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February 28, 2017

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

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

Dear Ms. Blundon:

Re: An Application by Newfoundland and Labrador Hydro (Hydro) for approval of the replacement of the exciter controls for Units 1 and 2 at the Holyrood Thermal Generating Station.

Please find enclosed the original and 9 copies of the above-noted Application, plus supporting affidavit, project proposal, and draft order.

The Holyrood Thermal Generating Station (HTGS) has three generating units: Unit 1, Unit 2 and Unit 3. Each unit has an excitation system that controls the unit output voltage, which contributes to maintaining an acceptable Island Interconnected System voltage. The exciter consists of a control section, a power section, and a field breaker. These sections can be modified or replaced separately. The exciters for Unit 1 and Unit 2 were installed in 2000 and in 1999, respectively. The Unit 3 exciter was originally installed in 1979 and was a Westinghouse model. This exciter, including the controller, was replaced in 2013 with an ABB Unitrol 6080 system and has not had operational or maintenance issues since.


In the past five years, there have been a total of 16 electronic controller card failures for Unit 1 and Unit 2 exciters. These failures have resulted in planned outages to the generators and have impacted Hydro's ability to maintain reliable operation of Unit 1 and Unit 2. The exciter manufacturer, Asea Brown Boveri (ABB), has stated that parts and technical support for the exciter control modules installed on Units 1 and 2 are in the obsolete phase, meaning that they will be limited or not available in the future. This lack of parts and technical support from ABB will affect Hydro's ability to maintain reliable operation of Units 1 and 2. To ensure reliable operation of the units, the control sections of the exciters must be replaced with modern equipment so that parts and technical support can be provided by the manufacturer.

Therefore, Hydro is proposing to replace the control section of the existing ABB Unitrol P exciters on Units 1 and 2 at HTGS with the same replacement controller that was installed on the Unit 3 exciter system in 2013. The replacement will include the controller and applicable software. The estimated capital cost of this project \$1,349,200 and it is scheduled for completion by November 30, 2017.

Should you have any questions, please contact the undersigned.

Yours truly,

Newfoundland & Labrador Hydro



Tracey L. Pennell
Senior Counsel, Regulatory

TLP/bs

c: Gerard Hayes – Newfoundland Power
Paul Coxworthy – Stewart McKelvey Stirling Scales
Sheryl Nisenbaum – Praxair Canada Inc.
ecc: Larry Bartlett – Teck Resources Limited

Dennis Browne, Q.C. – Consumer Advocate
Thomas J. O'Reilly, Q.C. – Cox & Palmer

IN THE MATTER OF the *Electrical Power Control Act*, RSNL 1994, Chapter E-5.1 (the *EPCA*) and the *Public Utilities Act*, RSNL 1990, Chapter P-47 (the *Act*), and regulations thereunder;

AND IN THE MATTER OF an Application by Newfoundland and Labrador Hydro for approval to replace the exciter controls for Units 1 and 2 at the Holyrood Thermal Generating Station pursuant to Subsection 41(3) of the *Act*.

TO: The Board of Commissioners of Public Utilities (the Board)

THE APPLICATION OF NEWFOUNDLAND AND LABRADOR HYDRO (Hydro) STATES THAT:

1. Hydro is a corporation continued and existing under the *Hydro Corporation Act, 2007*, is a public utility within the meaning of the *Act*, and is subject to the provisions of the *Electrical Power Control Act, 1994*.
2. Hydro is the primary generator of electricity in Newfoundland and Labrador. As part of its generating assets, Hydro owns and operates the Holyrood Thermal Generating Station (HTGS), which has three generating units with a combined generating capacity of 490 MW. The HTGS is an essential part of the Island Interconnected System and produces up to 40 percent of the Island's annual energy requirements.
3. Each unit at the HTGS has an excitation system that controls the unit output voltage which contributes to maintaining an acceptable IIS voltage. The exciters consist of a

control section, power section, and a field breaker. These sections can be modified or replaced separately. The exciter for Unit 1 was installed in 2000 and the exciter for Unit 2 was installed in 1999. The Unit 3 exciter including the controller was replaced in 2013.

