

Central/GTA Regional Electricity Network

Regional Electricity Planning Update

February 12, 2020



This paper provides background and current information about electricity planning for Central Ontario including the Greater Toronto Area (GTA), including the planning areas of [South Georgian Bay/Muskoka](#), [GTA North \(York\)](#), [GTA East](#), [GTA West](#) and [Toronto](#).

This information will help to prepare attendees for the panel session during the Regional Electricity Network meeting on February 12, 2020. By providing this information in advance, more time can be spent on better understanding and learning about the electricity needs and priorities across the region and ensuring that the network is equipped to continue these discussions.

This panel will focus on the electricity needs that are expected to emerge in the next 10 to 20 years. In particular, speakers will focus on situations that do not require immediate decisions, which means there will be sufficient time to explore local solutions. This discussion will include:

- What we need to start thinking about in advance of the next planning cycle (Please see page 8 for more details)
- The range of possible solutions that exist to help address those future electricity needs
- What actions communities and the IESO could take to explore local energy solutions

So, as you listen to the panellists, please consider:

- What additional information do you need to be prepared to fully participate in your community's next regional planning cycle?
- Do you know your community's energy priorities? How can you help establish your community's energy goals and objectives?
- What direction should future conversations take?

Please come prepared with your questions for the panel or if you have questions you would like to submit in advance, you can send them to communityengagement@ieso.ca and we'll be sure that they are addressed during this discussion.

Appendix A includes links to documents that are referenced in the following regional planning updates.

CENTRAL/GTA ELECTRICITY PLANNING REGIONS

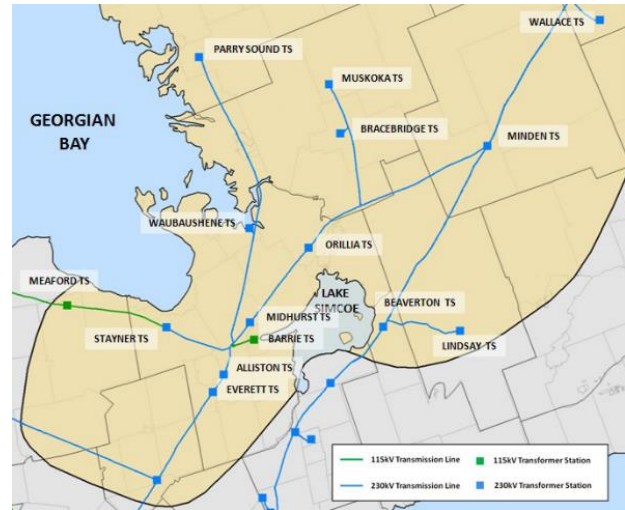
South Georgian Bay/Muskoka

Location

- The South Georgian Bay/Muskoka planning region includes more than 30 municipalities and 10 First Nation communities
- It has two planning sub regions – Barrie/Innisfil and Parry Sound/Muskoka

Key planning dates

Regional planning activities for South Georgian Bay/Muskoka, starting with the Needs Assessment, began in late January 2020.



Observations

Electricity demand is highest in the summer months in the southern portion of the region, and there is strong growth, particularly in the Barrie and Innisfil areas. In the north, electricity demand is highest in the winter and growth is forecast to be more gradual.

Interim measures/Recommendations

A local achievable potential study is currently underway for this region. The results of this study will inform the potential of energy efficiency in the area for the next regional planning cycle.

As part of the last cycle of regional planning for the South Georgian Bay/Muskoka Region, the Barrie/Innisfil sub-region Integrated Regional Resource Plan (IRRP)¹ recommended the Barrie Area Transmission Upgrade project which involved rebuilding the end-of-life Barrie Transformer Station and upstream transmission facilities and upgrading from 115 kV to 230 kV. The upgrade addresses a number of end-of-life needs in the area, provides incremental capacity to accommodate the near-term forecast, and enables future expansion to meet longer term needs. Hydro One has applied for leave to construct with the Ontario Energy Board, and approval is expected later in 2020.

¹ An IRRP is a long-term electricity plan that integrates all relevant resource options, such as conservation and demand management, distributed generation, large-scale generation, transmission and distribution to maintain a reliable supply of electricity to Ontario consumers.

For more information about the recommendations from the 2016 plans see:

- [Barrie/Innisfil sub-region IRRP](#)
- [Parry Sound/Muskoka sub-region IRRP](#)

Next steps

Following Hydro One's completion of a Needs Assessment,² expected at the end of April 2020, the IESO will seek input from communities and interested parties on a Scoping Assessment Outcome Report,³ with a draft to be published in approximately July 2020. This scoping assessment will identify the electricity needs to be addressed in the region and the recommended planning approach to be taken. This will inform the next steps in this cycle of electricity planning for the region.

