Q13: What does the 2017 Long-Term Energy Plan propose for Ontario's electricity future?

A: Not much new supply, and electricity costs will be moderated, but the LTEP is not consistent with our climate obligations.

The 2017 Long-Term Energy Plan makes no new supply commitments, but does recommit to nuclear refurbishment and continuation of conservation. Future supply needs will be met through market-based auctions. Near-term electricity bills will be lower than previously forecast. The Plan does not consider energy use or emissions of other fuels, and assumes low levels of electrification of fossil fuel use. This would likely make it impossible for Ontario to meet its climate obligations.

The details…

The Ministry of Energy 2017 Long-Term Energy Plan (LTEP), *Delivering Fairness and Choice,* sets the high-level policy direction for Ontario's electricity future. The LTEP's planning horizon is twenty years, but its focus is on initiatives and policies that will be implemented within the next three years.

In advance of the 2017 LTEP, the ECO released a special report, *Developing the 2017 Long-Term Energy Plan*, which made 14 recommendations to the government for the 2017 LTEP. In general, the ECO's recommendations were not well addressed in the 2017 LTEP, as shown in the table at the end of this chapter.

Some key elements of the 2017 LTEP are summarized below, and explored in more depth in subsequent chapters. The focus in this report is primarily on initiatives that impact Ontario's electricity supply mix choices, not to comprehensively assess all aspects of the LTEP.

The LTEP has made near-term lower electricity prices its number one goal. It achieves this goal only by burying its head in the sand and ignoring the scale of transformation that will be needed in Ontario's energy sector in the next 10-20 years. Should the LTEP's projection of low overall electricity use (including low levels of electrification of fossil fuel use) in the next twenty years come to pass, it will almost certainly mean that Ontario will have broken its climate law and missed its 2030 greenhouse gas emissions reduction target.

No New Electricity Supply Commitments

The most notable aspect of the 2017 Long-Term Energy Plan is that, unlike both previous LTEPs, it makes no commitments to new electricity supply resources. The Ministry defers decisions on new electricity resources because it concludes that Ontario will not face a gap between supply and peak demand until roughly 2023, after several units at Pickering nuclear station are retired.

