

August 13, 2010

Mr. Xiaodong Sun
Senior Engineer
Electrical, P&C and Compliance, Hydro Engineering
Ontario Power Generation
14000 Niagara Parkway, RR#1
Niagara on the Lake, Ontario
L0S 1J0

Dear Mr. Sun:

***Replacement of T20 at Chats Falls SS
Notification of Conditional Approval of Connection Proposal
CAA ID Number: 2010-EX498***

Thank you for the information regarding the proposed replacement of T20 at Chats Falls SS.

We have concluded that the proposed changes at Chats Falls SS will not result in a material adverse impact on the reliability of the integrated power system.

The IESO is therefore pleased to grant **conditional approval** for the modification detailed in the attached assessment report. Any material changes to your proposal may require re-assessment by the IESO in accordance with Market Manual 2.10, and may nullify your conditional approval.

Final approval to connect the facility to the IESO-controlled grid will be granted upon successful completion of the IESO Market Entry process including, without limitation, satisfactory completion of the requirements set out in the System Impact Assessment report. During this process you will be expected to demonstrate that you have fulfilled the requirements and that the facility you have installed is materially unchanged from the proposal assessed by the IESO. Please refer to the '**External Guidelines for Connection to the IESO**' attachment in your approval email for key steps in the Market Entry process. In order to initiate this process, please contact Market Entry at market.entry@ieso.ca as soon as possible prior to your energization date.

For further information, please contact the undersigned.

Yours truly,

Barbara Constantinescu
Manager – Market Facilitation
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cc: IESO Records

Final Report - Expedited System Impact Assessment – revised September 9, 2010 Ontario Power Generation (OPG)

1.0 GENERAL DESCRIPTION & PROPOSED MODIFICATIONS

OPG is planning to replace the aging transformer T20 at Chats Falls SS. T20 is connected to the 230 kV HI bus at Chats Falls SS.

The expected in-service date is October 22, 2010.

2.0 TECHNICAL SPECIFICATIONS

A comparison of the technical specifications between the existing and the replacement T20 is given below.

| Chats Falls SS | | |
|--|--|---|
| Transformer | Existing T20 | Replacement T20 Values below are design values – actual values will be provided prior to the in-service date |
| Configuration | 3 single phase units plus 1 spare single phase | 3 single phase units |
| Transformation (kV) | 230 / 13.3 / 13.3 | 241.5 / 13.3 / 13.3 |
| Winding Configuration | Y / D / D | Y / D / D |
| Thermal Rating | 31.4 MVA ONWN | 42.0 MVA ONAN |
| Continuous Thermal Rating (summer 30°C) | 31.4 MVA | 42.0 MVA |
| 15 Minute Thermal Rating (summer 30°C) | Not applicable | |
| 10 Day Thermal Rating (summer 30°C) | | |
| Positive Sequence Impedance (H-X) | R = 0.349 to 0.547 % X = 11.5 to 11.7 % on 15.7 MVA base | R = to be provided X = 11.5 % on 42.0 MVA base |
| Impedance to Ground | 0 Ω (HV) Ungrounded (LV) | 0 Ω (HV) Ungrounded (LV) |
| Under-load tap-changer (ULTC) | None | None |
| Off-load tap-changer (OLTC) | HV Tap 1: 253.0 kV Tap 2: 241.5 kV Tap 3: 230.0 kV | Tap 1: 258.75 kV Tap 2: 253.0 kV Tap 3: 247.5 kV Tap 4: 241.5 kV Tap 5: 235.75 kV Tap 6: 230.0 kV |
| In service off-load tap position | Not known | Tap 4: 241.5 kV |

3.0 REQUIREMENTS

The proponent must notify the IESO as soon as it becomes aware of any changes to the assumptions made in the connection assessment. The IESO will determine whether these changes require a re-assessment.

IESO Monitoring Requirements

The Market rules (Chapter 4 section 7.4) require that the generator shall provide the IESO with on-line monitored quantities on a continual basis as specified in Appendix 4.15 and achieving the performance standards specified in Appendix 4.19. For this proposed project, the IESO will continue to require the operating quantities associated with the new equipment.

If revenue metering equipment is being installed as part of this project, please be aware that revenue metering installations must comply with Chapter 6 of the IESO Market Rules for the Ontario electricity market. For more details the applicant is encouraged to seek advice from their Metering Service Provider (MSP) or from the IESO metering group.

Protection Requirements Statement

New protection systems must be coordinated with existing protection systems and must be designed to satisfy the requirements of the Transmission System Code (TSC). Facilities designated as essential to power system reliability must be protected by two redundant protection systems according to section 8.2.1a of the TSC. These redundant protection systems must satisfy all requirements of the TSC but in particular they may not use common components, common battery banks or common secondary CT or PT windings.

As currently assessed, this facility is not designated as essential to power system reliability and therefore the above requirements do not apply. In the future, as the electrical system evolves, this facility may be designated as such and at that time the above requirements will apply.

Provided that the TSC requirements are satisfied, the IESO does not have additional requirements.

4.0 ASSESSMENT & CONCLUSIONS

The continuous rating of the replacement transformer T20 will be increased compared to the existing T20 transformer.

The new transformer has a different OLTC range. According to the Market Rules, Appendix 4.1, the permissible voltage at the primary side of the transformer can vary from 250 kV to 220 kV in southern Ontario. With the voltage at 250 kV, the replacement transformer's OLTC can vary the low voltage bus across the voltage range as shown below.

| Secondary Voltage Range with primary voltage = 250 kV | |
|---|----------------|
| Existing T20 | New T20 |
| 13.1 – 14.5 kV | 12.9 – 14.5 kV |

This expedited System Impact Assessment concludes that the installation of the new transformer T20 in place of the end of life T20 at Chats Falls SS is not expected to have a material adverse impact on the IESO-controlled grid.