

January 31, 2019

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Dear Darlene:

**Re: Establishing a switching station in the Leamington area to accommodate demand growth**

The purpose of this letter is to request that Hydro One establish a new switching station at or near Leamington Junction to sectionalize and switch the four existing 230 kV circuits from Chatham to the Windsor area (C21J/C22J/C23Z/C24Z).

A number of system improvements have been identified as part of the ongoing Windsor-Essex Integrated Regional Resource Plan ("IRRP") and bulk transmission planning study for the broader West of London area. Based on the forecast demand growth in the Kingsville-Leamington area, these planning activities identified the need for a new switching station at the Leamington Junction as an outcome of the initial study work and will form a basis for additional supply reinforcements to the area.

The switching station will increase the capability of the system to supply load in the Kingsville-Leamington area while contributing to improved performance of the bulk system. The nature and timing of the need, as well as the objectives and scope of the recommended solution, are described below in more detail.

Background and Project Objectives

The Kingsville-Leamington area encompasses two existing load supply stations, Kingsville TS and Leamington TS. Over 600 MW of load is forecast to materialize in the area by 2022, predominately in the area supplied by Leamington TS. The growth is driven by rapid expansion in the greenhouse sector and aggressive adoption of artificial crop lighting, primarily in the winter months, and is forecast to continue beyond 2022.

Both Kingsville TS and Leamington TS are forecast to reach their station capacity within the next year. An expansion to Leamington TS, which will double the station's capacity, is currently under development by Hydro One and is expected to be in-service by the end of 2019.

The transmission system supplying Leamington TS is currently limited in its capability to serve the expanded station. In order to accommodate the expansion of Leamington TS and connection of two additional transmission customers, interim measures are required. The resulting system will have a lower level of reliability than what is typically provided. Beyond these connections

and interim measures, the existing system does not have the ability to accommodate the total amount of forecasted load.

The proposed switching station will improve reliability, and provide some additional local supply capability to connect an additional transformer station and continue supplying load in the Kingsville-Leamington area. Upstream transmission limitations are still anticipated but can potentially be mitigated by interim congestion management strategies.

Various alternatives were considered including non-wires options and other wires solutions. Due to the magnitude and the timing of the need, non-wires options alone are not sufficient. A generation option located at Leamington Junction was considered but was impractical due to the technical infeasibility and high anticipated cost. An option to build a new radial 230 kV line from Chatham SS to Leamington TS was also ruled out on the basis that the load meeting capability would be insufficient to meet the forecasted load growth and the solution would not provide the flexibility to supply future growth beyond the Leamington TS expansion.

In addition to improving load supply capability in the Kingsville-Leamington area, the proposed switching station will improve the performance of the bulk system by balancing the flow on the existing transmission circuits from Chatham, thus improving transfer capability. The switching station will also reduce exposure to outages by allowing the existing 230 kV circuits to be sectionalized and switched independently. Furthermore, it will allow for future transmission reinforcements to increase the transfer capability west of Chatham which will allow existing export capability to Michigan to be maintained while enabling additional load growth throughout the Windsor-Essex region.

### Project Scope

The purpose of the proposed switching station is to improve the performance of Hydro One's facilities in the region. The switching station bisects Hydro One owned transmission circuits and will require a number of planned outages to Hydro One's existing assets. The switching station should ideally be constructed within Hydro One's existing right-of-way at or near the existing Leamington Junction to optimize utilization of existing infrastructure and minimize lead time. Based on the above considerations, the IESO recommends that Hydro One proceed with establishing the switching station including pursuing the required environmental and regulatory approvals.

The scope of the project will include re-termination of the four existing 230 kV circuits and installation of reactive facilities based on current system needs. Additionally, the station should be sized to accommodate future system reinforcement including space for future diameters and additional reactive facilities. The IESO will continue to work with Hydro One throughout the project development to finalize the layout of the switching station.

Given typical development timelines for similar projects, the IESO and Hydro One agree on a targeted in-service date of 2022 dependent on outcome of consultations as well as environmental and regulatory approvals. The IESO understands that consultations and a Class Environmental Assessment process will be required for this project. Additionally, depending on the siting of the switching station, a Leave to Construct may be required. The IESO will endeavour to provide support to Hydro One in these activities.

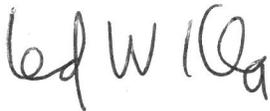
## Future Work and Next Steps

The switching station is one of a number of improvements that will be required to support load growth in the Windsor-Essex area and forms the basis for future recommendations to meet mid- and long-term needs.

