Newfoundland
& Labrador

BOARD OF COMMISSIONERS OF PUBLIC UTILITIES

IN THE MATTER OF THE

2012 CAPITAL BUDGET APPLICATION PHASE II

FILED BY

NEWFOUNDLAND AND LABRADOR HYDRO

DECISION AND ORDER OF THE BOARD

ORDER NO. P. U. 5(2012)

BEFORE:

Darlene Whalen, P.Eng.
Vice-Chair

Dwanda Newman, LL.B.
Commissioner

James Oxford
Commissioner

NEWFOUNDLAND AND LABRADOR
BOARD OF COMMISSIONERS OF PUBLIC UTILITIES

AN ORDER OF THE BOARD

NO. P. U. 5(2012)

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

and

IN THE MATTER OF an application by Newfoundland and Labrador Hydro ("Hydro") for an order:

(a) approving changes to its capital expenditure methodology;
(b) approving its 2012 capital budget;
(c) approving its 2012 capital purchases and construction projects in excess of $50,000;
(d) approving the estimated contributions in aid of construction for 2012; and
(e) fixing and determining its average rate base for 2010.

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TABLE OF CONTENTS

I BACKGROUND

1. Application

Hydro filed its 2012 Capital Budget Application (the "Application") with the Board of Commissioners of Public Utilities (the "Board") on August 4, 2011 requesting that the Board make an Order:

(i) approving Hydro's proposed changes to its capital expenditure methodology to incorporate the requirements of International Financial Reporting Standards;
(ii) approving Hydro's 2012 Capital Budget in the amount of $87,862,000;
(iii) approving 2012 capital purchases and construction projects in excess of $50,000;
(iv) approving estimated contributions in aid of construction for 2012 of approximately $400,000; and
(v) fixing and determining Hydro's average rate base for 2010 in the amount of $1,484,659,000.

Notice of the Application was published beginning on August 13, 2011. The Application and related documentation was available for viewing on the Board's website. Notices of intention to participate were filed by Hydro's Island Industrial Customers (Corner Brook Pulp and Paper Limited, North Atlantic Refining Limited, Teck Resources Limited, and Vale Newfoundland and Labrador Limited) (the "Industrial Customers"), the Consumer Advocate, Mr. Thomas Johnson (the "Consumer Advocate") and Newfoundland Power Inc. ("Newfoundland Power").

2. Phase I Order/Phase II process

On August 25, 2011 the Board advised the parties that Hydro's 2012 Capital Budget would be addressed in two phases. Phase II was established to address certain projects that relate to the Holyrood Thermal Generating Station. On September 9, 2011 in Order No. P.U. 20(2011) the Board directed that two proposals which were not included in Hydro's 2012 Capital Budget Application but which relate to the Holyrood Thermal Generating Station should also be considered as part of Phase II of Hydro's 2012 Capital Budget. On January 24, 2012 the Board issued Order No. P.U. 2(2012) in relation to Phase I of Hydro's 2012 Capital Budget Application approving construction and purchase of improvements or additions to Hydro's property in excess of $50,000, certain changes to Hydro's capital expenditure methodology to incorporate the requirements of International Financial Reporting Standards, and Hydro's 2010 rate base. Hydro's 2012 Capital Budget Application will conclude with Phase II and Hydro's 2012 Capital Budget will be approved in this Order in accordance with subsection 41(1) of the *Act*.

During Phase II of Hydro's 2012 Capital Budget a total of 252 requests for information were asked and answered. A technical conference was held on October 13, 2011. There were no requests for a hearing. On November 24, 2011 written submissions were filed by the Industrial Customers, the Consumer Advocate and Newfoundland Power. On November 28, 2011 written submissions were filed by Hydro.

II. PHASE II CAPITAL EXPENDITURES

The revised schedules filed by Hydro on December 19, 2011 set out Hydro's proposed Phase II expenditures in the amount of $20,641,200 for 2012; $3,594,200 for 2013; $4,885,700 for 2014; and $5,795,700 for 2015. The Board has reviewed Hydro's proposed Phase II capital expenditures over $50,000 to be completed in 2012 as well as multi-year projects to be started in 2012, the reports filed in support, the additional information filed by Hydro in its responses to requests for information, and final submissions. The Board notes that Newfoundland Power does not make any submissions in relation to specific projects, commenting only on the issue of information requirements in relation to future capital expenditure proposals for the Holyrood Thermal Generating Station. The Board is satisfied that the proposed capital expenditures set out in the schedules filed by Hydro on December 19, 2011, except those specifically addressed below, are adequately justified and are appropriate and necessary in the circumstances.