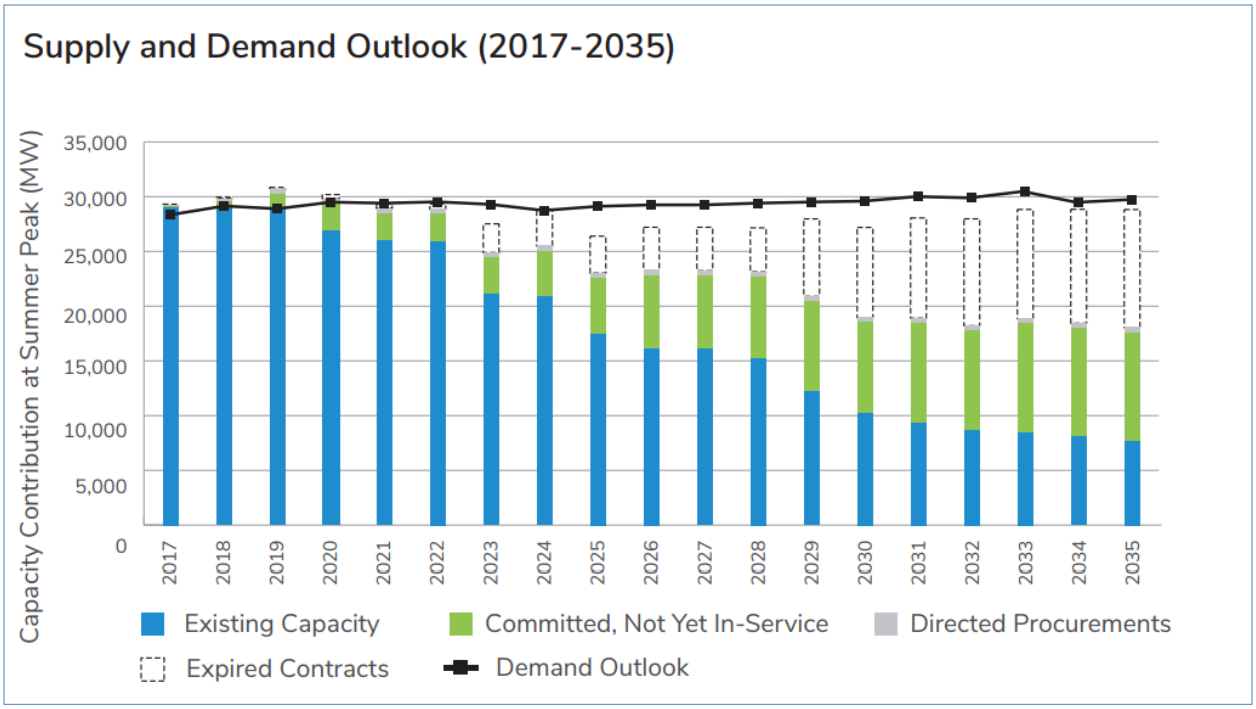

Figure { SEQ Figure * ARABIC }3.1. Long-Term Energy Plan Electricity Supply and Demand Outlook.

Note:

Source: Ministry of Energy, *Ontario's Long-Term Energy Plan 2017: Delivering Fairness and Choice* (2017) at 37.

The LTEP's supply forecast (Figure 13.1) assumes that the Pickering nuclear life extension will proceed, and that existing contracts for resources not yet in service will be honoured (these are shown as "Committed, Not Yet In-Service" in Figure 13.1).[1] These commitments for each type of electricity resource are described below.

The 2017 LTEP's intentions for each type of electricity resource are:

- **Nuclear**: Nuclear refurbishment will be completed at both the Darlington and Bruce nuclear stations (ten nuclear units in total, representing 9,800 MW) to extend the working lives of these stations by nearly 40 more years.[2] The aging Pickering nuclear station, previously scheduled to close in 2020, will be kept open until 2022 (2 units) and 2024 (4 units). As all of these stations were in service in 2016, these decisions preserve, but do not expand, the role of nuclear in Ontario's electricity supply. These decisions had been announced by the government prior to the LTEP. They have significant implications for Ontario's future supply mix and are examined in the Q14 (nuclear).
- **Renewables**: Renewable electricity projects that have already been awarded contracts but are not yet in-service will proceed to completion (1,911 MW as of mid-2017).[3] No additional renewable electricity contracts will be awarded until further notice. The government will permit electricity customers to install small renewable energy projects (most likely solar) for their own use to offset

part of their electricity costs ("net metering'). No target for net metering is set (or included in supply forecasts). Q18 (net metering) explores the implications of the new net metering policies.

- **Conservation and demand response**: The long-term conservation target remains 30 TWh of conservation by 2032. This implies continuing conservation program activity and spending at current levels throughout that time, although the current budget and framework go only to the end of 2020. For demand response, (an important subcategory of conservation that is used to reduce peak electricity demand), the LTEP states that "demand response capacity realized each year will depend on system needs and the competitiveness of demand response with other resources."[4] This is a change from the 2013 LTEP, which had an explicit goal of using demand response to meet 10% of peak demand by 2025 (approximately 2,500 MW of DR).[5] Q19 (conservation) examines the future of conservation, including demand response.
- **Natural gas**: Natural gas projects (including combined heat and power) that have already been awarded contracts (roughly 1,300 MW in total) but are not yet in-service will proceed to completion, but no additional contracts will be awarded until further notice.[6] The government had been providing capital incentives for gas-fired combined heat and power projects as part of conservation programming; this will cease as of July 1, 2018.[7]

Market Mechanisms Will Meet Future Electricity Needs

The 2017 LTEP states that future new electricity needs will be met through market-based auction mechanisms, under the banner "Market Renewal". This may result in yearly auctions to procure additional supply, in contrast to the province's previous approach of long-term fixed-price contracts. The government hopes that this approach will deliver significant cost savings and enable system flexibility. How the Market Renewal model might work, and its implications for Ontario's electricity supply and GHG emissions, are examined in Q17 (Market Renewal).

