impact investment attraction and retention.

Northern communities – Neutral to negative: Northern communities raised concerns about the impact of electricity delivery costs, declining reliability, capacity constraints, and the costs of system expansion/enhancement on regional economic development.

Indigenous communities – Positive: First Nations and Métis should be generally supportive as the LTEP initiatives will respond to feedback received about energy costs, need for support for community energy plan implementation and small-scale, local energy opportunities, as well as continued support for conservation.

eNGOs – Mixed: Environmental groups will be supportive of conservation, renewables, and continued development of the clean-tech sector. However, they may express disappointment regarding the commitment to nuclear refurbishment, the emphasis on electricity, the reduced procurement of renewable energy, and the forecasted range, including possible increases, in GHG emissions from the electricity sector over the planning horizon.

Natural Gas Utilities – Neutral to positive: it is expected that utilities will be interested in incentives for compressed and renewable natural gas and demand side management, and other opportunities for innovation.

LDCs – Mixed: LDCs will be supportive of an environment that considers removal of regulatory barriers in the industry and provides the ability to innovate. There is also an emphasis of cost savings and efficiencies for the sector, and this will likely cause mixed reactions amongst LDCs. LDC's reaction is expected to be neutral on the electricity demand and total cost outlooks.

Municipalities – Mixed: Municipalities raised concerns over high electricity rates and requested greater transparency regarding system costs, global adjustment, and rate relief measures. Municipalities that support certain types of generation may be disappointed by a technology neutral approach. Municipalities are expected to question why this LTEP is not taking a more holistic view of energy, including natural gas. The Ministry briefed the Association of Municipalities of Ontario (AMO) on LTEP in April 2017.

Risks and Considerations:

Climate Change – It is anticipated that there will be increased public interest in the 2017 LTEP over previous plans given the connection to Ontario's Climate Change Strategy, cap and trade program and Climate Change Action Plan (CCAP). It is expected that the plan will be reviewed by some stakeholders to assess consistency with the government's commitments under CCAP.

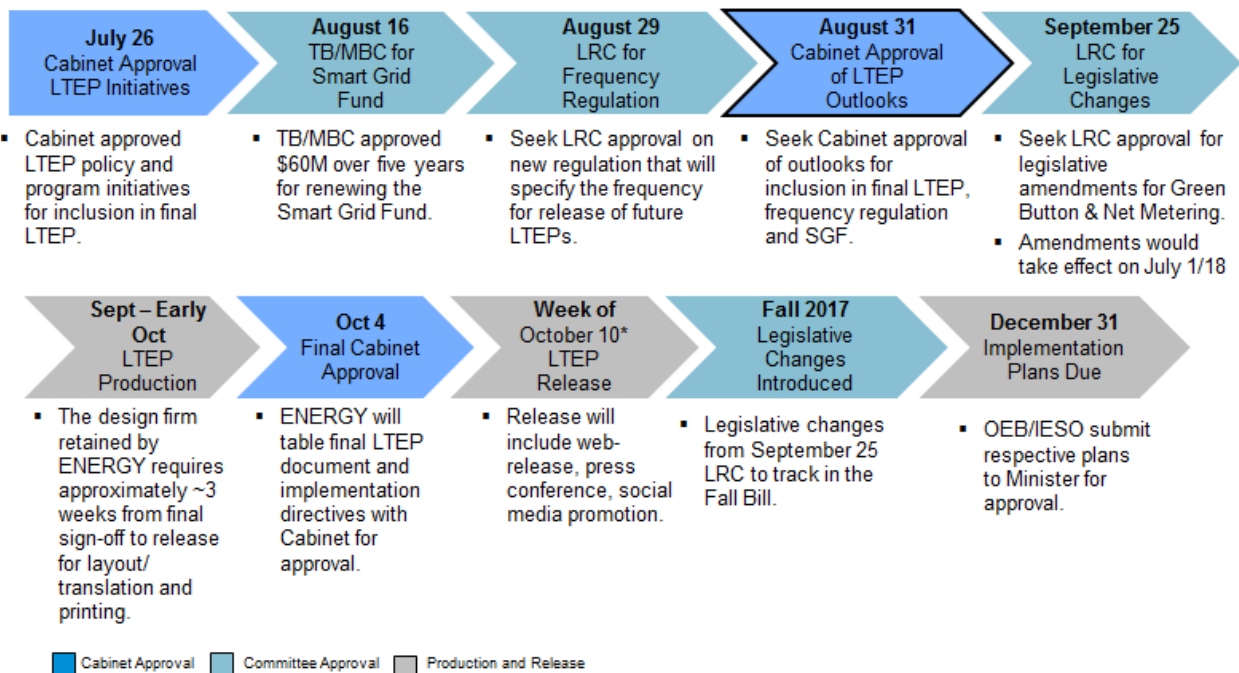
Exclusion of More Detailed Fuels Outlooks / Modelling – It is anticipated there will be stakeholder concern that the 2017 LTEP is incomplete by not including an integrated outlook for GHG emissions from fuels and electricity, particularly to compare the outlook against Ontario's legislated emissions targets for 2030. The fuels sector represents 75 per cent of Ontario's total emissions in 2015. As electricity has been largely decarbonized, emission reductions to achieve upcoming targets will need to come primarily from the fuels sector (e.g., conservation, alternative fuels). Note: The 2017 LTEP will include already approved policy and program narratives related to the fuels sector (e.g., ongoing commitment to RNG).