Install Plant Operator Training Simulator, Holyrood - $1,028,200 (2012), $1,072,700 (2013)

Hydro proposes to install an Operator Training Simulator and operator training program for the Holyrood Thermal Generating Station which will provide plant operators with a means by which the complex processes and various operating conditions can be simulated any time and in a manner which is safe for personnel, the plant and the electrical grid. According to Hydro the Operator Training Simulator can be used to train new operators, test new control logic before installation, develop response strategies for outages and adjust operating parameters to optimize efficiency. Hydro states that it is anticipated that the Operator Training Simulator will enable operators to optimize plant operations to realize decreases in fuel consumption. Hydro reports that it operates an Operator Training Simulator in the Energy Control Centre and there is also one in the Churchill Falls Generating Station Control Centre.

According to Hydro the existing training program at the Holyrood Thermal Generating Station takes approximately two years to complete and it is anticipated that training with the Operator Training Simulator will take six months. Hydro reports a lack of candidates available to enter the existing training program due to job opportunities elsewhere which could negatively impact plant operations and plant certification. Also the pending change in the status of Holyrood as a generating station makes recruitment and retention more of a challenge, making it necessary to fast track employee training to ensure safe, efficient and effective operation. Hydro states that the experience gap within the group of operators substantiates the need for an Operator Training Simulator for junior operators, especially where senior staff retire or are not on shift during abnormal system events.

The Industrial Customers submit that the proposed capital expenditure for this project is not reasonably justified and further that:

> *"It is an egregious example of Hydro seeking to address, and over-manage, by way of an expensive capital expenditure "solution", issues which are essentially operational in nature."* (Industrial Customers, Submission Phase II, pg. 9)

The Industrial Customers note that this is the lowest ranked Phase II project and argue that this must reasonably be taken as Hydro's own assessment that it is a project of (very) low priority. The Industrial Customers note that, according to Hydro's response in P2-IC-NLH-37, the need for thermal plant operators and lead operators will be reduced from the existing complement of 25 to 15 in 2017 and to 8 in 2021. The Industrial Customers argue that the gradual reduction in needed plant operators surely offers Hydro ample operational scope to manage retention of sufficient existing operators or if necessary recruitment and training. The Industrial Customers submit that Hydro's response to P2-IC-NLH-39 indicates that the Operator Training Simulator will be of very limited value once Holyrood converts to synchronous condensing mode. The Industrial Customers submit that the Operator Training Simulator will not be operational until September 2013 and therefore the earliest date for completion of training of staff is March 2014. The Industrial Customers suggest that Hydro could achieve the same result by recruiting applicants in the first quarter of 2012 and putting them through the existing training program. The Industrial Customers urge the Board to deny approval of this "*patently unjustified project*".

The Consumer Advocate argues that, in light of escalating capital budget requests, this type of project is simply beyond what customers should be expected to bear the cost of. The Consumer Advocate argues that the existing training system has been effective to date and has been found by AMEC to be consistent with other thermal generating facilities. The Consumer Advocate notes that, according to P2-IC-NLH-49, there are 4 lead operators eligible for retirement and, according to P2-CA-NLH-33, there are an additional 7 operators each year between 2012 and 2017 who can qualify to become a lead operator. The Consumer Advocate notes that Hydro has implemented other programs at Holyrood to help in its recruitment, retention and training initiatives.

The Consumer Advocate submits that another issue to be addressed is whether, given the timeline for Holyrood operating as a generating station, this project is necessary considering the time it will take to produce the first "*graduate*". The Consumer Advocate questions the costs associated with adapting this program to other uses and questions whether the estimated six-month training time with the Operator Training Simulator has been substantiated. The Consumer Advocate submits:

> *"Given the circumstances surrounding the future of the Holyrood thermal generating facility, the Consumer Advocate submits that this project is not justifiable. There is little doubt that by the time this expensive project is up and running, Holyrood is expected to be even closer to the end of its thermal generating life. The issues of retention and recruitment identified by Hydro will not be addressed by this operating simulator. This project is not required to allow Holyrood to operate in a safe and reliable manner given the current timelines."* (Consumer Advocate, Submission Phase II, pg. 11)

Hydro submits that it requires the Operator Training Simulator so that it can train operators expeditiously, in a manner and pace that is more accelerated and concentrated than can occur by

exposing operators and operator trainees to scenarios that arise on-the-job in real life situations. Hydro argues that the need to have this method of training operators more quickly and comprehensively is driven by the present tight labour market and the fact that Hydro is expecting to face problems with recruitment and retention of operators as Holyrood faces the end of its life as a generating station. Hydro also notes that the exposure of operators to situations which require specific intervention responses will be much reduced in Holyrood's stand-by stage of operation that is anticipated in the 2017-2020 period. Hydro argues that for Holyrood to be a reliable operating standby plant, and for it to comply with the laws that pertain to its operations it is essential that it has properly trained and certified operators in sufficient numbers who can safely and reliably start-up and operate the plant as well as provide prompt black-start capability and respond properly to unexpected problems. Hydro submits that it is doing what it can to prepare for an anticipated lack of appropriately trained employees and the Operator Training Simulator will complement Hydro's recruitment, retention and other training methods.