GTA North (York)

Location

The region includes the Regional Municipality of York and the cities of Vaughan, Richmond Hill and Markham, towns of Newmarket, East Gwillimbury, Whitchurch-Stouffville, Aurora, and Georgina and the Township of King.

Key planning dates

The regional planning cycle is underway for GTA North, with an IRRP anticipated to be posted by the end of February 2020.



Observations

- Three pockets of growth in the region were identified in the previous electricity planning process: Markham/Richmond Hill, Vaughan and northern York (Aurora, Newmarket, Whitchurch-Stouffville and East Gwillimbury).

² A Needs Assessment is conducted by the transmitter and identifies any electricity requirements in a local area. The planning process stops if there are no new identified needs. However, if new needs are identified, the IESO works with the transmitters and local distribution companies to conduct a scoping assessment to determine how these needs should be addressed,

³ A Scoping Assessment Outcome Report recommends the most effective way to address the needs identified in the Needs Assessment. The final outcome depends entirely on the type of needs identified,

- The strong growth forecast in the region will require investments to be made in the medium to long term in order to ensure reliable and adequate electricity supply.
- A summary of the recommended plan and actions were presented at a February 4 [public webinar](#) and written feedback is due by February 18.

Interim measures/Recommendations

A number of projects have been implemented to support high near-term growth in the Vaughan area, including the installation of a new transformer station in Vaughan and new equipment at existing facilities to maximize the use of the system.

A 2017 study by Alectra, with support from the IESO, looked at residential solar-storage technology in order to better understand the extent to which non-wires solutions (e.g., storage, demand response) can be used to help manage the electricity demand growth in Markham, Richmond Hill and Vaughan. The POWER.HOUSE feasibility study concluded that it was not reasonable to solely rely on residential solar-storage technology and confirmed the need for a new transformer station and associated lines in the Markham-Richmond Hill area by 2023. This need date has since been updated to 2025 based on the 2020 IRRP forecast.

In order to better understand the ability of distributed energy resources to target peak demand periods and better understand cost-effective opportunities to defer new transmission infrastructure, in August 2019 the IESO launched a two-year local electricity market demonstration project in southern York Region. A key learning from this pilot will be how local electricity markets can be integrated with the provincial electricity market. Funding for the pilot comes from the IESO's Grid Innovation Fund and NRCan's Smart Grid Fund. Alectra, the local distribution company for the region will help deliver the pilot program, which is expected to get underway in Q2 of this year.

For more details on the [current and previous York IRRPs](#)

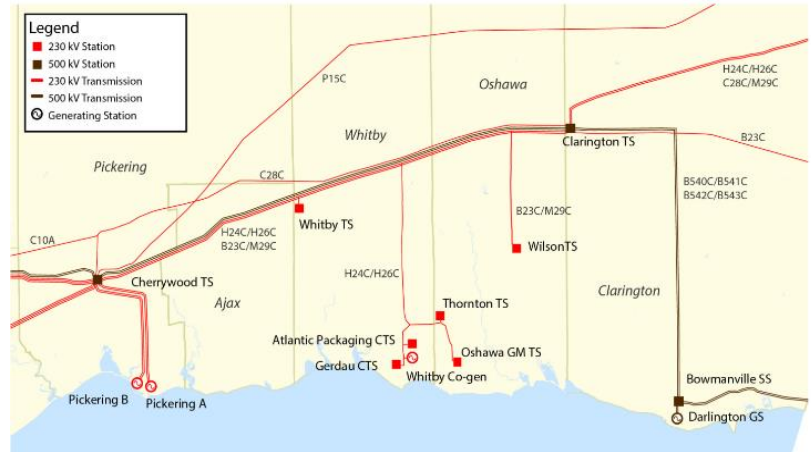
Next steps

The IRRP will be posted later this month along with the IESO's responses to public input received. Engagement will continue through the Central/GTA Network to keep communities informed and help prepare for the next planning cycle.

GTA East

Location

The region includes the municipalities of Pickering, Ajax, Whitby, Oshawa, and parts of Clarington and other parts of Durham Region. For the purpose of the last IRRP published in 2016, the region was divided into two sub-regions:



- Pickering-Ajax-Whitby sub-region: This area covers most of the City of Pickering, Town of Ajax, part of the Town of Whitby, and part of the Townships of Uxbridge and Scugog
- Oshawa-Clarington sub-region: This area encompasses the City of Oshawa, part of the Municipality of Clarington, and part of the Township of Scugog

The second cycle of regional planning that was initiated in 2019 did not identify any power system needs that require regional coordination to address.