4. There have been a total of 16 electronic controller card failures in the last five years for Unit 1 and Unit 2 exciters. These failures have resulted in planned outages to the generators and have impacted Hydro's ability to maintain reliable operation of Unit 1 and Unit 2.
5. The exciter manufacturer, Asea Brown Boveri (ABB), has stated that parts and technical support for the exciter control modules installed on Units 1 and 2 will be limited or not available in the future. The lack of support from ABB will affect Hydro's ability to maintain reliable operation of Units 1 and Unit 2.
6. Hydro is recommending the replacement of the control section of the existing ABB Unitrol P exciters on Units 1 and 2 at the HTGS with the same replacement controller that was installed on the Unit 3 exciter system in 2013. The replacement will include the controller and applicable software. This project is scheduled to be completed before November 30, 2017.
7. The estimated capital cost of the project is \$1,349,200.

8. Hydro submits that the proposed capital expenditure is necessary to ensure that Hydro can continue to provide service which is safe and adequate and just and reasonable as required by Section 37 of the *Act*.

9. Therefore, Hydro makes Application that the Board make an Order pursuant to section 41(3) of the *Act* approving the capital expenditure of approximately \$1,349,200 for the replacement of the exciter control modules for Units 1 and 2 at the Holyrood Thermal Generating Station as more particularly described in this Application and in the attached project description and justification document.


DATED at St. John's in the Province of Newfoundland and Labrador this 28th day of February 2017.



Tracey L. Pennell
Counsel for the Applicant
Newfoundland and Labrador Hydro
500 Columbus Drive P.O. Box 12400
St. John's, NL A1B 4K7
Telephone: (709) 778-6671
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A REPORT TO

THE BOARD OF COMMISSIONERS OF PUBLIC UTILITIES

	Electrical
	Mechanical
	Civil
	Protection & Control <i>AWL</i>
	Transmission & Distribution
	Telecontrol
	System Planning

Replace Exciter Controls

Units 1 & 2

Holyrood

February 28, 2017

1 **Summary**

2 This report addresses the need and justification to replace the control section of the
3 existing exciters for Units 1 and 2 at the Holyrood Thermal Generating Station (HTGS). The
4 exciter controls the generating unit's output voltage. Unacceptable generator output
5 voltage may affect the Island Interconnected System voltage.

6

7 There have been a total of 16 electronic controller card failures for Unit 1 and Unit 2
8 exciters. These failures have resulted in planned outages to the generators and have
9 impacted Hydro's ability to maintain reliable operation of Unit 1 and Unit 2.

10

11 The exciter manufacturer, Asea Brown Boveri (ABB), has notified Hydro that parts and
12 technical support will be limited in the future. This limited availability will impact future
13 reliable operation of Units 1 and 2.

14

15 The project will install modern control hardware and software for Unit 1 and Unit 2 at the
16 HTGS.

17

18 The installations will be completed by November 30, 2017 at an estimated cost of
19 \$1,349,200.

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Appendix A – ABB correspondence to Newfoundland & Labrador Hydro

1 **1. Introduction**

2 The Holyrood Thermal Generating Station (HTGS) has three generating units: Unit 1, Unit 2,
3 and Unit 3. Each unit has an excitation system that controls the unit output voltage, which
4 contributes to maintaining an acceptable Island Interconnected System (IIS) voltage. The
5 exciter consists of a control section, a power section, and a field breaker. These sections can
6 be modified or replaced separately. The exciters for Unit 1 and Unit 2 were installed in 2000
7 and in 1999, respectively. The Unit 3 exciter was originally installed in 1979 and was a
8 Westinghouse model. This exciter, including the controller, was replaced in 2013 with an
9 ABB Unitrol 6080 system.

