

TO:	CHAIR AND MEMBERS CIVIC WORKS COMMITTEE MEETING ON DECEMBER 12, 2016
FROM:	JAY STANFORD DIRECTOR, ENVIRONMENT, FLEET, & SOLID WASTE
SUBJECT:	COMMENTS ON THE MINISTRY OF ENERGY’S DISCUSSION PAPER ON ONTARIO’S LONG-TERM ENERGY PLAN FOR SUBMISSION TO THE ENVIRONMENTAL BILL OF RIGHTS (EBR) REGISTRY

RECOMMENDATION

That, on the recommendation of the Director of Environment, Fleet and Solid Waste,

- a) the comments and discussion **BE ENDORSED** and submitted to the Ministry of the Energy’s Environmental Bill of Rights Registry posting (EBR 012-8840) titled *Planning Ontario's Energy Future: A Discussion Guide to Start the Conversation*. The due date for comments is December 16, 2016; and
- b) Additional comments and discussion and the Council resolution **BE APPROVED** and submitted to the Ministry of the Energy’s Environmental Bill of Rights Registry posting (EBR 012-8840) shortly after the Municipal Council meeting on December 19, 2016.

PREVIOUS REPORTS PERTINENT TO THIS MATTER

The relevant report that can be found at [www.london.ca](http://www.london.ca) under City Hall (Meetings) is:

- Report to the August 22, 2016 Civic Works Committee (CWC) Meeting, Ontario’s Climate Change Action Plan – Initial Impact and Alignment with London’s Current Plans, Programs and Projects (Agenda Item #14)
- Report to the June 8, 2016 Civic Works Committee (CWC) Meeting, Community Energy Action Plan – Update and Status (Agenda Item #11)
- Report to the August 19, 2013 Civic Works Committee (CWC) Meeting, Comments On Environmental Bill Of Rights Registry - Making Choices: Reviewing Ontario’s Long-Term Energy Plan (Agenda Item #2)

STRATEGIC PLAN 2015-2019

Municipal Council has recognized the importance of sustainable energy use, climate change mitigation, climate change adaptation, related environmental issues and the need for a more sustainable city in its 2015-2019 - Strategic Plan for the City of London ([2015 – 2019 Strategic Plan](#)). Specifically, actions undertaken by the provincial government can support London’s Community Energy Action Plan (CEAP) and the London Energy Connections Program, address all four Areas of Focus, at one level or another, as follows:

**Strengthening Our Community**

- Vibrant, connected and engaged neighbourhoods
- Healthy, safe, and accessible city

**Growing our Economy**

- Urban regeneration
- Local, regional, and global innovation
- Strategic, collaborative partnerships

**Building a Sustainable City**

- Robust infrastructure
- Convenient and connected mobility choices
- Strong and healthy environment
- Responsible growth

**Leading in Public Service**

- Proactive financial management
- Collaborative, engaged leadership
- Excellent service delivery

BACKGROUND

**PURPOSE:**

The purpose of this report is to provide Committee and Council with:

- A summary of the Ontario Ministry of Energy’s consultation document, [\*Planning Ontario's Energy Future: A Discussion Guide to Start the Conversation\*](#), and
- The City of London’s feedback on the consultation document for approval and forwarding to the Environmental Bill of Rights (EBR) Registry.

**CONTEXT:**

The City of London does not have direct control over how much energy is used in London, but it does have influence. The control over energy use in London rests primarily with our citizens, visitors, employers and employees. Individual and collective action with respect to sustainable energy use, energy management, and energy conservation is critical for our future.

London is one of Ontario’s leading municipalities in the field of community (or municipal) energy planning, and the work done to date in London has helped the development of community energy planning programs and policies at the provincial and federal level. City staff represent the Association of Municipalities Ontario (AMO) on the Ontario Energy Board’s Regional Planning Process Advisory Group (RPPAG) to assist with improving future electricity planning efforts in Ontario.

With recent rising prices for electricity, and earlier price increases for gasoline, Londoners are now more aware of the financial cost of using energy. Rising energy prices and the percentage of household income spent on energy is causing many Londoners to pay more attention to their energy use and look for opportunities to conserve energy.

One of the most critical roles that City staff plays is to “connect the dots” between provincial initiatives and all of the activities that London’s major community stakeholders engage in, as well as the role that these stakeholders can play in the London Energy Connections Program. London’s CEAP was approved by Council in July 2014. The CEAP is the plan on how we collectively move forward on energy conservation, energy efficiency, renewable energy, and other sustainable energy solutions that reduce greenhouse gas emissions.

