

**Appendix A. Independent Electricity System
Operator (IESO), March 26, 2021
Handoff Letter**

March 26, 2021

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Dear Robert:

Re: Building a new 230 kV double-circuit line from Lambton TS to Chatham SS to supply forecasted load growth in the Windsor-Essex region and surrounding Chatham area

The purpose of this letter is to identify the need for a new 230 kV double-circuit line from the Lambton transformer station ("TS") to the Chatham switching station ("SS") and the associated station facility expansions or upgrades required at the terminal stations. This reinforcement is needed to ensure that the system can meet the near- to mid-term needs for the Windsor-Essex region. These facilities are required no later than 2028, but there is benefit in streamlining the implementation of this project and completing it earlier if possible.

The purpose of these new facilities is to:

- Ensure sufficient bulk transfer capability east of Chatham to supply the forecast load in the Windsor-Essex region and surrounding Chatham area in the near- to mid-term; and
- Improve the deliverability of resources in the Lambton-Sarnia area for intra-zonal and provincial supply.

Background

The west of London area, as shown in Figure 1, encompasses a 230 kV and 115 kV high voltage network stretching from the western edge of the City of London, to Lambton-Sarnia in the northwest, and the City of Windsor in the west. This system interconnects large generators in the Lambton-Sarnia and Windsor areas with existing load centres, and encompasses the growing Kingsville-Leamington and Chatham-Kent areas. It provides four interconnection points with Michigan's power system via Windsor and Lambton-Sarnia. The area also encompasses a connection to the 500 kV system at Longwood within the Municipality of Strathroy Catadoc, providing a strong path for supply to and from the region and the rest of the province.

There are two main pockets of load growth and economic development in the area west of London – in the Town of Kingsville and Municipality of Leamington, and in the community of Dresden, located within the Municipality of Chatham-Kent. This growth is driven by strong indoor agricultural growth, mainly in vegetable greenhouses, as well as in part, cannabis, specifically through the intensification of existing greenhouses switching to lit indoor facilities, expansion of greenhouse facilities, and supplemental load to support the agricultural sector.

In 2019, the IESO published a bulk transmission study for the area, [*Need for Bulk Transmission Reinforcement in the Windsor-Essex Region*](#), which recommended transmission upgrades to supply this increased electricity demand in the region. More specifically, the upgrades addressed bulk transmission system limitations west of Chatham, between Chatham SS and the Kingsville-Leamington area. These included a new switching station at Leamington Junction (Lakeshore SS) and a new 230 kV double-circuit line from Chatham SS to the new Lakeshore SS. At that time, transmission system constraints east of Chatham were also identified but additional assessments were required before further recommendations could be made.

Recent studies conducted by the IESO with input from Hydro One, local distribution companies (LDCs), stakeholders and communities concluded that bulk electricity demand west of London region will be adequately supplied by the previous recommendations for transmission reinforcements and existing resources until the beginning of 2028.

To supply the forecasted electricity demand beyond 2028 and to maintain the capability of the transmission system to deliver the output of generation resources in the Lambton-Sarnia area, the IESO recommends a new 230 kV, double-circuit transmission line be built between Lambton TS and Chatham SS. Prior to this reinforcement coming into service as new loads connect, operational actions such as arming Remedial Action Schemes (RAS) for load or generation rejection, or temporarily allowing higher operating ratings, may be required to address the potential congestion of generation resources in the Lambton-Sarnia area. This would be outlined in potential exemptions to reliability standards, as required.

Due to the rapid and constantly evolving nature of the load growth in the area, and the need to occasionally rely on operating actions to reduce congestion of generating resources, there is benefit in streamlining the implementation of this project to complete it earlier if possible.

The analysis found that this transmission solution is the most cost effective next step to supplying the increasing demand in the region.

In arriving at this recommendation alternate transmission options and local supply options were considered. The analysis of the different options will be described in the IESO's west of London bulk study report, to be published in Q2 2021. This report will also make additional recommendations around further transmission or resource solutions, as required, to continue meeting bulk system needs into the long-term.