Rate Impacts – The initiatives to be announced under the LTEP are generally expected to provide value to the electricity system and reduce rates compared to previous forecasts, although the 2017 LTEP will confirm annual increases in bills through 2035. However, while the fuels Outlook demonstrates a decline in GHG emissions, it will have cost implications for consumers of fuels (i.e., transportation and home heating), which could generate a negative response from the public and stakeholders. In addition, the fuels Outlook does not include significant electrification of heating, industrial processes and public transit given the degree of uncertainty present over the planning cycle. There is a risk that if the electricity demand from these sources materializes, and can't be met

through alternative means (e.g., distributed generation etc.), there may be a need to procure additional supply which would have implications for electricity rates.

Delivery:

Following approvals the Ministry will develop the final LTEP document and OEB and IESO Implementation directives and report back to Cabinet for approval. The Ministry is also in the process of developing several detailed modules to be realised after the publication of the 2017 LTEP that will contain data and commentary on the assumptions used to produce the content of the plan.



Linkages:

Ontario's Fair Hydro Plan – On June 1, 2017, the *Ontario Fair Hydro Plan Act, 2017* became law, reducing electricity bills for all residential consumers across the province. As many as half a million small businesses and farms are also benefiting. The OFHP also helps electricity consumers by enhancing a number of electricity support programs. The OFHP initiatives will feature prominently in the province's next LTEP and will have an impact on the province's energy planning activities for decades.

IESO Market Renewal – The IESO has begun a Market Renewal initiative to redesign the province's wholesale electricity markets. Market Renewal is intended to result in a more competitive marketplace that efficiently meets system needs at the lowest cost and ensures Ontario's climate change commitments are met. It will also help Ontario prepare for the future by creating a framework that can effectively incorporate new and emerging technologies (e.g., non-GHG emitting generating resources, etc.). In addition, this initiative forms a key component of Ontario's plan to bring down the cost of electricity and is expected to save up to \$5.2 billion over a 10-year period starting in 2021. The IESO is working closely with partners in the electricity sector in the development of Market Renewal.

Cap and Trade – The cap and trade program is expected to increase the competitiveness of non-emitting electricity generation and clean imports, as well as more efficient natural gas generation. Cap and Trade also affects the price consumers pay for fossil fuels such as natural gas, gasoline, diesel and propane. Ontario successfully administered its first two quarterly cap and trade auctions on March 22, 2017 and June 6, 2017. All current allowances offered at both auctions were sold along with a portion of the offered future allowances, generating an estimated total of \$976 million in proceeds for the Province.

Climate Change– Released in summer 2016, the CCAP reiterated the 2016 Budget commitment to greenhouse gas emissions reductions and stated that Ontario intends to invest in initiatives that both reduce GHG emissions and ensure that the net impact of cap and trade would not result in an overall increase in electricity costs for commercial and industrial consumers. CCAP outlines the key actions the Ontario government will take to combat climate change and to provide Ontarians and businesses with tools and incentives to accelerate the use of renewable and low-carbon energy. The deployment of renewable energy technology is identified in the action plan as a key component of Ontario's low-carbon future. The *Climate Change Mitigation and Low-carbon Economy Act* set provincial GHG reduction targets of 15% by 2020, 37% by 2030 and 80% by 2050 from 1990 levels.

Long-Term Infrastructure Plan – The Ministry of Infrastructure is developing the Province's Long-Term Infrastructure Plan (LTIP) for release by the end of 2017. As articulated in the Infrastructure for Jobs and Prosperity Act, 2015, at minimum the LTIP is to include a description of the state of the infrastructure wholly or partly owned by the government; a description of the government's anticipated infrastructure requirements, including improvements to existing infrastructure assets and the acquisition of new infrastructure assets, for at least the 10 years following the development of the plan; a strategy to meet the infrastructure requirements; and any other information that the Minister determines should be included in the plan.

Terms you need to know

- **Global Adjustment (GA)** – Amount that accounts for differences between the market price of electricity and rates paid to regulated and contracted generators and for conservation programs. The GA is collected from all electricity ratepayers in Ontario.
- **Local Distribution Companies (LDCs)** – Local electricity utilities, responsible for distributing power from transmission lines to people's homes (e.g., Toronto Hydro, etc.)
- **Ontario Power Generation (OPG)** – A business corporation owned by the province that owns and operates generation assets, including nuclear and hydro, and generates almost half of Ontario's electricity.
- **Ontario Energy Board (OEB)** – A Crown Agency that independently regulates Ontario's electricity and natural gas sectors in the public interest. Implements an open and transparent process to allow for stakeholders to comment on various items.
- **Independent Electricity System Operator (IESO)** – An independent corporation and agency of the Ministry that operates the electricity market in Ontario. Balances the supply of and demand for electricity in Ontario and then directs its flow across the province's transmission lines, including interties with other jurisdictions.

