

REPORT



System Impact Assessment Report

CONNECTION ASSESSMENT & APPROVAL PROCESS

Addendum - Final

CAA ID: 2017-597
Project: Young Davidson CTS – Load Increase
Applicant: AuRico Gold Inc.

Engineering Studies Department
Independent Electricity System Operator

Date: April 29, 2020

Public

Document Name	System Impact Assessment Report
Issue	Initial Issue
Reason for Issue	Addendum 1
Effective Date	April 29, 2020

System Impact Assessment Report

Acknowledgement

The IESO wishes to acknowledge the assistance of Hydro One in completing this assessment.

Disclaimers

IESO

This report has been prepared solely for the purpose of assessing whether the connection applicant's proposed connection with the IESO-controlled grid would have an adverse impact on the reliability of the integrated power system and whether the IESO should issue a notice of conditional approval or disapproval of the proposed connection under Chapter 4, Section 6 of the Market Rules.

Conditional approval of the proposed connection is based on information provided to the IESO by the connection applicant and Hydro One at the time the assessment was carried out. The IESO assumes no responsibility for the accuracy or completeness of such information, including the results of studies carried out by Hydro One at the request of the IESO. Furthermore, the conditional approval is subject to further consideration due to changes to this information, or to additional information that may become available after the conditional approval has been granted, including but not limited to changes to the information available to or system assumptions made by the IESO at the time of the assessment.

If the connection applicant has engaged a consultant to perform connection assessment studies, the connection applicant acknowledges that the IESO will be relying on such studies in conducting its assessment and that the IESO assumes no responsibility for the accuracy or completeness of such studies including, without limitation, any changes to IESO base case models made by the consultant. The IESO reserves the right to repeat any or all connection studies performed by the consultant if necessary to meet IESO requirements.

Conditional approval of the proposed connection means that there are no significant reliability issues or concerns that would prevent connection of the proposed project to the IESO-controlled grid. However, the conditional approval does not ensure that a project will meet all connection requirements. In addition, further issues or concerns may be identified by the transmitter(s) during the detailed design phase that may require changes to equipment characteristics and/or configuration to ensure compliance with physical or equipment limitations, or with the Transmission System Code, before connection can be made.

This report has not been prepared for any other purpose and should not be used or relied upon by any person for another purpose. This report has been prepared solely for use by the connection applicant and the IESO in accordance with Chapter 4, Section 6 of the Market Rules. This report does not in any way constitute an endorsement, agreement, consent or acknowledgment of any kind of the proposed connection for the purposes of obtaining or administering a contract with the IESO for the procurement of electricity supply, generation, demand response, conservation and demand management or ancillary services.

The IESO assumes no responsibility to any third party for any use which it makes of this report. Any liability which the IESO may have to the connection applicant in respect of this report is governed by Chapter 1, Section 13 of the Market Rules. In the event the IESO provides a draft of this report to the connection applicant, the connection applicant must be aware that the IESO may revise drafts of this report at any time in its sole and absolute discretion without notice to the connection applicant. Although the IESO will make reasonable efforts to advise you of any such changes, it is the responsibility of the connection applicant to ensure that the most recent version of this report is being used.

The results reported in this report are based on the information available to Hydro One, at the time of the study, suitable for a System Impact Assessment of this connection proposal.

The short circuit and thermal loading levels have been computed based on the information available at the time of the study. These levels may be higher or lower if the connection information changes as a result of, but not limited to, subsequent design modifications or when more accurate test measurement data is available.

This study does not assess the short circuit or thermal loading impact of the proposed facilities on load and generation customers.

In this report, short circuit adequacy is assessed only for Hydro One circuit breakers. The short circuit results are only for the purpose of assessing the capabilities of existing Hydro One circuit breakers and identifying upgrades required to incorporate the proposed facilities. These results should not be used in the design and engineering of any new or existing facilities. The necessary data will be provided by Hydro One and discussed with any connection applicant upon request.

The ampacity ratings of Hydro One facilities are established based on assumptions used in Hydro One for power system planning studies. The actual ampacity ratings during operations may be determined in real-time and are based on actual system conditions, including ambient temperature, wind speed and project loading, and may be higher or lower than those stated in this study.