10

11 In the past five years, there have been a total of 16 electronic controller card failures for
12 Unit 1 and Unit 2 exciters. These failures have resulted in planned outages to the generators
13 and have impacted Hydro’s ability to maintain reliable operation of Unit 1 and Unit 2. The
14 exciter manufacturer, Asea Brown Boveri (ABB), has stated that parts and technical support
15 for the exciter control modules installed on Units 1 and 2 are in the obsolete phase,
16 meaning that they will be limited or not available in the future. This lack of part and
17 technical support from ABB will affect Hydro’s ability to maintain reliable operation of Units
18 1 and 2. To ensure reliable operation of the units, the control sections of the exciters have
19 to be replaced with modern equipment so that parts and technical support can be provided
20 by the manufacturer.

21

22 **2. Project Description**

23 This project will replace the control section of the existing ABB Unitrol P exciters on Units 1
24 and 2 at the HTGS with the same replacement controller that was installed on the Unit 3
25 exciter system in 2013. There have been no operational or maintenance issues with the Unit
26 3 exciter controller. The replacement will include the controller and applicable software.

27

28 The power section and the field breaker of the exciter do not have to be replaced as parts
29 and support are available for these sections.

1 The replacement control section will be completed by November 30, 2017.

2

3 **3. Justification**

4 Hydro presently uses ABB Unitrol P excitation control systems for Units 1 and 2 in Holyrood.
5 ABB (see Appendix A) has informed Hydro that *“the ABB Unitrol P Excitation Systems,*
6 *installed at Holyrood’s Thermal Generating Facility, has been in the Obsolete Phase of the*
7 *ABB Product Life Cycle management model ... since 2015.”¹*

8

9 As the Unitrol P excitation control system is in the Obsolete Phase, ABB cannot guarantee
10 the availability of spare parts and technical support. To ensure reliable operation the
11 control sections of the exciters have to be replaced with modern equipment so that parts
12 and technical support can be provided by the manufacturer.

13

14 **3.1 Existing System**

15 The ABB Unitrol P exciter was installed on Unit 1 in 2000 and Unit 2 in 1999.

16

17 **3.2 Operating Experience**

18 There has been no major work or upgrades on the Unitrol P exciters for Units 1 and 2
19 outside of regular preventative and corrective maintenance.

20

21 **3.2.1 Reliability Performance**

22 In the last five years, a total of sixteen electronic card failures have occurred. One
23 communication card has failed five times, the converter electronics card has failed four
24 times, and the control electronics card has failed two times. The remaining failures were
25 single failures of other card types. After each card failure, the affected unit was taken out of
26 service to replace the card and prevent an unplanned outage.

27

28 The Unitrol P exciters for Units 1 and 2 have a redundant configuration with two completely

¹ Appendix A, page 1.

1 separated control systems known as channels. Both channels (active and standby) operate
2 in parallel and if one channel fails, there is an automatic changeover to the other channel.
3 Failure of a single card in a channel will cause a changeover to the second channel allowing
4 the exciter to continue controlling the generating unit output voltage. With this
5 redundancy, a planned outage can be used to replace the failed card. However, if the
6 redundant card were to also fail before the maintenance outage, the exciter controller
7 would cause the generating unit to trip, resulting in the unplanned removal of a generating
8 unit from service. The planned or unplanned removal from service of a generating unit
9 reduces Hydro's generating reserve, and affects Hydro's ability to provide reliable service to
10 customers on the Island Interconnected System.

11
12 **3.2.1.1 Outage Statistics**

13 There have been no forced outages caused by the excitation system on Units 1 and 2 in the
14 last five years given the configuration; however, planned outages have to be immediately
15 scheduled to prevent a forced outage.

16
17 **3.2.2 Legislative or Regulatory Requirements**

18 There are no legislative or regulatory requirements related to this proposal.

19
20 **3.2.3 Safety Performance**

21 There are no safety performance requirements related to this proposal.

22
23 **3.2.4 Environmental Performance**

24 There are no environmental requirements related to proposal.

25
26 **3.2.5 Industry Experience**

27 ABB have indicated that customers have replaced their excitation systems with modern
28 controllers.

1 **3.2.6 Vendor Recommendations**

2 The Unitrol P exciter controls are in the obsolete phase and ABB recommends replacement.

3

4 **3.2.7 Maintenance or Support Arrangements**

5 Hydro does not have a support or maintenance agreement with ABB. Maintenance work is
 6 performed by Hydro Generation personnel and ABB is contacted for assistance, if the need
 7 arises. Since the exciter is in the Obsolete Phase of the Life Cycle Management Plan, ABB
 8 cannot guarantee availability of spare parts.