**DISCUSSION:**

**Part A - Overview of *Planning Ontario's Energy Future: A Discussion Guide to Start the Conversation***

The introduction to the document, [\*Planning Ontario's Energy Future: A Discussion Guide to Start the Conversation\*](#), notes that their consultations and discussions will address the following important issues:

- *How can we better represent the interests of our Indigenous communities?*
- *How will local energy plans integrate with broader planning?*
- *And how do we ensure that we better integrate fuels and electricity planning with broader community planning?*

The fact that two of these three issues are connected with community energy planning is encouraging, as is the inclusion of fossil fuels within the narrative of provincial energy planning. The Discussion Guide also identifies the strong linkages between the next Long-Term Energy Plan and Ontario's Climate Change Action Plan. Of particular interest to note is that, as part of its new broader energy focus, Ontario's energy goals are now more aligned with London's CEAP goals for both greenhouse gas emission reductions and keeping more energy dollars local:

*Three-quarters of the energy used by Ontarians comes from fossil fuels such as oil, natural gas, and their derivatives... ..Simply put, residents of Ontario rely on oil and natural gas to support their basic needs for heat and transportation. So any LTEP needs to take account of how these fossil fuels are used. Ontario produces very little of the oil and natural gas it uses.*

The Discussion Guide does look at different scenarios (i.e., "Outlooks") for both electricity and fossil fuel that take into account the impact of different levels of effort, ranging from maintaining the current level of effort, through to increased electrification of transportation and space heating and increased fuels conservation and biofuel production.

One important point to note is that the Independent Electricity System Operator's (IESO's), for all the Outlooks modelled, does not forecast electricity prices increases (in 2016 dollars) over the next 20 years. Depending upon the Outlook used, future electricity prices are estimated to increase at a pace at or below the rate of inflation.

The Discussion Guide is supported by the following two supporting documents, IESO's [Ontario Planning Outlook](#) (23 pages plus appendices) and the Ontario Ministry of Energy's [Fuels Technical Report](#) (48 pages plus appendices). A summary of the estimated future energy demand and associated costs from this Discussion Guide and the supporting documents have been provided in Appendix A.

#### Discussion Points for Consideration

To help seed discussions with stakeholders and the general public, the Discussion Guide poses a number of points for consideration. These include:

- What are the most important benefits of a modern grid? Increased reliability?  
Greater information on your energy usage?
- Which innovations offer the greatest benefit to your community and the energy system as a whole?
- How should the public and private sectors cooperate to encourage innovation in the energy sector?
- What actions could the government take to support the adoption of alternative fuels?
- Should Ontario set provincial conservation targets for other fuel types such as natural gas, oil and propane?
- To meet the province's climate change objectives, how can existing or new conservation and energy efficiency programs be enhanced in the near and longer term?
- How can we continue to inform and engage energy consumers?
- What role should distributed renewable energy generation play in the ongoing modernization and transformation of Ontario's electricity system?
- To meet a higher demand, what mix of new electricity resources would best balance the principles of cost-effectiveness, reliability, clean energy, community engagement, and an emphasis on Conservation First?
- What policies will Ontario need to adapt to a transformation in the fuels sector?

## Part B – How the Long-Term Energy Plan Affects London

This discussion will cover how the discussion points raised in *Planning Ontario's Energy Future: A Discussion Guide to Start the Conversation* impacts the following:

- Corporation of the City of London
- London
- London in a Regional Context

It also must be noted that this response is from City staff and not staff from London Hydro. Staff from London Hydro will have additional knowledge and insight on matters related to electricity. It is our understanding that London Hydro is preparing its own response to the EBR and/or providing comments in another manner.

### Corporation of the City of London

The Discussion Guide makes specific references to renewable natural gas (RNG) being mixed in with conventional natural gas and used in the same pipelines and equipment. Given the difficulties the City has experienced with past attempts at utilizing landfill gas for power generation, the City of London welcomes the opportunity to utilize landfill gas as a source of RNG for the province's natural gas distribution system. As the City evaluates future options for the management of organics within municipal waste, the ability to produce and sell RNG from the anaerobic digestion of organics may help to reduce costs for organics management.

The profile of the corporation's energy needs are weighed heavily towards electricity, with electricity accounting for 58 percent of energy needs. The forecasted stabilization of future electricity prices is welcome, as this will help the Corporation contain future costs associated with service delivery as well as see absolute cost reductions when electricity conservation measures are undertaken.

The Discussion Guide's inclusion of using compressed natural gas (CNG) as a transportation fuel that replaces diesel is of interest to the Corporation, specifically for its waste collection fleet. However, Fleet Services would require financial assistance from to address the additional costs associated with installing CNG fuelling infrastructure and the cost premiums associated with CNG-capable trucks. Potential financial sources could be the Province of Ontario, Federal Government, Union Gas and/or City of London.

### London

The Discussion Paper's forecast for the future stabilization of electricity commodity prices will be welcomed by both Londoners and London's employers, as high electricity bills are often cited as issues of concerns by both. The Discussion Paper also makes a point of stating that the electricity supply system is now in a good position for the future. Benchmarking of electricity prices with neighbouring U.S. states, taking into account the lower Canadian dollar, may also help to provide assurances that Ontario's future electricity prices will not place Ontario businesses at a disadvantage.

The Discussion Paper's inclusion of "fuel switching" from fossil fuels (natural gas, gasoline, and diesel) to electricity for both buildings and transportation are welcome. Local actions such as the proposed direction to examine the electrification of London Transit's bus fleet, in particular the future buses to serve the rapid transit system, could be supported by the proposed LTEP actions. Greater promotion of electric vehicles, along with transit and cycling infrastructure investments will also help London reduce transportation-related fuel use and associated emissions.