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 for electricity:
 - A. A moderate demand outlook that accounts for significant electrification, in particular of the transportation sector, and continued conservation savings;
 - B. A supply outlook that meets the projected demand while maintaining the flexibility to respond to future variations in the demand forecast;
 - C. A residential cost outlook that shows progress from the 2013 Long-Term Energy Plan and reflects government initiatives to reduce costs, including through Ontario's Fair Hydro Plan;
 - D. An industrial cost outlook that is relatively flat in real dollars and reflects the elimination of the Debt Retirement Charge in April 2018; and
 - E. A greenhouse gas (GHG) emissions forecast that remains low, but provides a range for lower potential emissions dependent on a number of factors, including grid electricity demand, supply choices, market mechanisms and technological innovation.
2. ENERGY continue to work with Ministry of Economic Development and Growth , 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. Ministry of Environment and Climate Change (MOECC) and ENERGY, working with partner ministries, report back to Cabinet with updated modelling, including assumptions, outlooks, forecasts to inform policy development in the energy sector, future LTEPs and the achievement of the province's climate change commitments.
4. ENERGY continue to work with the Independent Electricity System Operator (IESO), the Ontario Energy Board (OEB) 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, including ongoing discussions with Hydro Québec, storage providers and other electricity market participants, and report back to Cabinet in 2017.
5. ENERGY work with the Premier's Office, Cabinet Office and MOECC on an integrated communications strategy.

APPENDIX A: Multi-Year Action Plan (15.11 Long-Term Energy Plan and Related Initiatives)

Below is an extract taken from the MYAP which demonstrates the overall strategic plan for the initiative that this policy submission supports. This excerpt represents the approved plan to date, and may not reflect the specific policy and delivery timelines identified in the Cabinet Minute above.



MYAP Slice 2017-08-16

KEY ACTIVITIES	YEAR 1 (2014-2015)	YEAR 2 (2015-2016)	YEAR 3 (2016-2017)	YEAR 4 (2017-2018)	YEAR 5 (2018-2019)	GOVERNANCE AND RISKS
	A M J J A S O N D J F M	A M J J A S O N D J F M	A M J J A S O N D J F M	A M J J A S O N D J F M	A M J J A S O N D J F M	
15.11 Long-Term Energy Plan (LTEP) and Related Initiatives Pillar: Managing Ontario's Energy Resources	LTEP Progress	Sustainable - Electricity Supply ON Conservation First Agenda Conservation First Leg Intro Unlock Value in Electricity Integrated Power Syst Planning	Province-wide consultation Home Energy - Retrofit Launch IESO doc. initiates planning	LTEP (Part 2) LTEP IESO/OEB Imp. Dir. IESO OEB Imp. Plans to Min. Public release of LTEP Quebec RFP w-ith US States LTEP Freq. Reg. Approval of LTEP		Lead: ENERGY Supporting: MOECC Risk Categories: Delivery / Operational, Stakeholder / Perception Last updated: 05-06-17 Increased Risk Status 

APPENDIX B: Key Modelling Assumptions

Outlook	Key Assumptions
Electricity Supply	<u>Nuclear</u> – Refurbishment schedule reflects OPG's current business plan and the amended Bruce refurbishment schedule. – Pickering is assumed to operate to 2022/2024. <u>Renewables and Energy from Waste</u> – Suspension of LRP II and EFW. – FIT 5 and microFIT 2017 are the remaining renewable programs to be procured that are not yet online or fully contracted. <u>Electricity Trade Agreements</u> – Ontario-Québec (2.3 TWh per year from 2017 to 2022 inclusive, 500 MW capacity per winter December 2016 to March 2023 from Ontario to Québec and 500 MW Québec to Ontario. Discussions with Québec on an extended agreement not reflected in supply forecast.
Electricity Demand	– Electricity demand based on OPO Outlook B, with additional electrification equivalent to 2.4 million EVs by 2035. OPO outlook B included: ○ Growth of residential households (14% over 2015-2025 and 9% over 2025-2035) and commercial floor space (15% over 2015-2025 and 11% over 2025-2035), and annual Industrial GDP growth (1% for 2015-2035) – Conservation: Reflects 2013 LTEP energy efficiency target of 30 TWh by 2032 and assumes that the near term target set in the Conservation First Framework and Industrial Accelerator Program of 8.7 TWh will be achieved by 2020; and – Demand Response (DR): any DR currently procured through the DR auction would continue to be available in future auctions.
Price	– Reflects changes related to the partial GA refinancing under the OFHP. – Reflects Ontario Power Generation (OPG) smoothed rates. – Assumes the generation assets will continue to be available for the duration of the planning outlook, consistent with the OFHP. – Benefits from implementing IESO's Market Renewal which includes a number of initiatives focused on more efficiently meeting demand; – Natural gas price forecast is based on the Sproule projection of Feb. 2017. – Carbon price is based on the actual floor price for the March 2017 cap and trade auction, inflated at 5% as per the cap and trade regulation and 2% inflationary increase. – Updated transmission rates to reflect current application before the OEB for 2017/2018.