

Feedback Form

Peterborough to Kingston Regional Electricity Planning – Webinar held on March 25, 2021

Feedback Provided by:

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Proposed Recommendations

- Include a high growth gross demand/planning scenario beyond the confirmed 5 year period to reflect the planned transition from natural gas/oil/propane thermal energy to electricity in buildings, and from gasoline/diesel to electricity in vehicles from 2023 – to 2038. Reason - Defaulting to projected growth rates of <1% in the mid-to-long term horizon will likely impede this expected innovative transition by not allowing enough lead time for additional transmission infrastructure to be built.
- Recognize infrastructure planning needs for potential areas of new concentrated energy demand based on Municipal intensification policies as well as new greenfield business park development without the requirement of having confirmed customer load estimates. Reason: New developments that aren't known now will be coming on line within five years and will fall between the current IRRP Planning cycle and the next one in 2025/2026. It is not realistic for the municipality nor the LDC to have confirmed loads beyond 3-5 years in most cases in terms of new development. Only including confirmed loads in the demand forecasting can potentially impede this new development if insufficient transmission/distribution capacity is not planned for proactively given the lead time required for new electricity infrastructure.
- Consider adding transmission capacity in the next 5 years serving the area Gardiners/Frontenac TS to accommodate growth in the downtown and east areas of Kingston. Reason: The City has numerous land use planning policy projects underway that encourage higher densities in Kingston, including the Central Kingston Growth Strategy and Density by Design policy. Development from these policies will increase the demand for electricity but are expected to be approved and launched beyond the current IRRP consultation timelines. The time lag for new transmission and distribution infrastructure has been acknowledged as 5-10 years including land procurement and transformer/wires development which will be required to develop in those areas in the 7-12 year time frame.

Topic:

What further information needs to be considered as part of electricity planning for your community?

Feedback:

Mid-to long-term forecasting in the draft IRRP seems to default to a low growth scenario past 2023/2024 which will be insufficient. CFB Kingston, Queen's University and City of Kingston all have aggressive decarbonization targets that will involve new projects requiring electricity within the 2021-2026 time-period and beyond. Kingston City Council's GHG reduction targets include 15% below 2018 emission levels by 2022, 30% below 2011 levels by 2030 and carbon neutrality by 2040 or sooner. This represents an aggressive timeline that requires significant shifts in energy use.

The incremental and ongoing shift of thermal energy needs within facilities to electricity loads is an example of this transition that other institutional customers are also pursuing. Currently the City of Kingston's municipal facilities electrification strategy aims to shift from fossil fuel thermal energy to electric beginning in 2025, as fuel burning assets reach end of life (both heating systems and domestic hot water systems). Based on a 15-year capital lifecycle as mechanical system assets are replaced, the fossil fuel burning devices will be replaced with all electric or electric/gas hybrid systems. The City facilities Net Zero Energy by 2040 strategy includes a significant amount of conservation, however it is contingent on the electrical grid having enough capacity to electrify heating systems, while using behind the meter generation including virtual Net Metering to offset usage.

The City facilities average natural gas use is 2.5 Million Cubic meters per year, this will need to be offset by electricity by 2040 to meet the current GHG targets as prioritized by council. New municipal facilities are all aiming for Net Zero Energy as budgets allow, with Kingston East Community Centre aiming for near Net Zero Energy and the Kingston Regional Fire Training Centre aiming for Net Zero Energy. Both facilities will be all electrically heated/cooled and will have no Natural Gas onsite. These sites will also both include large Solar Net Metering installation to offset electrical use. The increased use of EV's adds another element of complexity, as more chargers are connected to municipal facilities electrical distributions systems, this reduces overall facility capacity.

The ongoing transition of fleet and public fossil fueled vehicles to electric vehicles with respect to heavy-duty and light duty EV charging needs to be considered within a high growth scenario. The City has already purchased 2 electric transit busses and will order up to another 10 in the next 5 years which will require substantial charging capacity. Kingston Transit services have been heavily used with a double-digit ridership growth in the 5 consecutive years prior to the pandemic. The City is also aggressively switching over its vehicle fleet over to EVs and was recently awarded federal funding for adding another 23 charging stations for its city vehicles. Additionally, MTO is installing electric ferries for Wolfe and Amherst Islands which is a further indication of the electrification of transportation within the 5 year horizon.

Additionally, behind the meter solutions should be prioritized to limit the economic impact of Ontario becoming an electricity importer within the next several years. Capacity to enable microgrids and solar virtual net metering are important so that economic development can be cost-effectively met by

customer solutions whilst prioritizing the use of Ontario's existing domestic electricity supply. This is critical for facilities to achieve Net Zero Energy as there is often not enough roof space otherwise.

