

IESO Expedited System Impact Assessment

H27H CONDUCTOR REPLACEMENT PROJECT

2013-EX665

FINAL REPORT

Executive Summary

Conditional Approval for Connection

Hydro One Networks Inc. (the “connection applicant”) is proposing to replace the existing conductors on the 230 kV circuit H27H from Bannockburn Jct to Havelock TS.

This assessment concluded that the proposed changes are expected to have no material adverse impact on the reliability of the IESO-controlled grid. Therefore, the IESO recommends that a *Notification of Conditional Approval for Connection* be issued for the proposed project, subject to implementation of the requirements outlined in this report.

The connection applicant shall satisfy all applicable requirements and standards specified in the Market Rules and the Transmission System Code. The following requirements summarize some of the general requirements that are applicable to the proposed project.

Requirements

1. The connection applicant is required to provide the entire set of parameters for the 230 kV circuit C27P with the upgraded conductors including impedance, admittance and thermal ratings during the Market Entry process. New line parameters must not result in a negative impact to the reliability of the IESO controlled grid.
2. The connection applicant must complete the IESO Facility Registration/Market Entry process for the project in a timely manner before the IESO final approval for connection is granted.

1.0 Project Description

The applicant is proposing to replace the existing conductors on the 230 kV circuit H27H from Bannockburn Jct to Havelock TS.

The in-service-date for this project is December 2014.

The ratings for the replacement conductors are shown in the table below and are based on the following conductor characteristics:

- Conductor bundling: 1
- Phase conductor stranding: 26/7
- Phase conductor type: ACSR
- Phase conductor size: 795 kcmil
- Sheltered: Yes
- Operating voltage: 230 kV
- Maximum temperature: 82°C
- Preload: 75%
- Time of Day: Daytime
- Wind speed: 0-4 km/h
- Ambient Temperature: -10 °C (winter), 30 °C (summer)

H27H Conductor Ratings Bannockburn Jct to Havelock TS, (Span Range is STR 454-STR 543A)		
Ratings	Existing Conductor	Proposed Conductor
Summer Continuous Rating 30 °C, wind speed 0-4 km/h, 230 kV Conductor temperature = 82 °C	720 A	720 A
Summer Emergency Rating (LTE) 30 °C, wind speed 0-4 km/h, 230 kV Conductor temperature = 82 °C (sag temperature)	720 A Since the conductor is limited by the sag temperature, the LTE and STE are not applicable	
Summer Emergency Rating (15-MIN STE) 30 °C, wind speed 0-4 km/h, 230 kV Conductor temperature = 82 °C ((sag temperature)		
Winter Continuous Rating 10 °C, wind speed 0-4 km/h, 230 kV Conductor temperature = 82 °C	940 A	940 A
Winter Emergency Rating (LTE) 10 °C, wind speed 0-4 km/h, 230 kV Conductor temperature = 82 °C ((sag temperature)	940 A Since the conductor is limited by the sag temperature, the LTE and STE are not applicable	
Winter Emergency Rating (15-MIN STE) 10 °C, wind speed 0-4 km/h, 230 kV Conductor temperature = 82 °C ((sag temperature)		

2.0 Assessments

This expedited System Impact Assessment concludes that the installation of the new conductors is not expected to have a material adverse impact on the IESO-controlled grid, provided that the requirements specified in this report are satisfied.