However, with respect to existing buildings, current conservation programs delivered by London Hydro and Union Gas still tend to focus on measures only associated with the commodity they supply, as opposed to assessing the energy needs of the overall building as a system. The proposed provincial Green Bank appears to be limited in scope to financing and supporting renewable energy technologies and fuel-switching

measures such as replacing gas-fired space heating needs with electrically-driven heat pumps. It is critically important for building and facility retrofits to take a holistic, building-as-a-system approach that includes deep retrofits of building envelopes to dramatically improve insulation, draftproofing, and passive heating and cooling. These measures will make fuel-switching significantly more affordable as the replacement technology can be sized to satisfy a significantly smaller energy demand for the retrofitted building.

The Discussion Guide's inclusion of microgrids also supports London's CEAP. London has already made progress, with combined heat & power systems in place at London District Energy, Ingredion, London Health Sciences Centre, and Labatt. Sifton's proposed net-zero energy development, West 5, is also investing with London Hydro into the potential use of a solar-powered DC microgrid for electric vehicle charging. Microgrids can also provide climate change adaptation benefits by providing energy security to key areas (e.g., Downtown London) and facilities (e.g., hospitals) in the event of large-scale interruptions to the broader distribution and transmission electricity grid.

Using compressed natural gas (CNG) as a transportation fuel that replaces diesel could provide both financial and environmental benefits for local truck fleets. Some local fleets, such as Canada Post and the Thames Valley District School Board have already started to use CNG vehicles. However, other fleet operators will still require assistance from the Province and/or Union Gas in the initial stages to address CNG fuelling infrastructure and access to CNG-capable trucks.

### London in a Regional Context

The Discussion Paper's reference to using natural gas as a transportation fuel that replaces diesel for freight transportation supports London's CEAP. Given London's strategic location at the intersection of Highway 401 and Highway 402 between the Greater Toronto Area, Detroit, and Buffalo, London would be an ideal location for natural gas refuelling at truck stops.

### **Part C - Comments to be Submitted to the EBR Registry (#011-9490)**

City staff recommend that the following comments be submitted to the EBR posting:

1. The City of London supports the overall direction outlined in [\*Planning Ontario's Energy Future: A Discussion Guide to Start the Conversation\*](#).
2. The Province of Ontario is to be commended for recognizing the role that municipalities have been playing in planning the energy needs of their communities, and the City of London encourages the province to continue to work in partnership with municipal governments.
3. The Province of Ontario is to be commended for addressing many of the concerns that the City of London identified during the previous stakeholder consultation on Ontario's Long-Term Energy Plan, specifically:
  - a. starting to take a holistic approach to energy planning to address all of Ontario's energy needs – heating, cooling, transportation, and electricity generation – and the energy commodities (e.g., electricity, natural gas, petroleum fuels) used to meet these needs;
  - b. involving other provincial ministries in the review and development of Ontario's Long-Term Energy Plan;
  - c. exploring the use of combined heat and power as well as district energy systems (i.e., microgrids) where thermal energy needs to make CHP a cost-effective solution; and
  - d. engaging municipal staff involved with land use planning, development, and building permits at the beginning of the review to revise the rules associated

with siting and approving regional energy infrastructure.

- 4. The City of London encourages the Province of Ontario to strongly and clearly communicate their message from the Discussion Paper that Ontario’s electricity supply system is now in a good position for the future and that future electricity prices are not expected to rise as a result of Ontario’s Climate Change Action Plan. Many London homeowners and businesses have expressed concerns about recent electricity price increases and they have strong concerns that this will continue for the future. Unless these concerns are alleviated, there could be challenges with obtaining public acceptance of the Long Term Energy Plan.
- 5. The City of London encourages the Province of Ontario to place a greater emphasis on raising “energy literacy” for both homeowners and businesses in a manner that provides easy-to-understand, open and transparent information on the financial and environmental impacts of energy use and sources of energy used in Ontario. This information needs to come from a trusted and reputable entity that is neutral and unbiased in its assessment and communication of this information. Municipal governments such as the City of London have been playing a role in raising energy literacy at the local level as part of their community energy or climate change action plans.
- 6. The City of London continues to encourage the Province of Ontario to take a holistic approach to the design and development of new conservation programs that takes into account the interrelationship between power, heating, cooling, water, and transportation energy needs associated with buildings, facilities, and industrial processes. Conservation programs need to be delivered with a “building as a system” approach, rather than the narrow single-commodity focus usually associated with utility-delivered conservation programs in Ontario.
- 7. The City of London encourages the Province of Ontario to relax existing Ontario Energy Board rules that prevent electricity distribution companies and natural gas distribution companies from playing an active role in the implementation of solutions, such as development and ownership of public electric vehicle charging infrastructure and CNG fueling infrastructure.

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Appendix A    *Overview of Planning Ontario's Energy Future: A Discussion Guide to Start the Conversation*

c    Vinay Sharma, Chief Executive Officer, London Hydro



## Appendix A

### Overview of *Planning Ontario's Energy Future: A Discussion Guide to Start the Conversation*

The [Discussion Guide](#) is supported by the following two supporting documents, Independent Electricity System Operator's (IESO's) [Ontario Planning Outlook](#) and the Ontario Ministry of Energy's [Fuels Technical Report](#).

This overview is a summary of the key messages from these documents, with an emphasis on highlighting the interrelationships between the potential future use of electricity and fossil fuels.