9

10 **Maintenance History**

11 The five-year maintenance history for Units 1 and 2 Exciters is shown in Table 1.

Table 1: Five-Year Maintenance History

Year	Preventive Maintenance (\$000)	Corrective Maintenance (\$000)	Total Maintenance (\$ 000)
2016	16.6	48.9	65.5
2015	12.3	23.7	36.0
2014	21.5	26.6	48.1
2013	12.4	23.9	36.3
2012	31.5	26.8	58.3

12 **3.2.8 Historical Information**

13 The Unit 1 exciter was installed in 2000. The Unit 2 exciter was in 1999. Both exciters are
 14 ABB Unitrol P model. The original Holyrood Unit 3 exciter, installed in 1979, was a
 15 Westinghouse model. It was replaced in 2013 with an ABB Unitrol 6080 system.

16

17 **3.2.9 Anticipated Useful Life**

18 The ABB Unitrol P exciter was introduced in 1990 and entered the obsolete phase in 2015.

19

20 **3.3 Forecast Customer Growth**

21 This project is not needed for customer growth.

1 **3.4 Development of Alternatives**

2 There are no viable alternatives to replacing the control sections.

3

4 **4. Conclusion**

5 The Exciter Control system for Units 1 and 2 at the HTGS are in the obsolete phase of the
 6 product life cycle, and have limited parts and technical support available. Recent card
 7 failures have resulted in planned outages to replace cards, during which the unit was at risk
 8 of a second card failure and unit trip. The planned or unplanned removal from service of a
 9 generating unit reduces Hydro’s generating reserve, and affects Hydro’s ability to provide
 10 reliable service to customers on the Island Interconnected System. Therefore, the control
 11 section for each exciter must be replaced to establish reliable exciter operation for Unit 1
 12 and Unit 2.

13

14 **4.1 Budget Estimate**

15 The budget estimate for this project is shown in Table 2.

Table 2: Project Budget Estimate

Project Cost: (<i>\$ x1,000</i>)	2017	2018	Beyond	Total
Material Supply	10.0	0.0	0.0	10.0
Labour	542.0	0.0	0.0	542.0
Consultant	0.0	0.0	0.0	0.0
Contract Work	502.6	0.0	0.0	502.6
Other Direct Costs	8.9	0.0	0.0	8.9
Interest and Escalation	73.0	0.0	0.0	73.0
Contingency	212.7	0.0	0.0	212.7
TOTAL	1,349.2	0.0	0.0	1,349.2

16 **4.2 Project Schedule**

17 The anticipated project schedule is shown in Table 3.

Table 3: Project Schedule

Activity		Start Date	End Date
Planning	Prepare Scope Statement	February 2017	February 2017
	Prepare Project Schedule	February 2017	March 2017
	Prepare Supply and Installation Contract	February 2017	March 2017
Design	Site visit	April, 2017	April, 2017
	Prepare Interface Drawings for 2 units	May, 2017	August, 2017
Procurement	Award Supply and Installation Contract	March, 2017	March, 2017
	Purchase miscellaneous material	September, 2017	October, 2017
Construction	Install upgrade on Unit 1	September, 2017	October, 2017
	Install upgrade on Unit 2	October, 2017	November, 2017
Commissioning	Commission upgrade on Unit 1	October, 2017	October, 2017
	Commission upgrade on Unit 2)	November, 2017	November, 2017
Closeout	Commissioning report for Unit 1	November, 2017	November, 2017
	Commissioning report for Unit 2	December, 2017	December, 2017
	Project Closeout Information	December, 2017	December, 2017

