July 17, 2001 File: 2001-EX001

**Ms. Edith Bates**
Project Manager
Enbridge Pipelines Inc.
10201 Jasper Avenue
Edmonton, Alberta
T5J 3N7

Dear Ms. Bates:

***Enbridge Pipelines Inc – Hilton Pumping Station***

***Modification of 115 kV Substation (CAA ID No: 2001-EX001)***

## *Notification of Approval of Connection Proposal*

As part of the new Market Rule Requirements in Ontario, any new or modified connection to the IMO-controlled grid is subject to assessment and approval by the IMO. Hydro One, therefore, advised us on July 11, 2001, of your plan to modify the 115 kV substation at your Hilton Ontario Pumping Station.

From the details provided, we have concluded that the changes that you are proposing to make to your existing pumping station in Hilton do not warrant a formal Connection Assessment study. We are, therefore, pleased to approve the modifications that you are proposing to make to your existing connection to the IMO-controlled grid, subject to meeting the IMO's requirements, as detailed in the attached Assessment Summary.

To complete your project, please ensure that the necessary procedures are followed and the required approvals, licences and permits as may be required by the OEB, the Transmitter and other regulatory authorities, are obtained.

In order to ensure that your project is being accurately represented in our system models for future Assessments, we may require evidence regarding the current status of the Project. Should this be necessary, then we will contact you at the appropriate time.

For further information, please contact the undersigned.

Yours truly,

Bob Gibbons

Bob Gibbons
Manager, Long Term Forecasts and Assessments
Independent Electricity Market Operator

Attachment: Assessment Summary
cc: IMO Records

# CONNECTION ASSESSMENT & APPROVAL PROCESS

# ASSESSMENT SUMMARY

**APPLICANT:** Enbridge Pipelines Inc.

**PROJECT:** Modification of 115 kV Substation at Hilton Pumping Station

**CAA ID No. 2001-EX001**

Long Term Forecasts & Assessments Department

Date: *July 17, 2001*

Station A Box 4474 Toronto ON M5W 4E5 Canada **tel** 905.855.6100 **fax** 905.855.6372 www.theIMO.com

## ASSESSMENT SUMMARY

## ENBRIDGE PIPELINES INC.
## MODIFICATION OF 115 KV SUBSTATION AT HILTON PUMPING STATION

### 1.0 PROPOSAL

Enbridge's Hilton Pumping Station, near Trenton in Eastern Ontario is supplied at 115 kV via Hydro One's 115 kV circuit P4S as shown in Figure 1. Their 115 kV substation consists of a 7.5 MVA transformer and associated switchgear, protections and controls. The company is proposing to upgrade their substation protections which will entail the following work:

- Installation of a 115 kV circuit switcher to replace the existing disconnect switch
- Reconnecting the substation to the Hydro One supply circuit
- Protection and control modifications

Enbridge's expected in-service date for the work is mid August 2001. This date will have to be discussed and coordinated with Hydro One.

### 2.0 REVIEW OF CONNECTION ARRANGEMENT

#### 2.1 High Voltage Isolation

Based on information provided by Enbridge, the existing 115 kV disconnect switch that is used for isolating the 7.5 MVA power transformer will be replaced with a 115 kV circuit switcher. The circuit switcher will then be used for clearing faults associated with the transformer. This is acceptable as long the requirements listed in the Transmission System Code for this type of connection are satisfied.

#### 2.2 Voltage Reduction

The proposed modified supply point is to be equipped with facilities that would allow a 3% and a 5% voltage reduction to be initiated remotely.

#### 2.3 Under-Frequency Load Shedding

Market rules require that wholesale customers and distributors connected to the IMO-controlled grid be equipped with an automatic underfrequency load shedding (UFLS) system capable of rejecting up to 35% of the total customer/distributor peak load. It may be prudent, however, for the customer/distributor to install UFLS facilities at each new connection point so that the UFLS requirement can be met as the load grows.

Additional information regarding UFLS requirements and appropriate settings will be provided by the IMO upon request, in accordance with Chapter 5, Clause 10.4.7 of the Market Rules.