Key planning dates

There are currently no needs that have been identified in GTA East requiring regional coordination and integrated planning at this time. The previous cycle of regional planning was only undertaken for the Pickering-Ajax-Whitby sub-region, and recommended that a new step-down transformer station and 230 kV line upgrades be undertaken to supply power to the new Seaton community.

For more details, see the [2016 Pickering-Ajax-Whitby sub-region IRRP](#)

GTA West

Location

- This region roughly encompasses the regional municipalities of Halton and Peel, and comprises the cities of Brampton, Mississauga Burlington, Towns of Halton Hills, Milton, and Oakville, and south Caledon
- For the purpose of the previous regional plan, the GTA West region was divided into two sub-regions: a northern sub-region consisting of Brampton, Halton Hills and Milton; and a southern sub-region consisting of Mississauga and Oakville. The previous cycle of regional planning was only undertaken for the northern sub-region because there were no needs identified in the south.



The GTA West region is currently in the second cycle of regional planning.

Key planning dates

- An IRRP for the entire GTA West region is scheduled to be completed by early 2021. An IRRP will recommend how to address the needs, considering options in terms of their feasibility, cost, reliability, government policy directives, environmental performance and community preferences.
- A separate study is being jointly undertaken by the IESO and the Ministry of Energy, Northern Development and Mines, to identify potential land to be protected for a future transmission corridor adjacent to lands protected for other infrastructure (i.e., a new 400-series highway)

Observations

- The significant issue in this region is meeting needs in the growing areas of northern Brampton and south Caledon which are currently too far from existing infrastructure.
- The magnitude and timing of this growth will be examined in the IRRP, which will be an important factor in the timing of new transmission infrastructure and/or local solutions.

Interim measures/Recommendations

A new transformer station built in Halton Hills came into service in May 2019.

Next steps

Recommendations from the previous cycle of regional planning have been confirmed and will be implemented in the near term, including a second transformer station in Halton Hills and upgrades to a section of circuit delivering energy to Brampton and Caledon. Further details of these projects can be found in the [2019 GTA West Scoping Assessment Outcome Report](#)

Formal engagement will begin at the end of February 2020 to help inform the creation of the 2021 GTA West IRRP.

Toronto

Location

The region includes the area within the municipal boundary of the City of Toronto.

Key planning dates

The first regional planning cycle was completed in 2016, a new one began in 2018 and an IRRP was published in [August 2019](#). The outcome was a regional infrastructure plan that is expected to be completed early this year.



Observations

The recommendations in the 2019 IRRP are focused on replacing assets at their end-of-life, and preparing to address local and regional capacity needs emerging in the longer term. The successful implementation of the recommended actions summarized below is expected to address the region's electricity needs until at least the late 2020s or later.

Interim measures/Recommendations

The IRRP report affirmed the needs and plans identified in the previous regional planning cycle and Hydro One is proceeding with replacing various end-of-life assets throughout the Toronto region.

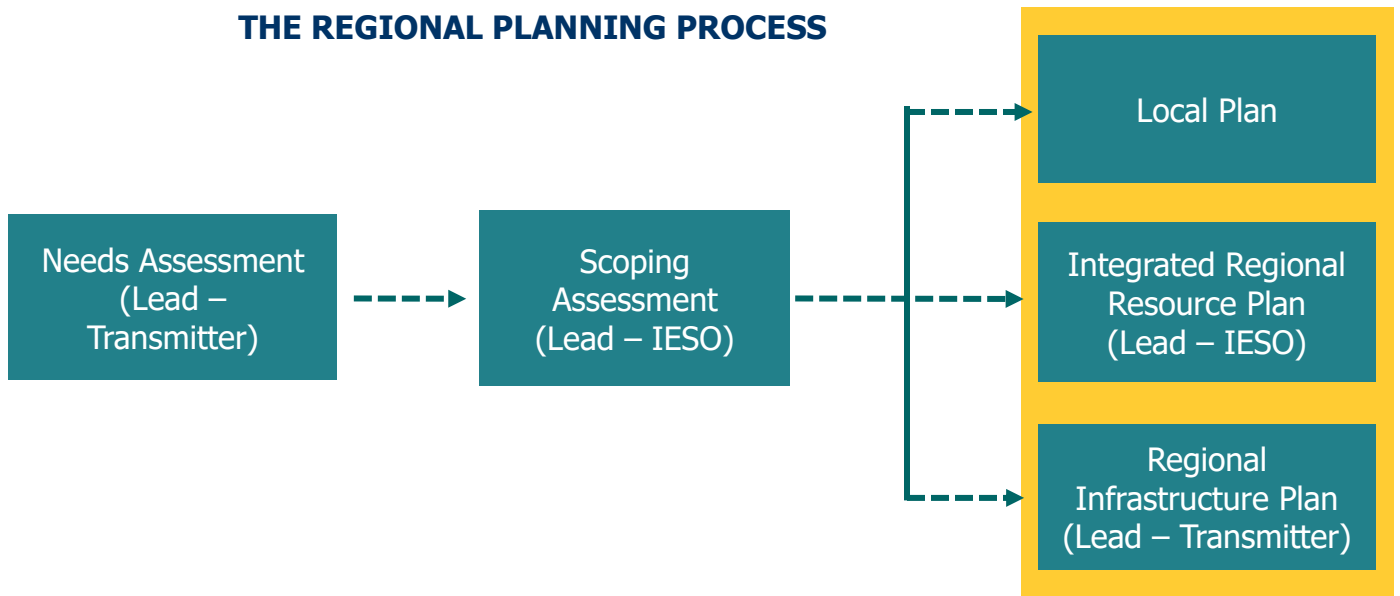
The IRRP also recommended that Hydro One proceed with reinforcements to the Richview Transformer Station to Manby Transformer Station 230 kV corridor to increase capacity to the downtown Toronto area. To prepare for the next cycle of regional planning, the IRRP recommended that coordinated planning continue with a focus on further defining the nature,

