



# **CONNECTION ASSESSMENT & APPROVAL PROCESS**

## ***ASSESSMENT SUMMARY***

*Applicant: Hydro One Networks Inc.*

*Project: Falconbridge No. 1 Substation: Provide Alternative Supply*

***CAA ID No. 2003-EX131***

***Long Term Forecasts & Assessments Department  
Consistent Information Set Department***

*Date: 26th May 2003*

## **ASSESSMENT SUMMARY**

### **HYDRO ONE NETWORKS Inc.**

#### ***Falconbridge No. 1 Substation: Provide Alternative Supply***

#### **1. GENERAL DESCRIPTION**

The 115kV circuit, S6F, supplies the following loads from Martindale TS, as shown in Diagram 1:

- Falconbridge No.1 Substation
- Falconbridge Smelter No. 3 Substation, and
- Inco Victor Mine TS (although the 15km line to this site is presently idle).

Hydro One requires extended outages on circuit S6F to undertake remedial work on the line. However, these are proving difficult to organise because of the need to maintain a supply to the furnaces so that the contents do not solidify.

Hydro One has examined various options for providing an alternative supply. The preferred option would involve the use of the idle 25Hz circuit T2R and the idle connection to the Inco Victor Mine site.

It is proposed to undertake this work during late-June & early-July of 2003.

Once the remedial work to circuit S6F has been completed, the supply to Falconbridge No. 1 & Falconbridge Smelter No.3 Substations will be restored to the present arrangement.

#### **2. PROPOSED ALTERNATIVE SUPPLY ARRANGEMENT**

Diagram 2 shows the arrangement that it is proposed to implement to provide an alternative supply to Falconbridge No. 1 Substation.

The changes that are required are as follows:

- At Blezard Valley Junction -
  - Install a new connection between circuit S5M and the idle section of the 25Hz circuit T2R. This connection is to include a new set of MSOs.
- At the location where the idle section of the 25Hz circuit T2R from Blezard Valley Junction to Falconbridge No.1 Substation crosses the idle section of the 60Hz circuit S6F from Falconbridge Junction to the Inco Victor Mine -
  - Isolate the section of circuit T2R between Falconbridge No. 1 Substation and the Cross-Over
  - Isolate the section of circuit S6F between the Inco Victor Mine site and the Cross-Over
  - Interconnect the remaining sections of circuits S6F and T2R
- At Falconbridge Junction -
  - Restore the tapped connection to the Victor Mine on to circuit S6F
  - Install a new set of MSOs in the section of circuit S6F to Martindale TS
- Apply revised relay protection settings to circuit S5M

Once these changes are complete, an alternative supply would then be available to the Falconbridge No. 1 & Falconbridge Smelter No. 3 Substations for the duration of the period required to perform the remedial work to the section of circuit S6F between Martindale TS & Falconbridge Junction.

### **3. ASSESSMENT**

The section of circuit S5M between Martindale TS and Onaping Junction is equipped with 795kcmil conductors with a maximum conductor operating temperature of 93°C. Under summer conditions with an ambient temperature of 30°C and a wind speed of 4km/hr, the continuous rating of the line would be approximately 180MVA at 121kV.

The peak load that is presently supplied from circuit S5M is approximately 50MVA. During the 6-week slowdown at Falconbridge, the peak load on circuit S6F while this temporary connection is to be in operation, is expected to be less than 30MVA. Consequently, the continuous rating of circuit S5M will be more than adequate to accommodate the combined flow of around 80MVA.

Similarly, the idle sections of circuits T2R and S6F that are to be used for this connection, are each equipped with 211.6kcmil conductors with a maximum conductor operating temperature of 60°C. The corresponding continuous rating of approximately 42MVA would also be adequate to accommodate the reduced peak load that is to be supplied via the temporary connection.