#### The Inter-relationship between Future Electricity and Fossil Fuel Demand

The Discussion Guide looks at different scenarios (i.e., "Outlooks") for both electricity and fossil fuel. These outlooks take into account the impact of different levels of effort, ranging from maintaining the current level of effort (Outlooks A&B), through to increased electrification of transportation and space heating (C&D), and increased fuels conservation and biofuel production (E&F). From the Discussion Guide:

- **Outlook A** examines a future of low demand, with the province using less electricity than it does now. In Outlook A, Ontario would use 133 terawatt-hours (TWh) of electricity annually by 2035.
- **Outlook B** is a continuation of the current pattern of flat growth in energy demand and would see annual electricity use of 148 TWh over the same period. This is close to the current level of 143 TWh used in 2015. With currently planned and existing resources, including conservation efforts, Ontario will have sufficient capacity to meet the needs of a flat demand future.
  - For fossil fuels, Outlook B assumes that demand side management (DSM) for natural gas would continue at present levels. The proposed transportation fuel standards would also proceed as planned. Outlook B estimates a demand for fossil fuels of 2,377 Petajoules (PJ) by 2035.
- **Outlooks C and D** examine a future with a significantly higher use of electricity due to the increased electrification of transportation and changes in the heating and cooling of homes and businesses. In these outlooks, the annual consumption of electricity could increase to between 177 TWh and 197 TWh by 2035. Ontario would need to generate more electricity than it does today to meet these higher levels of demand. The increase in demand is not expected to occur until the mid-2020s, with significant increases in supply required after 2030.
  - For fossil fuels, it is assumed that DSM initiatives and proposed transportation fuel standards would continue as currently planned. Fossil fuel demand in Outlooks C and D are lower - 2,070 PJ and 1,931 PJ, respectively - in 2035 due to electrification.
- For fossil fuels, **Outlooks E and F** are based on the same primary assumptions as Outlooks C and D, respectively, with greater levels of DSM and the displacement of some fossil fuels with less carbon-intensive alternatives. The demand for fossil fuels in Outlooks E and F is estimated to be 2,037 PJ and 1,842 PJ, respectively, in 2035.

Figure 1 illustrates the future electricity demand forecasts for Outlooks A through D, while Figure 2 illustrates the future electricity demand forecasts for Outlooks B through F. However, given that these two figures use different units for measuring energy use (terawatt-hours for electricity and petajoules for fossil fuel use), it is difficult to see the impact of actions such as electrification can have on reducing fossil fuel use unless the same units for measuring energy use are used for both.

To compare “apples to apples” with electricity and fossil fuel use, electrical energy use can also be stated in terms of petajoules (PJ), where 1 TWh is equal to 3.6 PJ. This makes it easier to see the net energy savings in Outlook D, where some fossil fuel use would be replaced by electricity. Although the additional demand for electricity would be about 195 PJ, but this would be offset by a reduction of over 400 PJ of fossil fuel energy that would be displaced by electricity. This assumes that fossil fuels would not be used to generate this additional electricity.

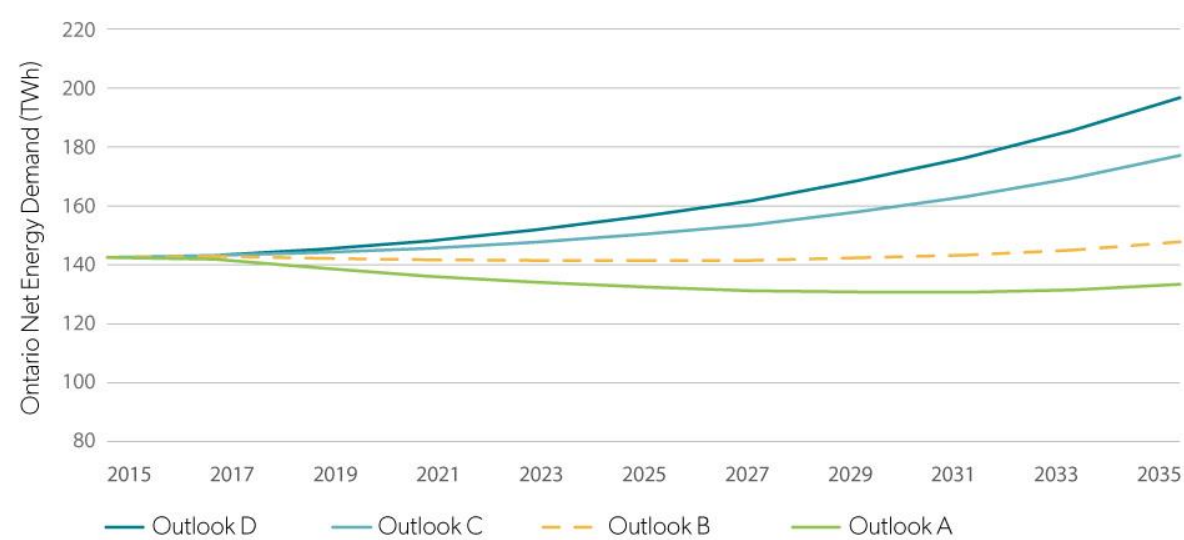


Figure 1 - Electricity demand forecasts (Source: IESO Ontario Planning Outlook)