Lower Electricity Bills

The 2017 LTEP predicts lower electricity bills than were forecast in previous LTEPs (figure 13.2). The LTEP claims that lower electricity prices will be realized through a combination of real cost savings, and transfers of costs away from current electricity ratepayers to either taxpayers or future ratepayers. The residential price forecast in the LTEP was not accompanied by data showing the projected true cost of electricity service in each year (prior to cost transfers), so it is not possible to explicitly differentiate these factors. (OUTSTANDING INFO REQUEST TO MENG) However, some analysis is possible.

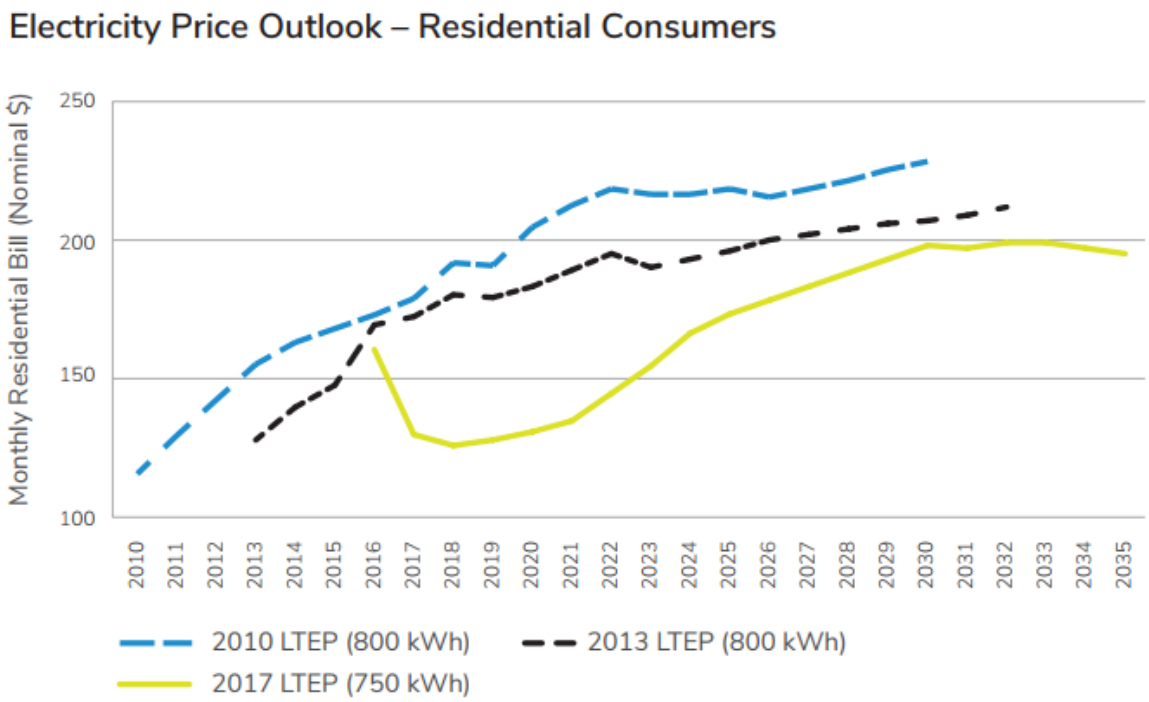

Figure { SEQ Figure * ARABIC }3.2. Long-Term Energy Plan Residential Electricity Bill Forecast.

Note: The 2017 LTEP uses less energy (750 kWh) to calculate the cost of an Ontarian's bill; the previous LTEPs used 800 kWh.

Source: Ministry of Energy, *Ontario's Long-Term Energy Plan 2017: Delivering Fairness and Choice* (2017) at 27.