The additional facilities or upgrades which are required to incorporate the proposed facilities have been identified to the extent permitted by a System Impact Assessment under the current IESO Connection Assessment and Approval process. Additional project studies may be necessary to confirm constructability and the time required for construction. Further studies at more advanced stages of the project development may identify additional facilities that need to be provided or that require upgrading.

Table of Contents

Table of Contents..... iii

Executive Summary 1

 Conditional Approval for Connection 1

 IESO Requirements for Connection 1

Technical Assessments 2

Executive Summary

Conditional Approval for Connection

Young Davidson Customer Transformer Station (CTS) is an existing load facility owned by AuRico Gold Inc. (also known as Alamos Gold Inc., the “connection applicant”). It is supplied by 115 kV radial transmission circuit K4 emanating from Kirkland Lake Transformer Station (TS). The existing peak load at Young Davidson CTS is 26 MW. The connection applicant was requesting approval to increase the peak load to 36 MW (the “project”). The IESO issued the SIA report on February 21, 2019.

The original SIA report requires that Hydro One Networks Inc. (the “transmitter”) and the connection applicant install a new Kirkland Lake load rejection Special Protection System (SPS) to supply the load beyond 26 MW, up to 33 MW at Young Davidson CTS until circuit K4 is upgraded, at which time the load will be allowed to increase to 36 MW. Hydro One and the connection applicant are implementing the required SPS, which is expected to take several months. In order to supply the new load earlier, the connection applicant is proposing to voluntarily manage the demand (their load) at their facility as an interim measure subject to the conditions below:

- (1) Young Davidson CTS will limit their load to 33 MW;
- (2) Young Davidson CTS will reduce their load by up to 12 MW, upon direction by the IESO, within 10 minutes;
- (3) The connection applicant will set up a dedicated direct line for the IESO to reach the Young Davidson Mill Control Room & Dispatch Office, which will be staffed by an operator at all times (24/7);
- (4) The procedure for execution of these interim measures under the conditions above and as agreed upon between the connection applicant and the IESO, is valid for up to 20 months, or expires earlier whenever the SPS is in service.

This Addendum concludes that the project and proposed interim procedure for voluntary demand management provided by the connection applicant is expected to have no material adverse impact on the reliability of the integrated power system, provided that all requirements in the original SIA report and this report are implemented. Therefore, the assessment supports the release of the Notification of Conditional Approval for Connection of the project.

IESO Requirements for Connection

All requirements in the original SIA report are still applicable for the connection applicant and the transmitter. Below are the additional requirements for the connection applicant:

1. The connection applicant must respect the conditions of the interim procedure as agreed upon by the IESO.
2. The connection applicant must initiate the IESO Market Registration process as early as possible, before the load at Young Davidson CTS is allowed to be increased beyond 26 MW, to register the interim procedure for voluntary load management. For more details about the process to obtain a RAN, the connection applicant is encouraged to contact IESO’s Market Registration at market.registration@ieso.ca.

– End of Section –

Technical Assessments

The performance of the system was assessed for the scenario that the load at Young Davidson CTS increases to 33 MW without the installation of the required SPS. The study assumptions defined in the original SIA report were adopted for the Addendum studies. The study results show that:

- (1) There are no voltage decline or instability issues under the conditions with all elements in-service;
- (2) With all elements in-service, there are no thermal constraint for load supply in the Kirkland Lake area;
- (3) Under peak load conditions with one transmission element out of service, load at Young Davidson CTS may need to be curtailed to 26 MW to eliminate the post-contingency voltage violations and thermal violation of long time emergency (LTE) ratings of local transmission circuits for the following outage conditions:
 - a. A8K;
 - b. A9K;
 - c. D3K;
 - d. Unit G4 at KL CGS;
 - e. Unit G5 at KL CGS;
 - f. Breaker D4D11 at KL TS;
 - g. Breaker D3D11 at KL TS;
 - h. Breaker D8D9 at KL TS;
 - i. Capacitor SC11 at KL TS
- (4) Under peak load conditions with multiple transmission elements out of service, the load at Young Davidson CTS may be required to be reduced to 24 MW to eliminate the post-contingency voltage violations.

The proposed interim procedure for voluntary demand management will be used to address the post-contingency voltage violations and thermal overloads identified above in items (3) and (4). The procedure describes the amount of load to be shed and its response speed, which has been deemed acceptable for the load at Young Davidson CTS to increase to 33 MW before the installation of the required SPS.

– End of Document –