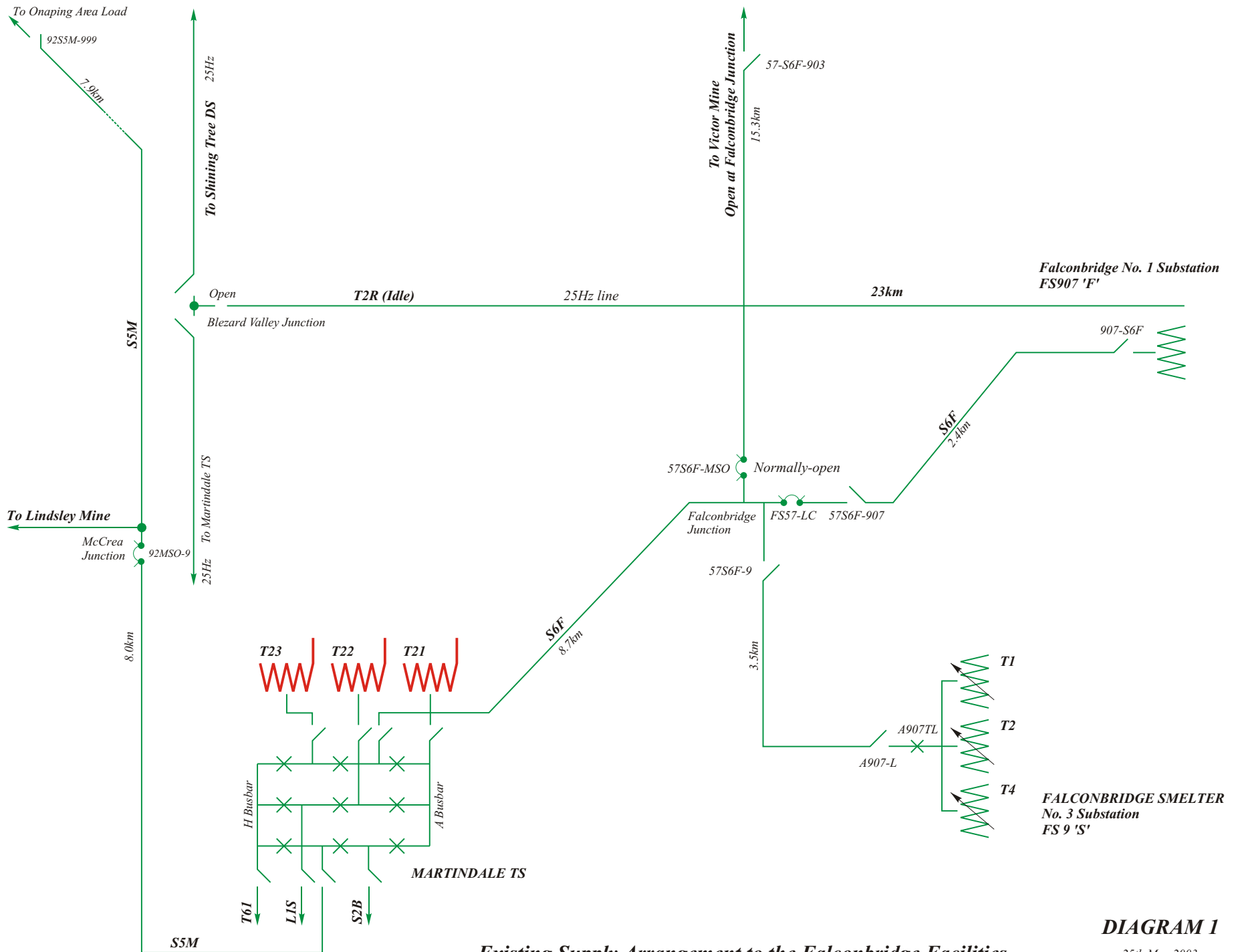
The proposed temporary connection from circuit S5M to the Falconbridge No. 1 & Falconbridge Smelter No. 3 Substations, using sections of the existing transmission lines in the area that are presently idle, will therefore have no adverse impact on the IMO controlled grid.

### **4. CUSTOMER IMPACT ASSESSMENT**

Hydro One has notified the IMO that a Customer Impact Assessment will not be required for this Project.