The first reason for the lower predicted residential power bills is that the 2017 LTEP assumes that an average Ontario household will buy only 750 kWh/month of electricity, the amount that the Ontario Energy Board now considers to represent current average household use. The previous LTEPs assumed that each household would buy 800 kWh/month, the OEB's previous household average.

The sharp temporary drop in residential bills over the next five years, prominently noted in the 2017 LTEP and shown in Figure 13.2, is almost entirely due to cost transfers, not real savings. It is the result of the Fair Hydro Plan's decisions to:

1. pay some of the current costs of the electricity system with borrowed money (to be recovered with interest from future electricity ratepayers), and
2. use taxes (instead of electricity rates) to pay for a Harmonized Sales Tax rebate on electricity bills and targeted relief for some groups of electricity customers.[8]

These measures do not reduce the costs of operating the electricity system. Instead, as the Financial Accountability Office reported, between now and 2045,[9] the Fair Hydro Plan will add roughly $21 billion in extra interest charges to the cost of Ontario electricity.[10]

The 2017 LTEP claims that it will save about $28 billion in real system costs (over an unspecified time period) by cancelling or deferring planned electricity supply projects that were identified in previous LTEPs but are not yet needed due to the drop in demand. Examples include cancelling the second round of the Large Renewable Procurement, and delaying the Bruce nuclear refurbishment.[11] In fact, some of these costs, such as the Bruce nuclear refurbishment, will still be incurred but over a slightly later time frame. Others, such as the cost of new electricity supplies, may be incurred if and when demand grows.

The LTEP also predicts that existing resources whose contracts will expire prior to 2035 will be recontracted at lower prices. This seems reasonable. As existing electricity contracts for natural gas and renewables expire, the owners of these facilities should be willing to bid into the Market Renewal auctions to supply electricity at a much lower price, since the capital costs of their assets will have been paid. Renewables, in particular, will have very low operating costs, and may be able to provide cheap power. (CONFIRMING DETAILS ON PRICE FORECAST WITH MENG).

Limited Commitment to Electrification, and Little Consideration of Other Energy Sources

The LTEP does not consider Ontario's use of energy sources other than electricity (or their emissions). It notes only that "the outlook for the supply and demand of [other] fuels will depend on policy and program decisions over the next 20 years, as well as on technological innovation and adoption".[12] This is a critical failure that ignores the essential role of electrification in reducing emissions from the energy sector as a whole. It is also a clear breach of the legal requirement that the Long-Term Energy Plan cover Ontario's energy needs, not just the 20% of that energy that comes from electricity.

The LTEP's electricity demand forecast assumes that only a modest degree of electrification of other energy uses such as transportation and heating will occur in the next 20 years.[13] The LTEP takes only very limited steps to make a higher-electrification future possible (incentives for electric heat pumps, and a commitment to the distribution grid to better integrate electric vehicles on the distribution grid)[14], and sets no quantitative goals for electrification. Q15 (electrification) shows that much greater electrification will be needed for Ontario to meet its greenhouse gas obligations, on the order of an increase of 1/3 in overall electricity use by 2030.

Encouraging Steps Towards Balancing the Grid

A strength of the 2017 LTEP is its recognition that more needs to be done to balance the fluctuations in electricity supply and demand that occur each day. The LTEP makes commitments to tackle this problem from multiple avenues, including:

- A pilot to use surplus electricity to produce hydrogen, which can be used directly or blended with natural gas ("power-to gas") and injected into the gas grid;
- Removing regulatory barriers to electricity storage;
- Doing more to match the price of electricity to supply, i.e. to strongly encourage electricity use when supply is plentiful, and discourage use when supply is scarce;

- Facilitating utility investment in smart electric vehicle charging, where the timing of charging is controlled by the utility, and thus better matched to system needs, such as making use of surplus electricity at off-peak times.

These policies, and other ways to balance supply and demand, are discussed in Q16 (reducing electricity waste).

Table { SEQ Table * ARABIC }3.1. Summary of ECO Recommendations for the 2017 Long-Term Energy Plan and How They Were Addressed.