The Board notes that Hydro plans an in-service date for the Operator Training Simulator of late 2013, meaning that the earliest that an employee could complete this training is the spring of 2014. Given the seasonal nature of the operation of the generating station the first trainees will likely start as operators in the fall of 2014. As set out in P2-IC-NLH-37, it is anticipated that there will be reduced requirements for operators beginning in 2017. Hydro has advised that use of the simulator for the Holyrood Thermal Plant is the only justification for the proposal and the synchronous condensing function of Unit 3 is not a significant part of the Operator Training Simulator. While the Operator Training Simulator may have been a valuable training tool had it been in use over the last number of years at this stage the potential period of benefit from such a major expenditure seems unreasonably short. In addition Hydro has not shown that there will be a shortage of operators or that the Operator Training Simulator will solve any retention and recruitment issues. The Board finds that Hydro has failed to justify the proposed expenditure in relation to the Operator Training Simulator as reasonable and necessary in the circumstances. This project will not be approved.

Replace Fuel Oil Heat Tracing, Holyrood - $1,474,300 (2012), $1,413,900 (2013)

Hydro proposes this two-year project to replace the electric fuel oil heat tracing system on the pipeline used to transport Bunker C fuel oil from the marine terminal to the Holyrood Thermal Generating Station fuel storage tanks approximately 1200 meters away. The heat tracing system maintains the Bunker C fuel oil at the minimum temperature of 30 degrees Celsius. Hydro states that the existing heat tracing cables are showing deterioration and are at or beyond the end of useful life. Hydro reports that the insulation of the cables has become brittle which reduces the ability of the insulation to protect from electric ground faults. The insulation resistance has also become lower than the acceptable minimum value and there are places where there are leakage currents which endanger the safety of personnel. Hydro cites the condition assessment report completed by AMEC concluding that the failure of the remaining two phases is very likely and that this issue needs to be resolved and the system replaced.

Hydro states that the existing heat tracing system was newly installed in 2002 to replace the original bare copper electric heat tracing cable with a new copper sheathed mineral insulated electric heat tracing cable, equipped with a high density polyethylene jacket. The anticipated useful life of copper heat tracing cables is reported to be 20 years depending on environment and service conditions. Hydro reports that in 2009 it contracted Tyco Thermal Controls ("Tyco"), the original equipment manufacturer, to provide an analysis of the cause of the premature failure of the heat tracing cable installed in 2002. Tyco concluded that the output of the heater exceeds the recommended maximum and the sheath temperature for the heater exceeds the recommended maximum continuous operating temperature.

Hydro states that this project is justified on the basis of safety, environmental concerns and operational reliability, and that failure to initiate this project increases the likelihood of failure to receive fuel oil. This could lead to equipment damage and pose serious risk to both personnel safety and the environment. Hydro states that, if the heat tracing system is not functioning properly, there is a possibility for build-up of excessive back pressure in the pipeline at the marine terminal which can result in damage to the pipeline, leading to spillage of hot Bunker C fuel oil. Hydro reports that on February 22, 2011 a tanker could not deliver fuel for three days due to failed electric heat tracing, resulting in three days of demurrage payments of $18,000 to $25,000 per day.

The Industrial Customers submit that the proposed expenditure is not an "upgrade" and is only necessary to rectify a mismanaged operational expense. The Industrial Customers submit that it is not reasonably possible to characterize Hydro's decisions in respect of its heat tracing system as management of a facility in a manner that results in power being delivered to consumers in the province at the lowest possible cost consistent with reliable service. The Industrial Customers argue that Hydro's past decisions with respect to the heat tracing system have jeopardized reliable service and Hydro now proposes to pass on the extra costs to its ratepayers. The Industrial Customers suggest that all the information surrounding these decisions should have been provided with the Application. The Industrial Customers urge that these circumstances demand a meaningful remedy and that passing these costs on to ratepayers would be "grossly inconsistent" with the power policy of the province. The Industrial Customers specifically state:

> *"The Board ought not to excuse Hydro's failure to follow its own consultant's recommendations, particularly when Hydro chose to not seek Board oversight and approval (which might have avoided the error) by characterizing the 2002 expenditure as operational. The Industrial Customers submit that the only reasonable remedy is to refuse approval of this expenditure as a capital expenditure to be included in rate base."* (Industrial Customers, Submission Phase II, pg. 14)

The Consumer Advocate accepts the importance of the heat tracing system but takes issue with whether the costs of this project should be borne by consumers. The Consumer Advocate notes that there was a recommendation by Tyco to reduce voltage by 10% as set out in P2-PUB-NLH-46. The Consumer Advocate states that there is no explanation as to why this recommendation was not followed. The Consumer Advocate argues that Hydro was informed by Tyco that the new electric heat tracing cable scheduled to be installed would be running at higher than

allowable sheath temperatures. The Consumer Advocate notes P2-IC-NLH-32 where Hydro acknowledges that the failure of the heat tracing system after the repairs between 2002 and 2004 was due to a Hydro error. The Consumer Advocate raises the issue of prudence, citing two regulatory precedents from other jurisdictions, and argues:

> *"In the case of the heat tracing, the record is clear. Hydro has admitted fault. Hydro failed to follow a recommendation. This failure followed and has not been explained other than by saying "we acted in good faith." That cannot suffice."* (Consumer Advocate, Submission Phase II, Pg. 7)

The Consumer Advocate submits that, while the heat tracing system must be addressed, the costs associated with repairing the system should not be borne by customers and Hydro should proceed with this project at its own cost.