### 2.4 Power Factor

Market rules require that wholesale customers and distributors connected to the IMO-controlled grid shall operate at a power factor within the range of 90% lagging to 90% leading as measured at the *defined meter point*. The *defined meter point* is determined by the IMO and is normally at the point of connection to the IMO controlled grid. The applicant will be required to take corrective action if the power factor is outside of this range.

### 2.5 Telemetry

In order to permit the IMO to direct the operations of the IMO-controlled grid, wholesale customers and distributors connected to the IMO-controlled grid shall provide the IMO with data in accordance with Chapter 4, Section 7.5 of the Market Rules.

## 3.0 IMPACT ASSESSMENT

### 3.1 Impact On Reliability

With the original arrangement, faults involving the 7.5 MVA transformer would have resulted in circuit P4S being removed from service until the faulted transformer could be isolated from the system by operation of the disconnect switch. With the new arrangement, faults associated with the transformer will now be cleared via the circuit switcher, with no change to the status of P4S. Although faults associated with transformers are rare, the availability of a circuit switcher to clear any that may involve the Enbridge transformer will provide a margin of improvement in system reliability.

### 3.2 Impact on Load Meeting Capability

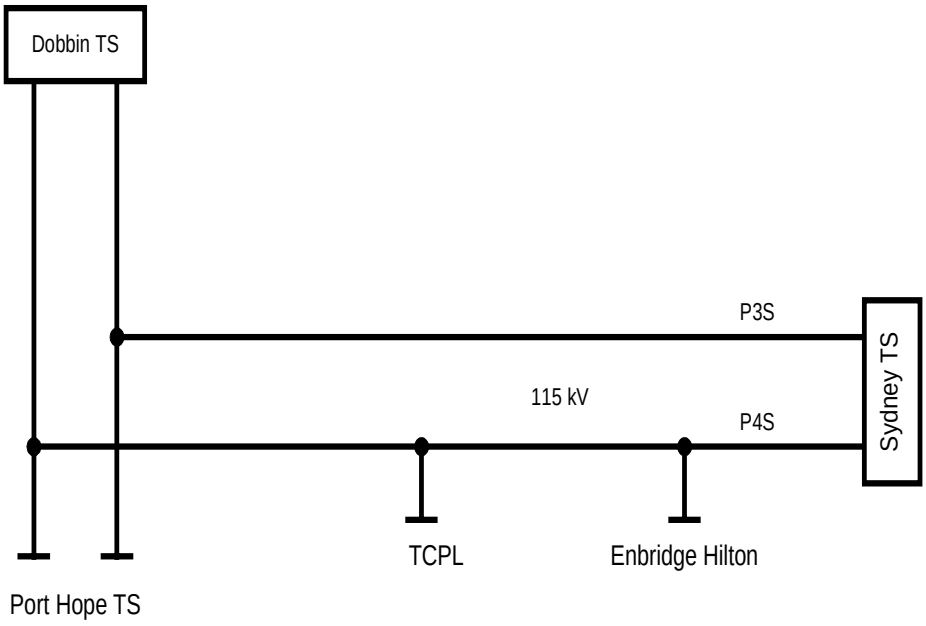
This proposal does not include any changes in load level or mode of operation which would have any adverse effect on the load meeting capability of the IMO-controlled grid affected by this connection.

## 4.0 REQUIREMENTS FOR CONNECTION

Based on the above analysis, it is concluded that the proposed modified connection will not have any significant system impacts. The project may, therefore, proceed subject to meeting the requirements identified in Sections 2.0 and 3.0 as well as all other applicable market rules and regulatory requirements. Information on Market Entry can be found at the following IMO website. http://www.theimo.com/imoweb/marketEntry/me.asp

## 5.0 NOTIFICATION OF APPROVAL OF THE CONNECTION PROPOSAL

Based on the results of this Assessment, it is recommended that the Applicant should receive a "Notification of Approval of the Connection Proposal" for this project. The Applicant is required to obtain the necessary approvals as may be required by the OEB and other regulatory authorities.




# FIGURE 1

## TRANSMISSION SYSTEM IN THE AREA OF ENBRIDGE'S HILTON PUMPING STATION