ECO Recommendation	Addressed in 2017 LTEP?	Details
Enable Ontario to meet its climate change targets.		
Plan for an energy supply mix that enables Ontario to achieve its greenhouse gas targets.	**No**	The LTEP focuses on electricity, and omits energy and greenhouse gas emissions forecasts for other energy sources. Action on reducing emissions from fuels will be dependent on other policies – as the LTEP notes that "the outlook for the supply and demand of fuels will depend on policy and program decisions over the next 20 years, as well as on technological innovation and adoption." (p. 42)
Address the risk of increased greenhouse gas emissions from customers choosing natural gas over electricity for cost reasons.	**No**	This ECO recommendation was primarily aimed at overcoming the cost barrier to electrification of space heating. The LTEP notes that Ontario will aim to increase the use of heat pumps for heating and cooling, through the Green Ontario Fund (p. 115). However, the "deep electrification" scenarios (outlooks C, D, E, F) found in the technical planning reports, and the consequences on electricity demand and cost, are not mentioned in the final LTEP, and no roadmap is laid out to get a higher-electrification future.
Consider the environmental impacts of energy resources on our air, water, and land.		
Minimize the environmental impacts of Ontario's energy system.	**No**	The LTEP makes no commitment to examine the environmental impacts of energy supply resources on land, air, water in an integrated fashion.

Commit the government of Ontario to meaningfully participate in the federal approvals process for energy projects with a significant impact on Ontario's environment.	**Partially**	The LTEP notes that "To ensure its strategic interests in pipeline projects are represented, the government will continue to participate in regulatory proceedings at the NEB {National Energy Board} and at intergovernmental forums that discuss the delivery of energy in a safe and environmentally sustainable manner. Ontario is also working with the federal government on regulatory initiatives such as modernizing the NEB to ensure major energy projects are reviewed in a predictable manner that increases public confidence." (p. 147) However, the ECO recommendation was also intended to apply to Ontario participation in federal oversight of nuclear projects. The only LTEP reference is that "the CNSC {Canadian Nuclear Safety Commission} will ensure that Pickering operates safely" {until 2024} (p. 51).
Put conservation first.		
Demonstrate to the public that all feasible conservation opportunities are exhausted before building new energy infrastructure.	**Not explicitly**	The LTEP makes no explicit commitments to new supply infrastructure. In theory, this could be addressed in the future as part of the Independent Electricity System Operator's (IESO's) Market Renewal Initiative, if conservation is given a "fair chance" to compete in capacity and energy procurements.
Improve the methodology for comparing energy conservation with energy supply.	**No**	The LTEP does not go into this level of detail, however, work on this is being done outside of the LTEP, through the Conservation Mid-Term Review, including adjusting the "adder" for greenhouse gas emissions, and the value assigned to non-energy benefits.
Set conservation targets for all energy sources.	**No**	Conservation targets for other fuels are not mentioned.
Ensure that regional planning puts conservation first and is effectively integrated with	**Yes**	The LTEP recognizes that "in order to increase the range of cost-effective solutions [in regional planning], barriers to non-wires solutions such as conservation, demand response and other distributed energy resources must be reduced" (p. 139). A subsequent LTEP 2017 implementation directive requests the IESO to "identify barriers to the implementation of cost