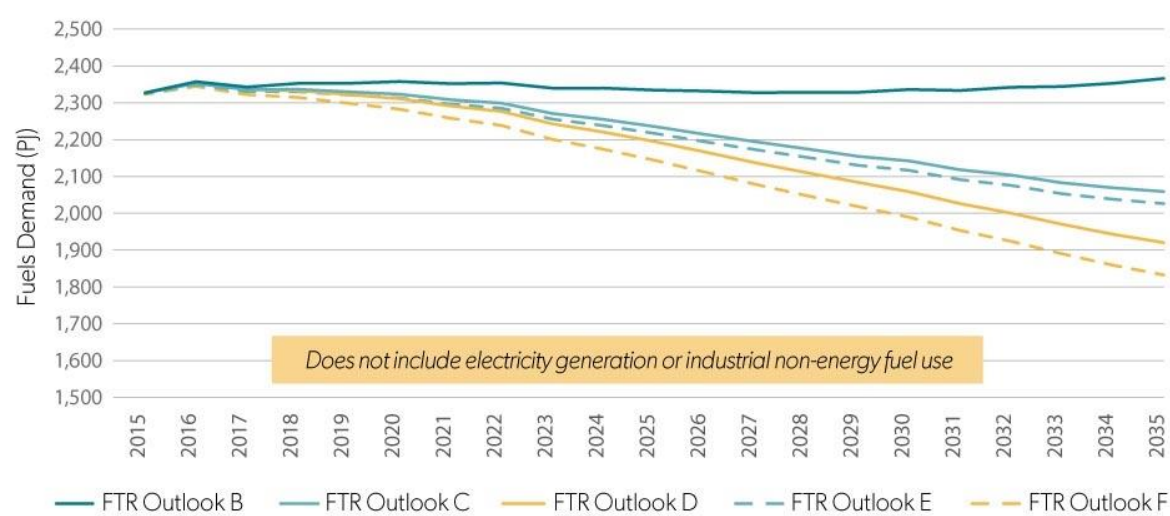


Figure 2 - Fuels demand forecast (Source: Ministry of Energy Fuels Technical Report)

Future Electricity and Fossil Fuel Prices

Currently, electricity prices are top of mind for most Londoners. It is important to note that Discussion Guide does not expect electricity prices to increase (in real terms - 2016 dollars) over the next 20 years.

As illustrated in Figure 3, under the flat demand outlooks (A & B), the Ontario Planning Outlook estimates that the future electricity prices (in terms of 2016 dollars) are expected to decrease by an average of 0.3 percent per year over the next 20 years. In other words, the pace of electricity price increases is expected to be a bit below the rate of inflation over the next 20 years under this scenario.

As illustrated in Figure 4, under the aggressive electrification outlook (D), the Ontario Planning Outlook estimates that electricity prices would remain relatively unchanged from current prices. In other words, the pace of electricity price increases would be close to the rate of inflation over the next 20 years under this scenario.



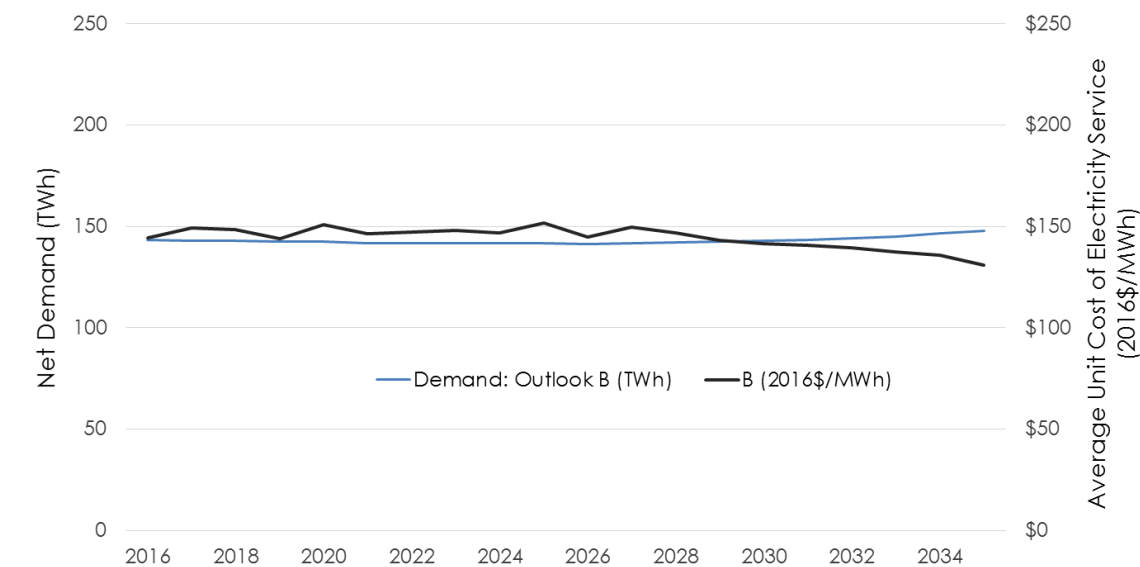


Figure 3 – Average Unit Cost of Electricity Service – Outlook B (Source: Ontario Planning Outlook)