In parallel to the activities identified in this letter, the IRRP's Technical Working Group<sup>1</sup> will continue to develop the long-term plan for the Windsor-Essex region. This will include an investigation of non-wires alternatives to manage evolving capacity needs in the region, and may include specifying other long-term solution(s) required to reliably serve forecasted load growth. The IESO will also be proceeding with the bulk transmission planning study for the West of London area and identifying any additional solution(s) required for the broader area.

The IESO will continue to work with, and provide support to, Hydro One in the implementation of this project, including finalizing the layout of the switching station facility. We look forward to an ongoing exchange of information as Hydro One proceeds with the development of the project.

Yours truly,



Leonard Kula, P. Eng.

Vice President, Planning, Acquisition and Operations, and Chief Operating Officer

cc: Robert Reinmuller, Hydro One Networks Inc.

Terry Young, IESO

Jessica Savage, IESO

Bob Chow, IESO

IESO Records

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<sup>1</sup> The IRRP Technical Working Group for the Windsor-Essex Region is led by the IESO and includes members from Hydro One Transmission, Hydro One Distribution, Essex Powerlines, Entegrus, E.L.K. Energy, and Enwin.

# Appendix: System Maps

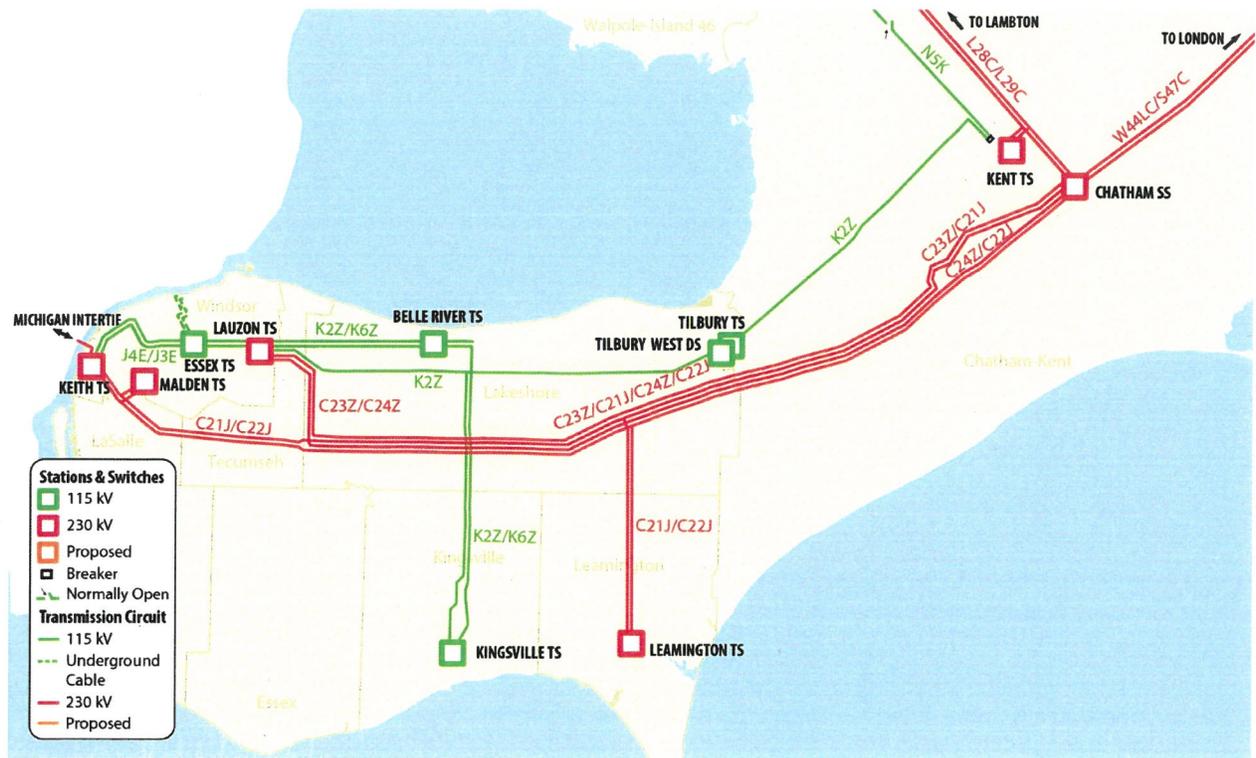


Figure 1: Geographical map of the Windsor-Essex Region

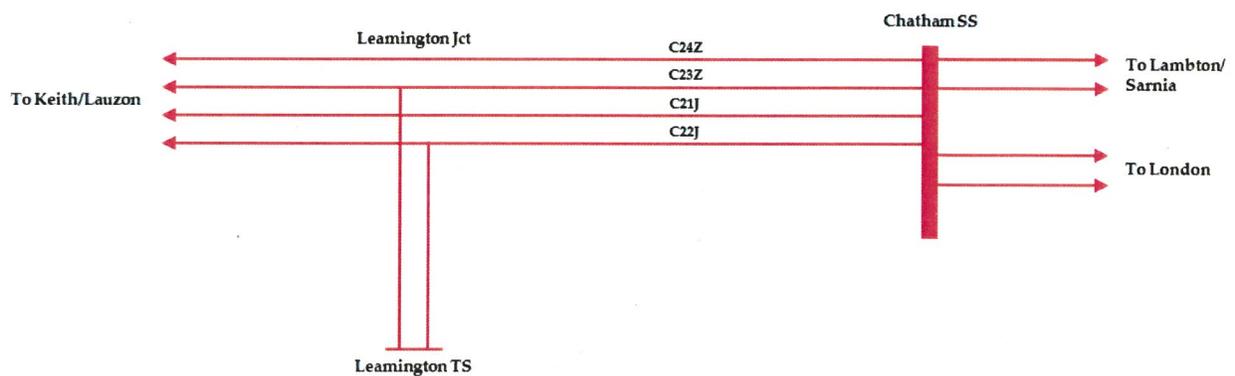


Figure 2: Single line diagram of existing facilities in the Leamington area

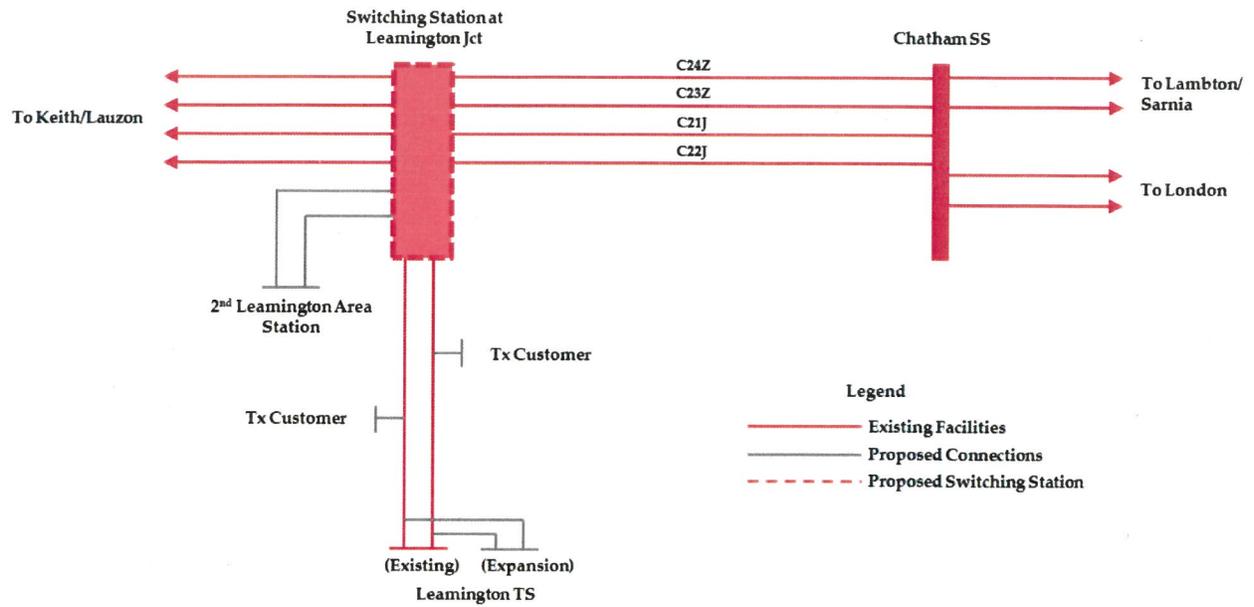


Figure 3: Single line diagram of existing and proposed facilities in the Leamington area