Hydro submits that there appears to be no contest that the heat tracing system requires replacement and the issue is whether the cost of the replacement should be borne by ratepayers. Hydro argues that human error is often a contributing cause when utility assets fail in service before the end of their expected useful lives. Hydro states that it made a decision to employ a certain type of asset to solve a problem and failed to act upon the information to reduce the operating voltage and it appears that this error contributed to or caused the premature failure of the system due to an overheating of the insulating sheath. Hydro argues that the cases cited by the Consumer Advocate do not apply to the present circumstance. Hydro argues that many decisions made by utility staff are contrary to recommendations of manufacturers and consulting engineers due to cost constraints, impracticality, and also on the basis of the staff's own expertise, judgement or experience. Hydro states:

> *"These honest and earnestly made human errors are among the causes of some of the failures of assets in service and they should not be deemed as resulting in unrecoverable imprudent expenses except in cases where it can be demonstrated or inferred that a clear disregard of advice occurred or poor judgement was applied that approaches the flagrant or ill-motivated."* (Hydro, Submission Phase II, pg. 13)

The Board finds that the evidence is clear that the electric heat tracing system at the Holyrood Thermal Generating Station needs to be replaced. This is not challenged by the Industrial Customers, the Consumer Advocate or Newfoundland Power. In the ordinary course the cost of necessary work on the electric heat tracing system would be borne by ratepayers. However, Hydro has admitted that mistakes were made and the Industrial Customers and the Consumer Advocated argue that ratepayers should not have to pay for this work.

The Board acknowledges Hydro's argument that when performing business activities it is normal and expected that some errors and misjudgements will be made. The Board notes P2-CA-NLH-50 where Hydro states that it has restructured its technical staff to improve overall efficiency and performance which it is intended will reduce the potential for errors. As set out in the cases filed by the Consumer Advocate, there is a presumption of prudence in relation to decisions made by utility management unless challenged on reasonable grounds. The Board finds that the evidence

in relation to the electric heat tracing system rebuts the presumption of prudence. In P2-IC-NLH-32 Hydro confirms that the failure of the electric heat tracing system after the 2002 repairs was due to a Hydro error. In P2-PUB-NLH-75 Hydro says that the decision to use a High Density Polythylene jacket over the copper sheathed mineral insulated cable was made by Hydro without recommendations from and unknown to Tyco and the decision to use teck cable as a jumper between broken parts of the circuit was a decision made solely by Hydro. In the Incident Report dated March 31, 2011 (Appendix C of the Application) Hydro states that the allowable maximum temperature of the High Density Polythylene used is 110 degrees C and the maximum allowable wattage for the High Density Polythylene jacketed heater cable is 8 watts per foot. The design calculations carried out by Tyco for the copper sheathed heater cable had a sheath temperature of 138 degrees C and maximum allowable wattage of 12 watts per foot. Hydro did not change the heater cable length to suit the low wattage loading. In P2-PUB-NLH-46 Hydro says:

> *"After an order had been placed, Tyco informed Hydro that the new Electric Heat Tracing cable scheduled to be installed would be running at higher than allowable sheath temperature due to part of the circuit being bypassed by teck cables. Hydro was asked by Tyco to reduce voltage by ten percent in order to address the jacket heating issue."*

Hydro states in P2-CA-NLH-48 that it did not reduce voltage by ten percent to address the sheath temperature issue and further that its records do not indicate why the voltage was not reduced. Hydro states in P2-CA-NLH-50:

> *"In hindsight, Hydro acknowledges that an error was made when it decided to install a heat trace cable with a HDPE jacket back in 2002 that was not suitable for the application. That decision was made by an individual in good faith under the belief that it would improve the installation by reducing the potential for corrosion without knowledge of the overheating implications. In addition, proper consideration was not given to Tyco's letter dated May 2002 (copy provided under P2-CA-NLH-47) which identified negative implications related to potential overheating of the cable sheath if modification to the EHT system configuration were made as were being considered at the time."*

The evidence shows that Hydro's approach did not respect the known maximum allowable temperature or wattage of the materials used. In addition Hydro did not adopt the changes recommended by Tyco and is not able to show that it considered the concerns expressed by Tyco at the time. The Board finds that Hydro's decision to proceed with a design which was known at the time to be outside of recommended maximums and to not reflect the specific advice of Tyco was not reasonable in the circumstances that were known or ought to have been known to Hydro at the time. This is not a case where in hindsight it has become clear that the approach that was taken was unreasonable. It should have been clear to Hydro at the time that recommended maximums should be observed and that the advice of the manufacturer should be given serious consideration. Based on the evidence the Board finds imprudence.