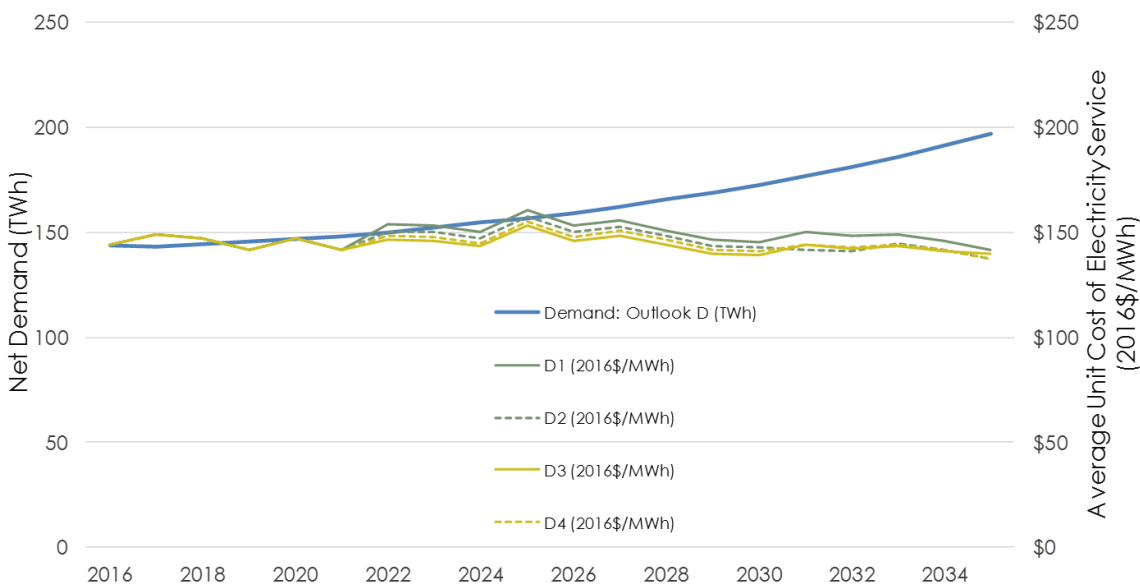


Figure 4 – Average Unit Cost of Electricity Service – Outlook D (Source: Ontario Planning Outlook)

For fossil fuels, the Discussion Guide notes that the fuel prices are a function of North American market forces. Within the Fuels Technical Report, this is reinforced as the province reiterates that the cost outlooks illustrated in the report are not forecasts, and do not address the future volatility of continental fossil fuel commodity prices.

What the outlooks do illustrate however is a range of possible outcomes based on the assumptions made within each outlook. In other words, this would illustrate the impact that the actions undertaken within the various outlooks would have on fuel prices. As noted in the Fuels Technical Report, fuel price projections were obtained, or adapted, from fuels price projections developed by other (principally public) agencies and represent “delivered” prices ( i.e., the actual cost paid by the consumer).

As illustrated in Figure 5, under Outlook B, natural gas prices (which would include some renewable natural gas, or RNG, content) are projected to increase by about 67 percent and transportation fuels are projected to increase by about 36 percent.

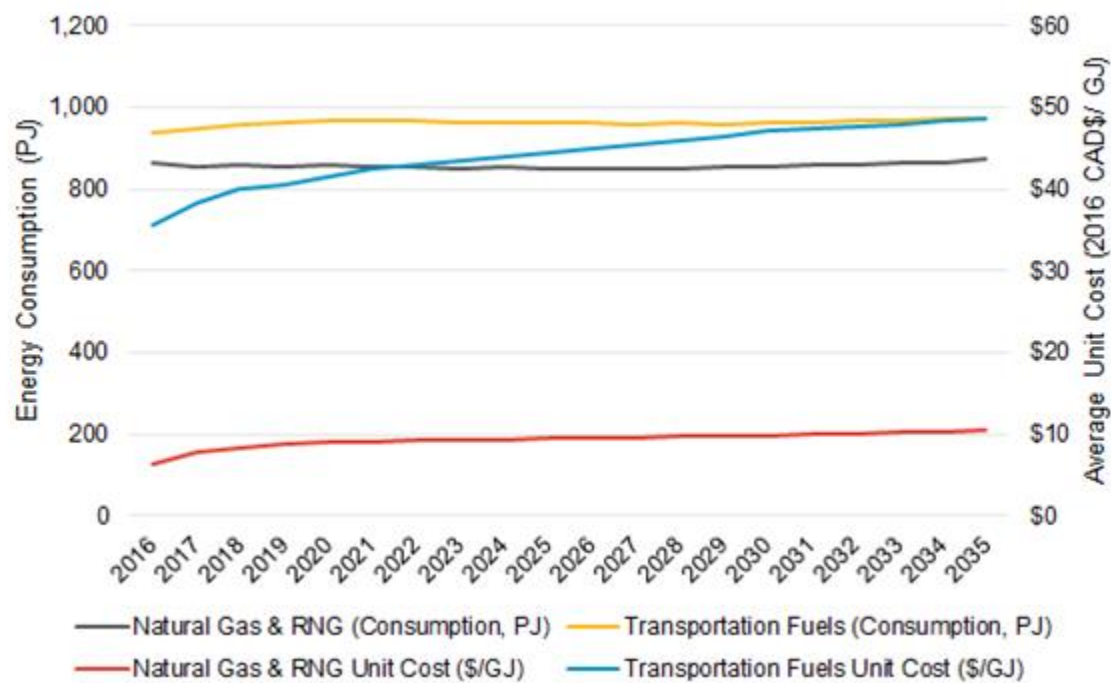


Figure 5 - Fossil Fuel Unit Costs – Outlook B (Source: Fuels Technical Report)

As illustrated in Figure 6, under Outlook F, natural gas prices (which would include some renewable natural gas, or RNG, content) are projected to be over twice as high. However, the forecast increase in transportation fuels would be a lower, with an increase of about 33 percent.