other levels of energy planning.		effective non-wires solutions such as conservation and demand management and distributed energy resources, and provide options to address any such barriers, including potential legislative or regulatory changes, as well as options to address local distribution company capacity; and propose approaches for improving the integration of regional planning with bulk system, distribution and community energy planning, and approaches to ensure alignment with market-based approaches".
Apply evidence-based decision-making.		
Provide detailed plans to hedge against energy supply risks associated with nuclear refurbishment and license extension.	**No**	The LTEP notes the province's ability to apply "off-ramps" for nuclear refurbishment due to cost or scheduling (p. 50-51), but does not discuss implications for how alternative supply would be sourced if the province exercises these off-ramps. It is fair to assume that the IESO will rely on its future energy auction system to respond to any future gaps in supply.
Compare all options to balance supply and demand in the electricity system, not just natural gas.	**Yes**	The LTEP commits to further explore the role of using surplus electricity to produce hydrogen to inject and reduce the carbon emissions of Ontario's natural gas grid (p. 75). It also looks at other ways of balancing electricity supply and demand, including: • removing regulatory barriers such as the Global Adjustment charge for companies providing electricity storage (p. 61); • working with the Ontario Energy Board (OEB) to enable electric utility control over timing of charging of electric vehicles (p. 61); • supporting the OEB's actions to test different time-of-use price structures, including a commitment to look at some equivalent of time-of-use pricing for larger customers (p. 56)
Before subsidizing expansion of the natural gas distribution system, publicly compare costs and benefits of alternatives such	**No**	The LTEP renews the government's commitment to natural gas system expansion, including its Natural Gas Grant program to pay some of the infrastructure costs (p. 135).

as conservation and clean energy technologies.		
Provide opportunities for meaningful public participation.		
Consult the public on a detailed draft Long-Term Energy Plan.	**No**	No draft LTEP was released.
Consult the public on implementation directives/plans.	**TBD**	Implementation directives to the IESO and the OEB were released without public consultation, with a request for implementation plans to be submitted by these agencies by January 31, 2018. The IESO conducted public consultations as it developed its implementation plan; the OEB did not. At the time of writing, the submitted plans have not been made public and it is unclear as to whether the Ministry of Energy will conduct any additional consultation before approving these plans.
Do not override the Long-Term Energy Plan and its approved implementation plans in between the three-year review cycle.	**TBD**	

[1] However, projected savings from future conservation programs show up as a drop in the demand outlook, not as "committed" supply.
[2] 2017 LTEP, p. 45
[3] Progress Report on Contracted Electricity Supply, p. 11. http://www.ieso.ca/-/media/files/ieso/document-library/contracted-electricity-supply/progress-report-contracted-supply-q22017.pdf?la=en
[4] 2017 LTEP, p. 14
[5] 2013 LTEP, p. 23
[6] Two large gas plants (1214 MW), plus 14 combined heat and power projects (85 MW), had been awarded contracts but were not yet in commercial operation, as of mid-2017 (IESO, A Progress Report on Contracted Electricity Supply, q2, 2017, Table 1, page 11). This is in addition to an unknown number of combined heat and power projects that will not be contracted but could receive capital incentives through conservation programs, if applied for before July 1, 2018.
[7] 2017 LTEP, p. 104

[8] See: Financial Accountability Office of Ontario, *An Assessment of the Fiscal Impact of the Province's Fair Hydro Plan* (Toronto, 2017) for a full assessment of the fiscal impact of the Fair Hydro Plan on taxpayers and ratepayers.
[9] (by which time the borrowed funds will have been repaid)
[10] FAO, p. 1. However, the Fair Hydro Plan will provide savings to electricity ratepayers of $24 billion over the life of the Plan. This is because of the cost transfers from ratepayers to taxpayers of $45 billion over the Plan's 29-year life, particularly the rebate on the provincial portion of the HST, which is assumed to be permanent, and represents a $42 billion transfer.
[11] The government estimates $15 billion in savings from avoiding new nuclear construction, at least $3 billion in savings from reductions in renewable energy prices and a return to competitive procurement for large renewables, up to $3.8 billion in savings from cancelling the second round of Large Renewable Procurement, $3.7 billion in savings from renegotiating renewable energy contracts with Samsung, $1.7 billion in savings from delaying the Bruce refurbishment until 2020, and as much as $600 million in savings from continued operation of Pickering station until 2024. 2017 LTEP, p. 20
[12] 2017 LTEP, p. 40
[13] 2017 LTEP, p. 37. The outlook assumes 2.4 million electric vehicles by 2035, plus electrification of the GO Transit system and new light rail transit, plus a very minor amount of electrification of space heating.
[14] Electric vehicle references on p. 61-62 of 2017 LTEP, heat pumps on p. 115