APPENDIX A

ABB CORRESPONDENCE TO NEWFOUNDLAND & LABRADOR HYDRO

To: **Newfoundland & Labrador Hydro - Nalcor Energy**
P.O. Box 29
Holyrood, NL
AOA 2R0

Attention: **Jonathan Whelan**
Plant Engineer Electrical
TG LT Asset Planning
t. 709 229-2128

Dear Mr. Whelan,

The purpose of the present abstract is to inform you that the ABB UNITROL[®]P Excitation Systems, installed at Holyrood’s Thermal Generating Facility, has been in the Obsolete Phase of the ABB Product Life Cycle management model outlined below since 2015. The Product Life Cycle Management allows ABB to support you with professional service throughout your equipment life cycle. Therefore, ABB would like to provide you with a technical solution, for the future, to update your Excitation System with the latest and most powerful excitation technology on the market.



There are several risks associated to legacy or obsolete control platforms:

- Increased failure rates due to the age of components
- Down time due to unexpected trips
- Limited spare part availability and long delivery time
- Some components get discontinued and it is difficult to find replacements
- Increased spare part prices due to low order volume quantities
- Limited support and service resources, which will diminish as the years go by

Technical Benefits of the Control Upgrade

By upgrading the existing control system to the new control platform, it is possible to change the product life cycle status back to the Active phase. During the Active phase, the control platform is fully supported and maintained by ABB, including but not limited to spare parts and repair services, training services and 24/7 technical support.

The control upgrade of your existing Excitation System provides the following benefits:

- **The control section will have the new excitation technology, Unitrol 6080. You currently have this technology in Unit 3 installed at Holyrood.**
- ABB will warrant the Control Section of the Exciters.
- **Emergency support 24/7 free of charge.** Our telephone support provides reliable 24-hour access to ABB resources who understand the urgency and importance of your request. Each call is efficiently routed to an appropriate Excitation expert who will personally follow your request to resolution.
- **ABB has the largest Excitation Service Team in North America and from our Montreal Office we provide a full range of services such as emergency troubleshooting, performance reviews, training and spare parts, among others.**
- **Service resources available, 12 service engineers on call to provide support to Nalcor.**
- Spare parts availability
- **If the units are upgraded with a control platform different than ABB's, Maintenance and Troubleshooting will have to be done by two different Vendors. The Power section of the units will be supported by ABB and the Control section by other vendors. Therefore, Maintenance will be more expensive and difficult to execute. We recommend to keep the originality of the unit.**
- **Dedicated Service Representative located In Montreal to support Nalcor's fleet. The Service Representative will be the main contact for all of Nalcor's sites.**
- PSS hardware built into the base system to allow optimized contribution of the power plant to the network stability (NERC Compliant).
- Extremely fast state of the art control platform (64bit floating point CPU) with no restrictions regarding scaling and range.
- Optical communication between the controller and boards, allowing for electrical isolation and high Electromagnetic Compatibility (EMC) immunity.
- Standardized software development: IEC 61131 application software programming with ABB Control Builder M which is fully compatible with ABB's 800xA IT platform.
- ECT Panel: Touch screen HMI, 15" Excitation control terminal (ECT) mounted on the exciter cubicle for fault annunciation, local control, and display of measuring or processing data.
- Prefabricated and tested modules to shorten shutdown duration and bring commissioning time to a minimum.
- No modifications to the foundations and external bus ducts or terminals.
- Ease of transport and installation on site.

ABB is the original equipment manufacturer of the UNITROL®P Excitation Systems. The control upgrade is fully executed by ABB since we do not use any distributors or third party channels to supply Equipment, Site Engineering, Installation, Installation Supervision and Commissioning. The proposed control upgrade will reflect ABB's technical expertise in engineering, manufacturing and project execution.

With over 100 years of experience in Excitation Systems Design, Manufacturing & Testing; ABB will be able to execute the project as per the highest industry standards. ABB's Montreal, Canada facility has been the North American Design & Manufacturing center for over 45 years. ABB's installed base in North America includes more than 1800 Excitation Systems that we service with the largest service group in North America We have manufactured Excitation Systems for Nuclear Power Plants, Hydro Plants, Fossil Plants and Gas Fired Plants with outstanding results. What that means to Nalcor is long-term continued stability and reliability with an ABB exciter.