scope and timing of the future capacity needs and exploring with stakeholders the idea of various wire and non-wire solutions to address the region’s long-term needs.

Next steps

The regional infrastructure planning process is underway in the Toronto region, led by Hydro One. The final report, expected by the end of February 2020, will identify ways to address the needs which require traditional wires-based solutions (e.g., new transmission/distribution infrastructure).

THE REGIONAL PLANNING PROCESS



The planning cycle begins in each region at least every five years.

The local transmitter conducts a needs assessment to identify any electricity requirements in a local area. In some cases, the process stops here because there are no new identified needs.

If there are local needs identified, the IESO works with the transmitters and local distribution companies to conduct a scoping assessment to determine how these needs should be addressed, which includes recommending a study approach. Stakeholders and communities have an opportunity to review and provide comment on the scoping assessment report before it is finalized.

Once the report is complete, the IESO has three options:

1. Local plan - This is the choice when there is no requirement for provincial or regional coordination or involvement. It is a local issue that may include a smaller project or local solution.
2. Integrated Regional Resource Plan - This is the next step if there is the potential to integrate lower cost solutions to meet many local needs versus addressing each need individually. It is also used to consider cost-effective solutions that could meet both a provincial and local need, as opposed to dealing with them separately. Engaging the local community to better understand future electricity demand or potential solutions to meet that demand is an important part of an IRRP.

An IRRP considers options in terms of their feasibility, cost, reliability, government policy directives, environmental performance and community preferences.

While IRRPs are 20-year plans, they generally identify specific priorities and actions to meet any needs for the near term (<5 years) and medium term (5-10 years), as well as developing options which should be considered for the long term (10-20 years).

Community and stakeholder engagement continues throughout the IRRP phase.

3. Regional Infrastructure Plan - If a wires-only, or a transmission-based approach, is identified as the best way to address planning needs, a Regional Infrastructure Plan (RIP) is undertaken

Appendix A - Links to regional planning documents

1. **2016 Barrie/Innisfil sub-region IRRP:** <http://www.ieso.ca/-/media/Files/IESO/Document-Library/regional-planning/Barrie-Innisfil/Barrie-Innisfil-IRRP.pdf?la=en> (page 2)
2. **2016 Parry Sound/Muskoka sub-region IRRP:** <http://www.ieso.ca/-/media/Files/IESO/Document-Library/regional-planning/Parry-Sound-Muskoka/PSM-IRRP.pdf?la=en> (page 2)
3. **2015 York IRRP:** <http://www.ieso.ca/-/media/Files/IESO/Document-Library/regional-planning/York/2015-York-Region-IRRP-Report.pdf?la=en> (page 4)
4. **2016 Pickering-Ajax-Whitby sub-region IRRP:** <http://www.ieso.ca/-/media/Files/IESO/Document-Library/regional-planning/Pickering-Ajax-Whitby/2016-Pickering-Ajax-Whitby-IRRP-Report.pdf?la=en> (page 5)
5. **2019 GTA West Scoping Assessment Outcome Report :** <http://www.ieso.ca/-/media/Files/IESO/Document-Library/engage/gta-west/GTA-West-Scoping-Assessment-Outcome-Report-20190808.pdf?la=en> (page 6)
6. **2019 Toronto IRRP:** <http://www.ieso.ca/-/media/Files/IESO/Document-Library/regional-planning/Toronto/engagement/Toronto-IRRP-20190809-Report.pdf?la=en> (page 6)