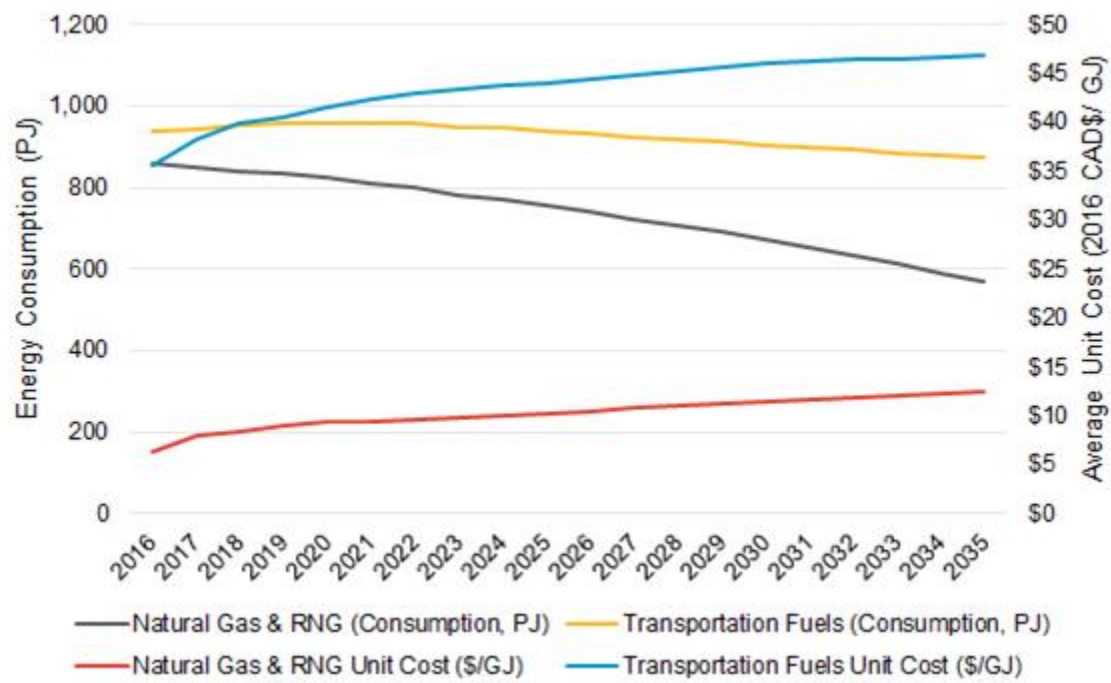


Figure 6 - Fossil Fuel Unit Costs – Outlook F (Source: Fuels Technical Report)

Future Energy-Related Greenhouse Gas Emissions

As illustrated in Figure 7, under the flat demand outlook (B), the Ontario Planning Outlook estimates that the future electricity-related GHG emissions will be lower than they were in 2015 because of the completion of current and planned electricity sector actions.

As illustrated in Figure 8, under the aggressive electrification outlook (D), the Ontario Planning Outlook estimates that future electricity-related emissions have a wider range of uncertainty, depending upon whether natural gas power plants are used to meet some of this increased demand. However, the estimated future GHG emissions from all four outlooks are still lower than the 2015 emissions from the electricity sector.

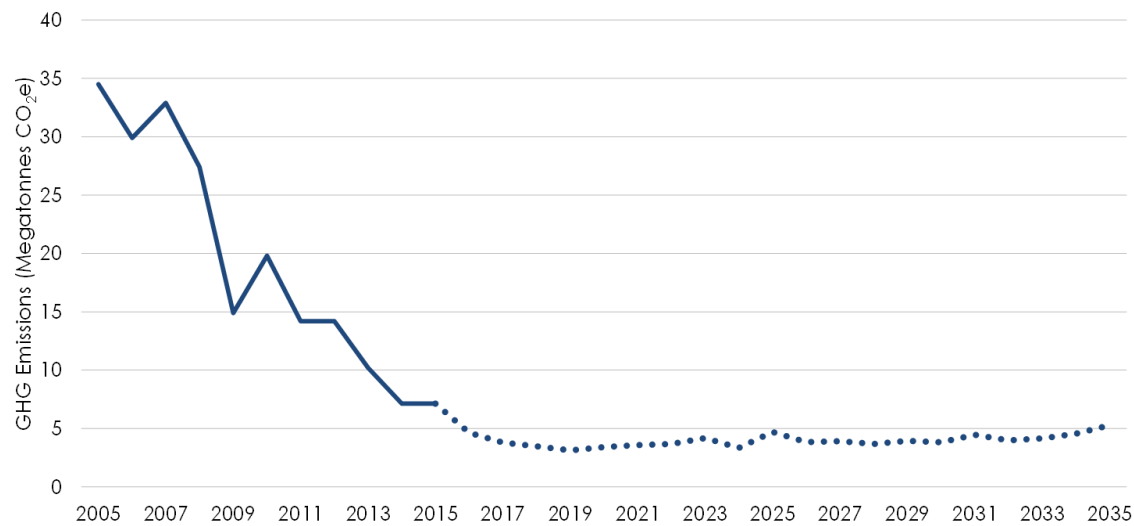


Figure 7 – Electricity Sector GHG Emissions – Outlook B (Source: Ontario Planning Outlook)