The Board will approve the project to replace the fuel oil heat tracing system at the Holyrood Thermal Generating Station. However, because of the Board's finding of imprudence, the recovery of the associated costs will not be allowed at this time. The Board notes that there is

limited evidence on the record in relation to the financial impacts of Hydro's decisions in relation to the heat tracing system. Therefore the Board will not make a determination as to how the costs to replace the heat tracing system should be treated from a regulatory perspective at this time. The Board will deny recovery of all costs associated with the proposed replacement of the heat tracing system and will require Hydro to separate and record these costs in an account, the disposition of which will be considered by the Board should Hydro make subsequent application for recovery of some or all of the associated costs.

Refurbish Fuel Storage Facility, Holyrood - $2,641,200 (2012)

Hydro proposes certain upgrades to Tank 3 at the Fuel Oil Storage Facility at the Holyrood Thermal Generating Station to extend useful life, ensure system reliability, increase the level of safety, and reduce environmental risks with the facility. Hydro reports that the anticipated useful life of the Fuel Storage Facility is 35 years and Tank 3 is now 34 years old. Hydro states that the status quo is not an acceptable option and the existing system has deteriorated components that require upgrading to extend useful life and to ensure compliance with regulatory requirements. Hydro states that the recommended upgrades are expected to extend the useful life of the storage facility by ten years or until it is no longer required.

The scope of the proposed work is to clean, inspect and replace floor plates, paint the floor, install a roof platform, install a fuel oil level indication system and install access steps over the fuel oil and steam piping system. As part of the project it is planned to refurbish/replace a valve which failed on Tank 2 in 2007 and Tank 4 in 2010. Hydro notes that internal tank inspections were completed on the four fuel storage tanks at Holyrood between 1997 and 2005 and repairs were made to extend the life of each tank until more extensive refurbishments could be planned. Hydro reports that, when Tank 3 was inspected in 2003, 195 patches were installed on the tank floor, extending the life of the floor by five to six years. Hydro further reports that repairs were made to the roof plates, bird screens were installed and the exterior was painted. The AITEC inspection report prepared in 2003 recommends opening the tank after six years, cleaning the tank, and if necessary doing a complete floor scan and full API inspection. Hydro states that in the intervening 8 years it is anticipated that more deterioration has occurred. Hydro reports that it plans to propose a similar project in relation to Tank 1 for 2013 thereby reinstating the full storage capacity to reliable condition.

Hydro reports that the plant has 840,000 barrels of fuel storage which includes approximately 100,000 barrels of dead storage. Taking this into account the fuel storage facility can sustain the plant at full output for 43.5 days. Hydro states that tanker supply can be disrupted for various reasons, the most onerous being ice blockage in Conception Bay. Hydro reports that if the storage facility at Holyrood is downgraded to three tanks the total storage capability is reduced to 630,000 barrels, which includes 75,000 barrels of dead storage.

The Industrial Customers submit that a $2,695,000 million capital expenditure for this project is not reasonably justified based on Hydro's planning, which only requires two tanks from 2017 onwards. The Industrial Customers argue that the "risk" period that would be mitigated by this

project is only four years. The Industrial Customers argue that the risk of disruption due to two of the four tanks being out of service at the same time and for an extended term is low and in any event could be mitigated with renegotiation of the existing fuel supply contract. The Industrial Customers point out that there is no past experience of significant disruption of fuel deliveries due to ice in Conception Bay. In relation to the proposed roof platform, access steps and Fuel Oil Level Indication System, the Industrial Customers argue:

(i) there is no evidence that Tank 3 will represent any greater level of safety risk in the next five years than it has in the past 34 years;
(ii) two other tanks would not have the roof platform and fuel oil indication system;
(iii) enhanced safety procedures assessments and training can ensure that the tasks can be performed safely at a fraction of the cost;
(iv) there is no Government directive requiring installation of access steps and no reported safety issues; and
(v) Hydro has not obtained approval under the applicable regulations for the Fuel Oil Level Indication System.

The Consumer Advocate does not comment on this project.

Hydro submits that the generating station is expected to run at sustained high capacity levels in the peak months in several of the years between now and 2017, which requires a very high degree of certainty that at least three of the four tanks will be in operation at all times. Hydro argues that two tank operation of the plant during a time of heavy fuel consumption will result in insufficient storage and ignores the reality that some provision for a tank outage must be maintained. Hydro states that PUB-NLH-16 shows how precarious the operation of Holyrood would be on a two tank basis. Even with fuel deliveries every 2-3 weeks the plant's fuel storage position would be within days of a generation curtailment on numerous occasions during the winter peak generation season. Hydro argues that PUB-NLH-16 shows that at least three tanks must be available to meet its forecast generation needs which, Hydro submits, requires four tanks in good working order. Hydro further states that training, consultation with employees, work practice method changes and physical improvement to plant are all part of the solution and the proposed safety related capital improvements form an essential part to this multidisciplinary approach to providing and sustaining a safe workplace.

