

December 1, 2014

The Board of Commissioners of Public Utilities  
Prince Charles Building  
120 Torbay Road, P.O. Box 21040  
St. John's, Newfoundland & Labrador  
A1A 5B2

**Attention: Ms. Cheryl Blundon**  
**Director Corporate Services & Board Secretary**

Dear Ms. Blundon:

**Re: The Board's Investigation and Hearing into Supply Issues and Power Outages  
on the Island Interconnection System**

In its Interim Report dated May 15, 2014 in relation to the above-noted matter, the Board requested that Hydro file the following reports by December 1, 2014.

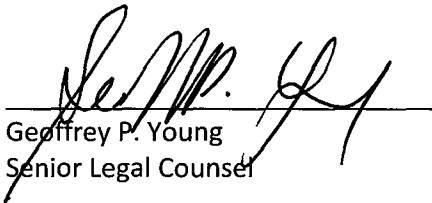
- a) A status report in relation to the winter readiness of its generation assets;
- b) A report in relation to transmission system and terminal station safety issues; and
- c) A joint report with Newfoundland Power on progress towards enhancements and improvements in operational and customer information and communications coordination.

Please find enclosed Hydro's reports in relation to a) and b) above. The joint report by Hydro and Newfoundland Power in relation to c) above was filed with the Board separately by Newfoundland Power on today's date.

We trust the foregoing is satisfactory. If you have any questions or comments, please contact the undersigned.

Yours truly,

**NEWFOUNDLAND AND LABRADOR HYDRO**

  
\_\_\_\_\_  
Geoffrey P. Young  
Senior Legal Counsel

GPY/jc

cc: Gerard Hayes – Newfoundland Power  
Paul Coxworthy – Stewart McKelvey Stirling Scales  
ecc: Roberta Frampton Benefiel – Grand Riverkeeper Labrador

Thomas Johnson – Consumer Advocate  
Danny Dumaresque

*Investigation and Hearing into Supply Issues and Power Outages on the  
Island Interconnected System*

**A Report to the Board of Commissioners of Public Utilities  
Related to Transmission System and  
Terminal Station Safety Issues**

December 1, 2014



## TABLE OF CONTENTS

1.0	BACKGROUND AND INTRODUCTION .....	1
2.0	STATUS OF ACTION ITEMS .....	3
2.1	Station Service Redundancy Supply .....	3
2.2	Station Service Transfer Switch, Sunnyside Terminal Station .....	3
2.3	Engineering Standard for Station Service Transfer Switches.....	3
2.4	Transfer Switches in Stations Without Control Buildings .....	3
2.5	Documentation of PCB Contents in Oil Filled Transformers/Equipment .....	3

1    **1.0    BACKGROUND AND INTRODUCTION**

2    On January 2, 2014, the total system load on Newfoundland and Labrador Hydro’s (Hydro)  
3    Island Interconnected System, and the available generation supply to meet this load,  
4    converged to a point where it was necessary to issue a request for conservation to the general  
5    public.

6    On January 4, an unrelated event involving the failure and destruction by fire of a 230 kV  
7    transformer at the Sunnyside terminal station resulted in a wide disruption of power supply to  
8    the Avalon Peninsula and other areas. This event, and the failure of individual 230 kV  
9    breakers at Sunnyside and other locations set in motion a series of transmission system and  
10   generation events that extended the need for rotating outages through to January 8.

11   Hydro’s internal review and investigation of these outages included a comprehensive root  
12   cause analysis of the transformer and breaker failures at the Sunnyside (SSD) terminal station  
13   on January 4, 2014 and the associated restoration activities carried out on that day. Various  
14   causal factors and root causes were identified through this process, and all actions  
15   recommended by the Root Cause Analysis Team (RCAT) to address these were incorporated  
16   by Hydro into its Integrated Outage Action Plan (IAP). All of the actions identified for  
17   completion in 2014 have been completed.

18   The RCAT also identified additional continuous improvement opportunities for Hydro’s  
19   consideration. These recommendations were adopted by Hydro as well, and were also  
20   incorporated into the Company’s IAP.

21   This Report is in response to a request by the Board of Commissioners of Public Utilities  
22   (Board) in its Interim Report of May 15, 2014 that Hydro file a report by December 1, 2014 in  
23   relation to actions to be taken by Hydro to address certain transmission system and terminal  
24   station safety issues it had identified in its internal review. These actions are specifically  
25   referenced as follows:

- 1     i.    Conduct a risk/reward review of the requirements for additional station service
- 2            redundancy supply at all 230 kV terminal stations and install back-up station service
- 3            supply where recommended for completion post 2014.
- 4     ii.   Relocate the Sunnyside terminal station transfer switch for station service to the
- 5            control building with the design to be completed in 2014 and the work done in 2015.
- 6     iii.   Specify an engineering standard that the transfer switch should be remote to
- 7            transformers at terminal stations to be done post 2014.
- 8     iv.   Review the location of other terminal station transfer switches to be done post 2014.
- 9     v.    Make the PCB contents of all oil filled transformers and equipment available in hard
- 10           copy locally and at an alternate location.

1 **2.0 STATUS OF ACTION ITEMS**

2 **2.1 Station Service Redundancy Supply**

3 Following its internal review, Hydro committed to complete a risk/reward review of the  
4 option of requiring additional station service redundancy at all 230 kV terminal stations. This  
5 study has been assigned to the Long term Asset Planning group in Transmission and Rural  
6 Operations and will start in December, with an expected completion date of March 30, 2015.  
7 Back up station service supplies will be identified for future year capital budget proposals if  
8 required. Refer to Action #30 in Hydro's Integrated Action Plan (IAP).

9 **2.2 Station Service Transfer Switch, Sunnyside Terminal Station**

10 A new station service transfer switch has been installed, commissioned and placed in service  
11 in the terminal station control building at the Sunnyside Terminal Station.

12 **2.3 Engineering Standard for Station Service Transfer Switches**

13 The requirement to install station service transfer switches in a control building in stations  
14 that have a control building remote from the power transformers has been added to the  
15 Terminal Station Engineering standards. Refer to Action #31 in Hydro's IAP. Station service  
16 modifications in existing terminal stations will be planned and integrated as appropriate with  
17 the scheduling of other station work flowing from the reviews outlined in Sections 2.1 and 2.4.

18 **2.4 Transfer Switches in Stations Without Control Buildings**

19 This study will be initiated in 2015 as a joint task between Project Execution and Technical  
20 Services and Transmission and Rural Operations. Refer to Action #32 in Hydro's IAP.

21 **2.5 Documentation of PCB Contents in Oil Filled Transformers/Equipment**

22 The PCB contents of all oil filled power transformers have been made available electronically  
23 from all offices and terminal stations. Hard copies are also available in regional offices in  
24 Bishop's Falls, Happy Valley and Port Saunders, and in terminal stations inside transformer  
25 cabinets. The location information and access instructions have been communicated to all  
26 appropriate employees. Additionally, PCB labels have sent to applicable supervisors, and

- 1 work orders for the installation of labels on, and “Notices of PCB Concentrations” in, power
- 2 transformer cabinets have been generated. Refer to Action #78 in Hydro’s IAP.