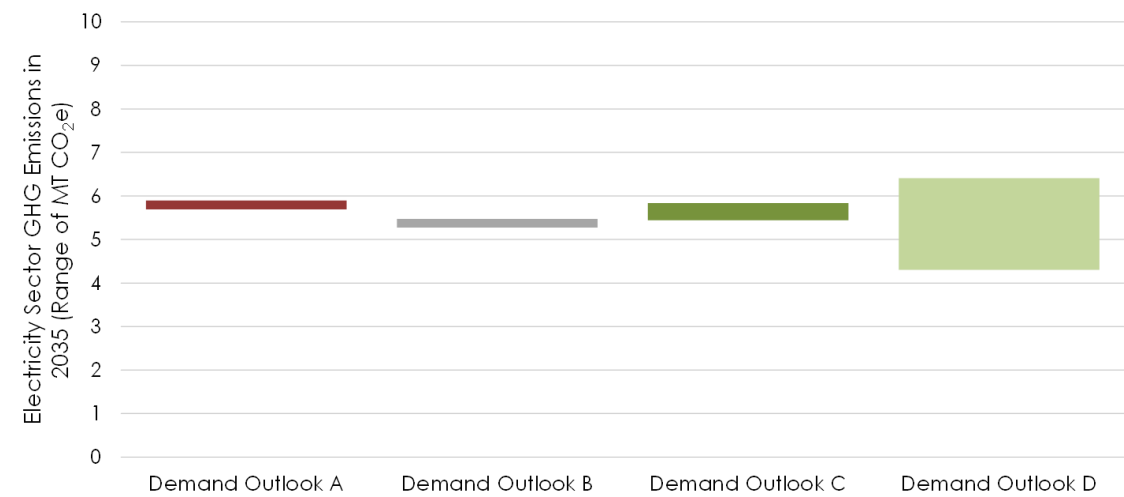


Figure 8 – 2035 Electricity Sector GHG Emissions – All Outlooks (Source: Ontario Planning Outlook)

As illustrated in Figure 9, the environmental payoff from the aggressive electrification (Outlook D) really comes from the displacement of fossil fuel use, resulting in a 20 percent reduction in fossil fuel related GHG emissions. Further emissions reductions are possible through Outlooks E and F because of future incremental natural gas conservation efforts and an increased use of alternative, lower carbon-emitting fuels such as renewable natural gas from landfills and organic waste management.

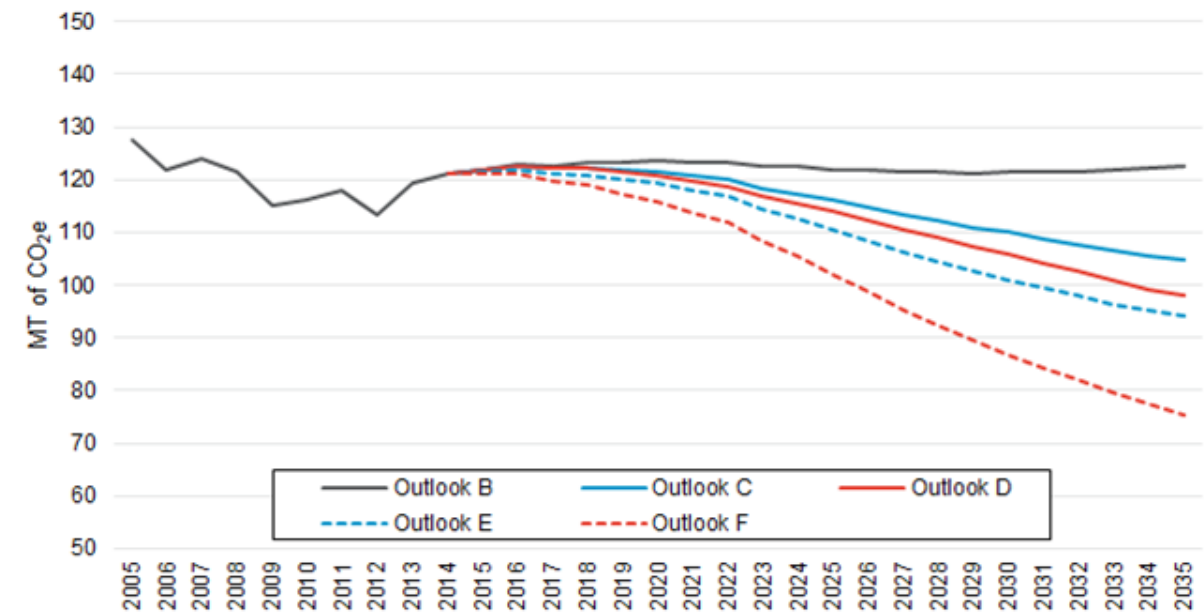


Figure 9 - Fossil Fuel GHG Emissions – All Outlooks (Source: Fuels Technical Report)