### **5. NOTIFICATION OF APPROVAL**

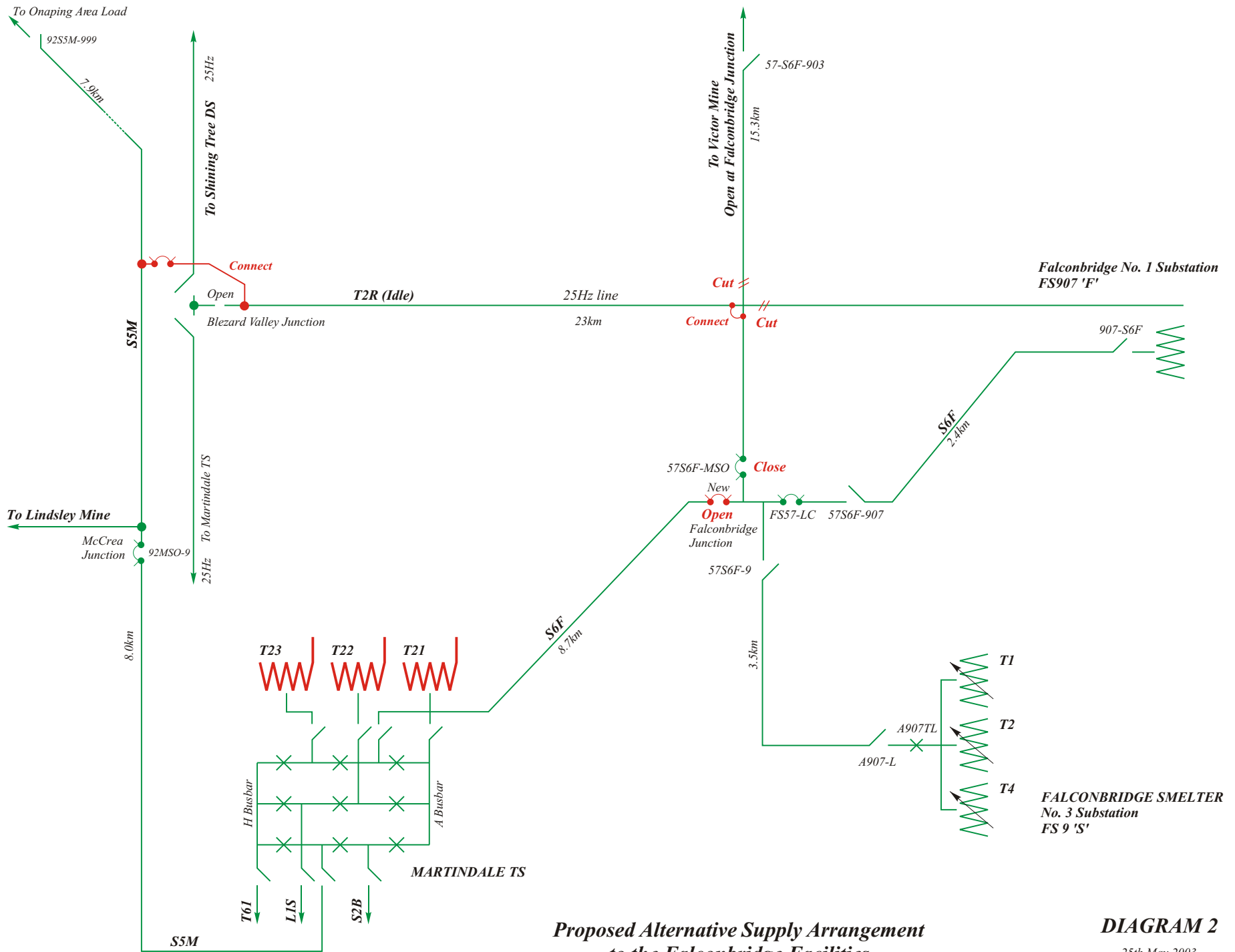
It is therefore recommended that a Notification of Approval of the Connection Proposal be issued.



*Existing Supply Arrangement to the Falconbridge Facilities*

**DIAGRAM 1**

25th May 2003



**Proposed Alternative Supply Arrangement  
to the Falconbridge Facilities**

**DIAGRAM 2**

25th May 2003