The Board notes PUB-NLH-9 where Hydro explains that at least three tanks in reliable condition are required to support generation in the years 2012 to 2016. The Board accepts Hydro's submissions that PUB-NLH-16 shows that Hydro's ability to reliably meet its forecast generation needs is dependent on ensuring that at least three tanks are available. The evidence further shows that, unless an inspection is carried out, it may not be reasonable to conclude that Tank 3 will remain in service for the required period. The last inspection on this tank was carried out in 2003. At the time 195 floor plates were installed and it was recommended that in six years the tank be opened and cleaned and, if necessary, a full inspection be carried out. Hydro has provided evidence that an inspection would require that the tank be drained and cleaned at a cost of $375,000. Given the time that has elapsed since the last inspection and the Board's conclusion that it is reasonable to assume that at least three reliable fuel tanks will be required

for the coming years, the Board will approve the necessary repairs to Tank 3. Hydro has indicated that a large portion of the budget relates to replacing the floor, estimated to be in excess of $1,000,000, and that this is in line with the scope of work that was required for Tank 4 and with the consultant's recommendations. Hydro states that a decision on the final scope of work in relation to the floor will be made after considering the new inspection findings and the latest consultant's recommendations to extend the life of the tank to 2020. The Board will approve the expenditure required to do the necessary work up to the amount requested by Hydro and will require Hydro to file a report justifying the scope of work and the level of expenditure. This report should demonstrate that only work that is necessary to maintain Tank 3 as long as it will be required was carried out.

Upgrade Marine Terminal, Holyrood - $5,859,600 (2012)

Hydro proposes to refurbish the Marine Terminal Facility at the Holyrood Thermal Generating Station to provide life extension to the facility while improving its capability to dock modern vessels. Hydro states that the Marine Terminal Facility is an integral component of the fuel oil handling system and is the single point of entry for the Bunker C fuel oil utilized at Holyrood. Hydro reports that the Marine Terminal Facility was completed during the first construction phase of the Holyrood Thermal Generating Station in 1969. The anticipated useful life of the facility is 35 years and the jetty is 42 years of age.

Hydro states that the primary concern with the Marine Terminal Facility is the inability of the structure to provide a safe docking environment for vessels. Hydro reports that the structure has aged and the condition of the gravity fender system has deteriorated which has resulted in missing, worn and inoperable gravity fenders. Hydro reports that the Marine Terminal Facility has deteriorated to the state where it no longer meets the requirements of the vessels utilizing the facility. The Marine Terminal Facility was originally designed to accommodate 35,000 DWT vessels. The vessels currently available to make deliveries range in size from 46,700 DWT to 71,345 DWT, which creates a significant risk and potential for damage to the Marine Terminal Facility and the vessels as the aged fender system is unable to adequately withstand the forces it is subject to by the larger vessels. Hydro reports challenges with the existing fuel oil offloading system stemming from the limited reach of the existing fuel oil off-loading arms and an outdated coupling system. Hydro reports significantly longer docking times, environmental concerns and additional costs. Hydro submits that there are also life safety concerns primarily related to the presently non-existent man-overboard retrieval/recovery system, limited support vessel access to the Marine Terminal Facility and the lack of an emergency release system for the off-loading arms which would provide vessels with the ability to disconnect and move away in an emergency and inadequate deck lighting.

Hydro explains that the scope of work was generated from the findings of a condition assessment by engineering consultants Hatch, dated April 29, 2011 and includes inspection, assessment, and repairs to the swinging gravity fenders system; replacement of detached swinging gravity fender; modifications to fuel oil offloading components; inspection and assessment of steel casing for pile foundations; inspection, assessment and replacement of anodes and attachment brackets; and

improvements to life safety through installation of devices such as a support vessel access system, a man-overboard recovery system and improvements to the jetty deck lighting system. Hydro says that the scope of work has been refined to address only the essential deficiencies from both a safety and environmental perspective and to extend the service life an additional ten years at which time electrical generation at Holyrood will cease and fuel oil deliveries will not be necessary.

The Industrial Customers submit that the $5,869,000 capital expenditure for this project is not reasonably justified based on Hydro's planning which requires sharply reduced oil deliveries after 2016 and none after 2020. The Industrial Customers note that Hydro has assigned a ranking of 22 to this project which, it is argued, must be taken as Hydro's own assessment that it is a project of low priority. The Industrial Customers submit that the "primary risk" period that would be mitigated by this project is at most only a little over four years. The Industrial Customers note that Hydro implemented repairs to the fenders in 2008 and with annual inspection the fenders have continued to perform for the last three years. It is also noted that Hydro has implemented a revised docking procedure.