The City is also advocating low carbon development in the broader community using mechanisms such as a proposed Green Standard Community Improvement Plan, expected to be finalized later in 2021, which will incentivize private development of Net Zero commercial and residential buildings. Staff will present another initiative to City Council this summer that supports a low carbon and more electricity oriented approach to community development within an updated Zoning By-law which may consider incentives for EV charging in private parking lots within Kingston. The Central Kingston Growth Strategy and Density by Design policy development will also increase demand for electricity in areas of the City where Utilities Kingston has expressed concern for limited capacity for growth in demand. Furthermore, a new home energy retrofit initiative is being planned to launch in the next year which aims to fuel switch a few thousand residential dwellings from fossil fuels to more electricity-based heating equipment. While there is a ramp-up time for all these new initiatives to tangibly impact development patterns and energy trends within Kingston, it is not reasonable to assume past energy demand patterns are applicable to the new development paradigm that will emerge over the next five years. This is even more important when considering the planned direction for economic growth in the near future.

Utilizing Municipal influence and collaborative partnerships will be a critical part of a sustainable economic recovery that helps to create high skilled job opportunities while demonstrating City Council's commitment to climate leadership. Kingston's new Integrated Economic Development Strategy illustrates this direction as it supports the growth of innovation in the industrial, commercial and institutional sectors that will create a sustainable and thriving ecosystem to support business growth, start-ups, investment attraction and new foreign direct investment opportunities in our community. This Strategy includes Health & Innovation and Sustainable Manufacturing as strategic priority sectors building off existing bases in these sectors. This focus includes advanced manufacturing, material process innovation and low impact food processing.

The City has targeted these sectors based on recent success such as Li-Cycle battery materials reclamation, IPG Photonics a world leader in fiber laser-based applications, the Reactor Materials Testing Laboratory (Queen's University) and the Robotics Laboratory (RMCC). The Strategy continually aims to attract investment for these types of clean tech advancements which will all further drive the need for additional electrical supply and presents opportunities to cluster new economic development within innovative business parks. For example, Kingston is exploring enabling the development of a new low-carbon business park near the Gardiner TS to include a microgrid, among other energy technologies, which may include PV and storage which could potentially come on line in next 3-5 years. Nothing concrete has been confirmed at this point in that regard until after the timeline of completing the current IRRP late in 2021. This does raise the question however of how does the City work with IESO to enable this kind of progressive development with enough lead time given this will fall between the IRRP planning periods?

Topic:

What information do you think is important for the IESO to provide throughout the engagement?

Feedback:

A clear map of the area transmission/distribution system with geographic context (not just single line electrical diagram).

Ongoing Engagement

Topic:

Does the proposed Engagement Plan provide sufficient opportunities for input to be provided?

Feedback:

Existing large energy users in the ICI sector need to be consulted more directly for IESO to learn of their expansion plans in the next 1-5 years. During the call, at least one large food processing company was mentioned as not being heard from yet within this current IRRP cycle. Large private sector organizations within this electricity planning region such as INVISTA, Canada Royal Milk and LaFarge are critical stakeholders to be engaged during the IRRP process.

This seems to be a critical area for economic development in addition to some of the unconfirmed institutional expansions or shifts mentioned during the March 25th IESO consultation session by Queen's University and DND-CFB Kingston in addition to those mentioned by City staff. It is difficult for the City as a corporation to provide the IESO with confirmed electrification forecasts as our projects are subject to annual budgets considered by City Council even when there are proposed emission reduction projects represented within long-term capital budget plans.

General Comments/Feedback

The IRRP process seems to be a short-term planning process which discounts consideration of longer-term impacts and larger macro trends occurring in community development and the economy. If the IRRP is to more adequately plan to meet electricity infrastructure needs beyond a five-year window, additional process considerations are required as outlined during the March 25th customer engagement call as well as summarized here within this feedback form.

Specifically, the City is increasingly concerned with potential issues of having sufficient electricity capacity at the transmission level in Kingston to accommodate economic growth, community development and reaching GHG reduction targets committed to by existing large customers within the City. In Kingston we have two transmission stations operated by Hydro One Networks, [REDACTED]

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We need to ensure that the more forward thinking infrastructure planning is being done now at the Transmission level at each of these stations to ensure an adequate long-term supply of electricity to Kingston Hydro and Hydro One, the distributors that serve all customers in Kingston. If planning isn't

done now to increase transmission capacity, there will likely be critical impacts for the ability of Kingston to meet its increase in housing and intensification goals and respond to industrial development opportunities over the coming years.

In addition, there are considerations required for future electricity demands due to transition from fossil fuels to electricity to achieve GHG emission reduction goals. New transmission stations and distribution capacity takes a number of years to establish so it is critical that the planning work be incorporated now as part of this current five year regional planning study with the IESO, and not put off for another 5 years until the next study. As the City aims to continually electrify both its fleet and facilities over the next few years, delaying additional transmission capacity will hamper ours, and other aforementioned organizations ability to meet our climate mitigation goals.

Electrification of buildings and transportation in Ontario is a win-win from an economic and environmental sustainability perspective. The IESO should be prioritizing its investments in the necessary infrastructure to enable this transition which has already incrementally begun, and will without a doubt build significant momentum over the next 3-5 years.