ABB's Experience with Control Upgrades

We have extensive experience in upgrading ABB Excitation Systems to the newer generation of UNITROL® Exciters. Please find below a few of our latest projects:

- Louisiana, USA - UNITROL® 6800 (8 units)
- Georgia, USA - UNITROL® 5000 (3 units)
- British Columbia, Canada - UNITROL® 5000 (8 units)
- Montana, USA - UNITROL® 5000 (2 units)
- California, USA - UNITROL® 6800 (5 units)
- Wisconsin, USA - UNITROL® 6080 (1 unit)
- Indiana, USA - UNITROL® 6800 (2 units)
- Washington, USA - UNITROL® 6080 (11 units)
- Ohio, USA - UNITROL® 6080 (6 units)
- Oklahoma, USA - UNITROL® 6080 (1 unit)
- Pennsylvania, USA - UNITROL® 6080 (1 unit)
- Louisiana, USA - UNITROL® 6080 (1 unit)
- Nebraska, USA – UNITROL® 6800 (1 unit)
- Nebraska, USA – UNITROL® 6080 (2 units)
- Illinois, USA – UNITROL® 6800 (2 units)
- California, USA - UNITROL® 6080 (1 unit)
- California, USA - UNITROL® 6800 (8 units)
- California, USA – UNITROL® 6800 (1 unit)

- Tennessee, USA - UNITROL® 6800 (4 units)
- Arkansas, USA – UNITROL® 6080 (3 units)
- California, USA – UNITROL® 6080 (2 units)
- Iowa, USA – UNITROL® 6080 (8 units)
- Missouri, USA – UNITROL® 6080 (8 units)
- Guayama, Puerto Rico - UNITROL 6080 (2 units)

Return on Investment for Nalcor

In the case that Nalcor decides to execute the control upgrade project, the excitation systems will be reliable till the site is de-commissioned (2023).

- Nalcor has multiple Power Plants with the UNITROL 6000 Excitation Systems. The control platform at Holyrood will be upgraded to the same platform as the rest of the plants with the UNITROL 6000 Excitation Systems. As a result, Spare parts will be common between all the sites. Therefore, reducing the unit's downtime and cost associated with spare parts storage.
- ABB Service Representative will be able to service excitation systems at different plants within the same trip. Therefore, reducing cost of ownership.

In addition, if the units are decommissioned in 2023, the electronic boards and components used in the control section could be reused as spare parts for the following excitation systems:

1. Holyrood
2. Hinds Lake
3. Upper Salmon
4. Cat Arm
5. Muskrat Falls
6. Churchill Falls
7. Soldier's Pond

Therefore, Nalcor will get a higher return on investment with the control upgrade of the excitation systems.

Please do not hesitate to contact us if you need further clarifications.

Best regards,



Moh Alkhwaji
Service Sales Representative
Power Conversion



Rosa Vargas
Manager, Service Sales
Power Conversion

IN THE MATTER OF the *Electrical Power Control Act*, RSNL 1994, Chapter E-5.1 (the *EPCA*) and the *Public Utilities Act*, RSNL 1990, Chapter P-47 (the *Act*), and regulations thereunder;

AND IN THE MATTER OF an Application by Newfoundland and Labrador Hydro for approval to replace the exciter controls for Units 1 and 2 at the Holyrood Thermal Generating Station pursuant to Subsection 41(3) of the *Act*.

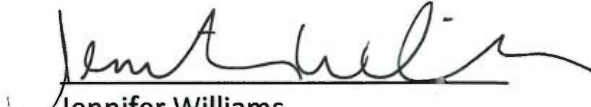
AFFIDAVIT

I, Jennifer Williams, Professional Engineer, of St. John's in the Province of Newfoundland and Labrador, make oath and say as follows:

1. I am the VP, Production Operations of Newfoundland and Labrador Hydro, the Applicant named in the attached Application.
2. I have read and understand the foregoing Application.
3. I have personal knowledge of the facts contained therein, except where otherwise indicated, and they are true to the best of my knowledge, information and belief.