The Industrial Customers support the proposed expenditure to install a laser sensor display and recording system to assist in the controlling and recording of vessel velocities. The Industrial Customers submit that approval of the components of the project relating to fender remediation should be deferred until the completion of the further detailed investigation referenced in P2-IC-NLH-31. The Industrial Customers suggest a similar approach with respect to the quick coupler release proposed for the existing loading arms as well as the pile jackets/anodes. The Industrial Customers do not object to the life safety measures outlined in P2-PUB-NLH-37 under the "Lighting Upgrades" and "Install Evacuation Life Raft and Two Fixed Platforms to Allow Vessel Access", provided the Board is satisfied that these are least cost. The Industrial Customers note that in P2-CA-NLH-45 Hydro identifies these life safety measures as higher priority relative to the other components of the project.

The Consumer Advocate notes that the marine terminal is to be de-commissioned after 2020 and, as the Holyrood Thermal Generating Station receives oil deliveries 6 to 7 times a year, the terminal will be used 48 to 56 times before decommissioning. The Consumer Advocate notes that Hydro advises in P2-CA-NLH-9 that the dockings at Holyrood have met the recommendation of Hatch that vessels should be less than 55,000 DWT and 200m. The Consumer Advocate submits that there is no urgency to this project at this time, particularly considering the budget sought as compared to the remaining time for the terminal. The Consumer Advocate suggests that the "man overboard" system and the lighting issue can be addressed individually upon Hydro providing particulars in relation to the costs. The Consumer Advocate states:

> *"The reality is that the current terminal has been in use with its existing issues for a significant amount of time. Even with the loss of gravity fender 4, the facility has continued its operations."* (Consumer Advocate, Submission Phase II, pg. 12)

Hydro submits that it has taken a conservative approach to this facility and notes that the consultant was instructed to complete its condition assessment with a view to those refurbishments that would be necessary to enable the facility to provide only another ten years of service. Hydro submits that it would be imprudent to continue to operate the marine terminal with the fenders in a deteriorating condition. Hydro submits that the threat of catastrophic failure cannot be overlooked on the strength of the potential for the laser sensor display to reduce docking risks. Hydro submits that deferring approval of capital expenditures until all detailed engineering work is completed should be rejected as being impractical. Hydro argues that sufficient engineering information has been obtained and adduced to provide the Board with a level of comfort that the work is needed, has been justified and can proceed prudently to final design.

The Board finds that a conservative approach to capital expenditures in relation to the Marine Terminal Facility is appropriate given the limited expected future use of this facility which Hydro estimates to be in the order of 50 shipments. According to P2-IC-NLH-27, the increasing size of the ships delivering to the Marine Terminal Facility has been an issue since the 1970s and further the use of double hull ships has been an issue since the 1990s. At pg. B14 Hatch states that vessels of less than 55,000 DWT and shorter than 656 feet are able to dock at the jetty as docking is being performed in a controlled manner with a very low velocity. Further Hatch states at pg. B15 of its report that all ships docking at the facility in 2009 and 2010 were near the ideal length for the existing jetty. Hydro states in P2-PUB-NLH-38 that, for the past three years, vessels less than 55,000 DWT and less than 200 m have been delivering fuel and have been assisted by tugs and there have been no incidents related to berthing. The Board notes that over the years there have been delays and interruptions in fuel deliveries for a variety reasons and there have been letters of protest from vessel masters. Hydro has however effectively managed these concerns in the circumstances.

Hydro proposes to replace Fender 4 which detached in 2008. Hydro says in P2-PUB-NLH-37 that there is no viable alternative for the replacement of this fender. The Hatch report does not clearly state that Fender 4 must be replaced though at pg. B19 it states that the detached fender is one of the critical fenders required for safely mooring the vessel alongside the jetty. The Board notes that the scope of Hatch's work in relation to the fenders as set out in its December 23, 2010 letter does not suggest that Hatch addressed the issue of whether it is necessary in the circumstances to make Fender 4 functional. In P2-PUB-NLH-21 and P2-PUB-NLH-23 Hydro states that, after Fender 4 detached, a revised docking procedure was implemented, repairs were made to the remaining fenders, a follow-up inspection was completed in the fall of 2010 to ensure that the fenders present no imminent danger of falling, and an annual inspection is completed each fall. The Board finds that the evidence does not clearly demonstrate it is necessary to replace the detached fender at this time.

Hydro proposes to proceed with the inspection and assessment and repair work at the same time on the fenders, pile foundations and anodes and attachment brackets. However, Hydro would be better able to assess and demonstrate whether Fender 4 needs to be replaced and also provide evidence in relation to the particulars of the work which is necessary on the remaining fenders, the pile foundations and the anodes and attachment brackets after the inspections are carried out.

This would also provide Hydro with a further opportunity to reduce and refine its planned expenditures. In the circumstances the Board finds that Hydro should proceed to conduct the inspections prior to doing any of the work. After the inspections Hydro can apply for approval to do the work which is shown to be necessary in the circumstances. Emergency repairs found to be necessary during the inspection can be done using the contingency fund or by supplementary application. Based on the record it is not possible to determine the costs of carrying out the inspection on the fender system, the pile foundations and anodes and attachment brackets apart from the other work that was proposed. Hydro will therefore have to apply to the Board for approval of these costs. After the completion of the inspections Hydro can apply for approval to proceed with the work which is found to be necessary in relation to the Marine Terminal Facility, including the loading arm, vessel approach and life safety work.