Lambton South (Lambton to Chatham) Transmission Line Project Scope

Based on the above considerations, the IESO recommends that Hydro One initiate the work, engagement and activities, including seeking Environmental Assessment and Leave-to-Construct approvals, that are required to develop and construct a new 230 kV double-circuit line from Lambton TS southwards to Chatham SS and associated station facility expansions or upgrades

required at the terminal stations. Single-line diagrams of the existing and proposed facilities are shown in Figure 2.

The project and its related costs and timelines have been discussed with Hydro One. The IESO understands that, if approvals are received, an in-service date of 2028 is achievable and recommends the transmitter investigate options for an accelerated implementation if possible, for the reasons mentioned previously. Hydro One has indicated costs for the project may range between \$210 million to \$290 million. If there is any delay or suspension of the targeted in-service date and/or project costs are forecasted to exceed the upper end of this range, Hydro One will notify the IESO as soon as possible so that the assessment of the bulk system reinforcement plan in the west of London can be updated appropriately.

The IESO is aware that there are Indigenous communities in Southern Ontario that may have an interest in this project. The IESO encourages Hydro One to meaningfully engage with these communities in a way that recognizes the unique interest of each community in this project, and to discuss their concerns about potential impacts to their Aboriginal or treaty rights.

Future Activities

This transmission line is the next stage of a number of improvements to the bulk transmission system required to support load growth and ensure reliability in the area. Planning for the west of London bulk system is still underway and additional recommendations along with a final report are planned for spring 2021. In parallel, long-term planning also continues at the regional level through the on-going Windsor-Essex addendum study and forthcoming Chatham-Kent/Lambton/Sarnia regional planning cycle in Q2 2021. Engagement with Indigenous and municipal communities and sector stakeholders will continue to inform these activities.

IESO will continue to work with Hydro One in the implementation of this project. We look forward to an ongoing exchange of information as Hydro One proceeds with the development of the project.

Yours truly,

Ahmed Maria

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Cc: Terry Young, IESO
Leonard Kula, IESO
Candice Trickey, IESO
Chuck Farmer, IESO
Bruno Jesus, Hydro One
Mark Brodie, Hydro One
IESO Records