SWORN at St. John's in the)
Province of Newfoundland and)
Labrador)
this 28th day of February, 2017,)
before me:)


Barrister - Newfoundland and Labrador


Jennifer Williams

1 (DRAFT ORDER)
2 NEWFOUNDLAND AND LABRADOR
3 BOARD OF COMMISSIONERS OF PUBLIC UTILITIES
4

5 AN ORDER OF THE BOARD
6

7 NO. P.U. __ (2017)
8

9 **IN THE MATTER OF** the *Electrical Power*
10 *Control Act*, RSNL 1994, Chapter E-5.1 (the
11 *EPCA*) and the *Public Utilities Act*, RSNL 1990,
12 Chapter P-47 (the *Act*), and regulations thereunder;
13

14
15 **AND IN THE MATTER OF** an Application
16 by Newfoundland and Labrador Hydro
17 for approval to replace the exciter controls for
18 Units 1 and 2 at the Holyrood Thermal Generating
19 Station pursuant to Subsection 41(3) of the Act.
20

21
22 **WHEREAS** Newfoundland and Labrador Hydro (Hydro) is a corporation continued and existing
23 under the *Hydro Corporation Act, 2007*, is a public utility within the meaning of the *Act*, and is
24 subject to the provisions of the *Electrical Power Control Act, 1994*; and
25

26 **WHEREAS** Section 41(3) of the *Act* requires that a public utility not proceed with the
27 construction, purchase or lease of improvements or additions to its property where:

- 28 a) the cost of construction or purchase is in excess of \$50,000; or
29 b) the cost of the lease is in excess of \$5,000 in a year of the lease,
30 without prior approval of the Board; and
31

32 **WHEREAS** in Order No. P.U. 45(2016) the Board approved Hydro's 2017 Capital Budget in
33 the amount of \$271,265,600; and
34

35 **WHEREAS** in Order No. P.U. 5(2017) the Board approved supplementary 2017 capital
36 expenditures in the amount of \$3,045,000 to construct a distribution feeder at the Bottom Waters
37 Terminal Station; and

1 **WHEREAS** on Order No. P.U. 7(2017) the Board approved supplemental 2017 capital
2 expenditures in the amount of \$3,168,944 for: (i) the sublease of two 230 kV transmission lines
3 that run from Churchill Falls to the Twin Falls generating plant site; (ii) the sublease of two 230
4 kV transmission lines that run from the Twin Falls generating plant site to the Wabush Terminal
5 Station; (iii) the lease of electrical equipment situated in the Churchill Falls Switchyard; and (iv)
6 the purchase of spare parts and inventory associated with the Wabush Terminal Station, the
7 Churchill Falls Switchyard and the transmission lines to acquire two 230 kV transmission lines
8 serving Labrador West; and

9
10 **WHEREAS** on February 28, 2017, Hydro applied to the Board for approval to replace the
11 exciter controls for Units 1 and 2 at the Holyrood Thermal Generating
12 Station; and

13

14 **WHEREAS** the capital cost of the project is estimated to be \$1,349,200; and

15

16 **WHEREAS** the Board is satisfied that the replacement of the exciter controls for Units 1 and 2
17 at the Holyrood Thermal Generating Station is reasonable to allow Hydro to provide service and
18 facilities which are reasonably safe and adequate and just and reasonable.

19

20 **IT IS THEREFORE ORDERED THAT:**

21

22 1. The proposed capital expenditure to replace the exciter controls for Units 1 and 2 at the
23 Holyrood Thermal Generating Station at an estimated capital cost of \$1,349,200 is
24 approved.

25

26 2. Hydro shall pay all expenses of the Board arising from this Application.

1 **DATED** at St. John's, Newfoundland and Labrador, this day of , 2017.
2
3

4 _____

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6
7 _____

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9
10 _____

11
12 _____