Figures: System Maps

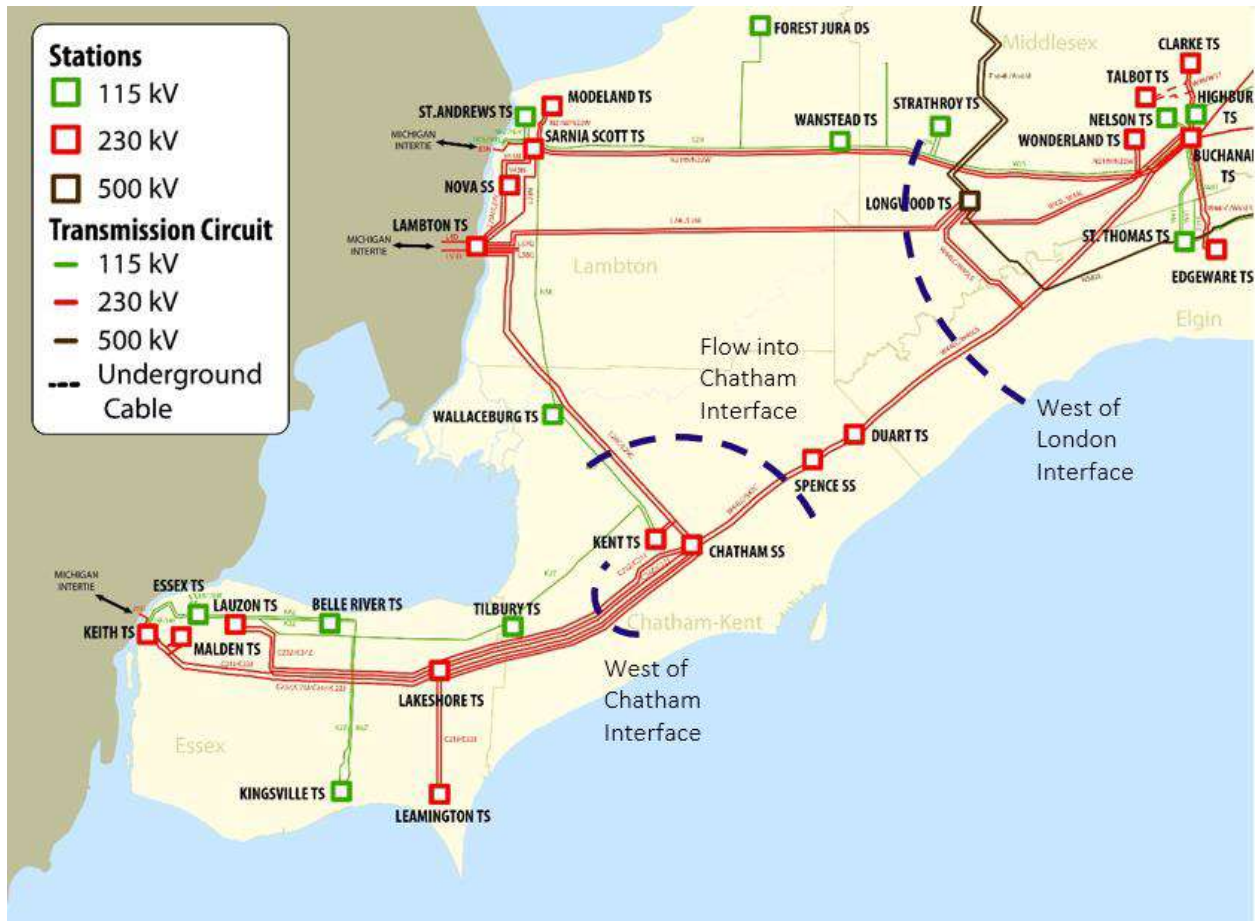


Figure 1: Geographical map of West of London

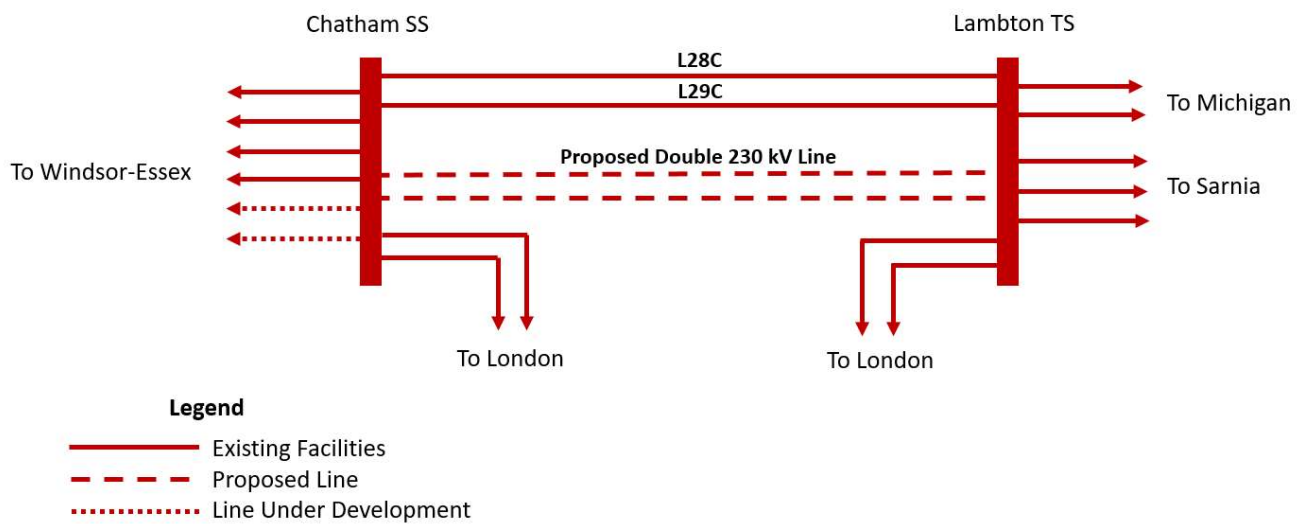


Figure 2: Single line diagram of existing and proposed facilities in West of London