Summary Board Findings: Phase II Projects

The Board will approve the Phase II proposed expenditures in relation to the construction and purchase of improvements or additions to Hydro's property in excess of $50,000, except:

(i) Install Plant Operator Training Simulator Holyrood $1,028,200(2012), $1,072,700 (2013) is not approved;
(ii) Replace Fuel Oil Heat Tracing Holyrood $1,474,300 (2012), $1,413,900 (2013) is approved but Hydro will not be permitted to recover the costs of this project at this time; and
(iii) Upgrade Marine Terminal Holyrood $5,859,600(2012) is not approved.

Future Holyrood Thermal Generating Station Capital Expenditures

Newfoundland Power submits that for all future applications for approval of capital expenditures in relation to the Holyrood Thermal Generating Station Hydro should be required to include an overview providing an updated outlook for the Holyrood plant and justifying the proposed expenditures in the context of that outlook. Newfoundland Power notes that, from 2020 onwards, Holyrood will cease to operate as a generator and will operate in synchronous condenser mode only. Newfoundland Power submits that such a fundamental change in the role and mode of operation of Holyrood has implications for the regulation of capital expenditures. Newfoundland Power argues that the Board must consider the extent to which capital expenditures that might in, the normal course be justified, may be appropriate in the context of a thermal generating plant with a known end-of-life date. Newfoundland Power states:

> *"To assess Holyrood capital expenditure proposals under a variety of possible scenarios, it is necessary to understand which components of the plant are required to be maintained under the various operating scenarios; the relevant considerations regarding the condition of those components; and what are the minimum capital expenditures necessary to ensure the safe, reliable operation of Holyrood in accordance with its changing role and the finite life expectancy of significant components of the plant."* (Newfoundland Power, Submission Phase II, pg. 5)

Newfoundland Power notes the material provided in Phase II provides a high level of detail with respect to the proposed expenditures but lacks any summary overview of the expenditure proposals in the context of Holyrood's evolving role. Newfoundland Power submits that to facilitate reasonable consideration of the volume of Holyrood-related material in future capital expenditure applications Hydro should be required to file a contextual overview of the proposed expenditures. Newfoundland Power submits that the overview should contain the following:

> *"1. an updated outlook regarding anticipated changes in the role of Holyrood on the system;*
> *2. an updated schedule of anticipated changes in Holyrood operations that may reasonably be expected to have an impact on capital expenditure requirements;*
> *3. a summary description of all proposed Holyrood capital projects, including an explanation of how such projects relate to one another and whether such projects may be impacted by decisions yet to be taken regarding Holyrood's role on the system;*
> *4. a summary guide to all internal and external reports filed in support of the capital expenditure proposals, summarizing alternatives considered and recommendations made; and*
> *5. an explanation of the necessity of all proposed capital expenditures in the context of the anticipated changes in Holyrood operations."* (Newfoundland Power, Submission Phase II, pg. 8)

In its submission Hydro accepts that, due to the crucial yet evolving role of Holyrood in Hydro's system and the technical and regulatory complexities that this implies, Holyrood should be treated with special attention in future capital budgets so that the consideration of Holyrood related projects can be more readily and comprehensively assessed.

The Board agrees with Newfoundland Power's suggestion that an overview may assist the evaluation of capital expenditure proposals in relation to the Holyrood Thermal Generating Station. The Board accepts Newfoundland Power's suggestions as to what should be included in this overview with the proviso that the Industrial Customers and the Consumer Advocate are provided an opportunity to comment as to the specific content of this overview. As such the Board will order Hydro to file an overview in relation to proposed capital expenditures for the Holyrood Thermal Generating Station in its 2013 Capital Budget Application which reflects the reasonable suggestions of Newfoundland Power, the Industrial Customers and the Consumer Advocate.

III. 2012 CAPITAL BUDGET

In Order No. P.U. 2 (2012) the Board approved the 2012 projects proposed by Hydro in Phase I of its 2012 Capital Budget Application. In the within Order the Board will approve 2012 projects proposed by Hydro in Phase II of its 2012 Capital Budget Application. With the conclusion of Phase I and Phase II the Board will now approve Hydro's 2012 Capital Budget in accordance with ss. 41(1) of the *Act*. Hydro's 2012 Capital Budget for improvement and additions to its property will be approved in the amount of $76,992,300, which includes the expenditures approved in Phase I and Phase II, the Allowance for Unforeseen Items, and projects under $50,000.

IV. CLAIM FOR COSTS

In Order No. P.U. 2 (2012) the Board determined that an award of costs to the Industrial Customers in relation to Hydro's 2012 Capital Budget Application is appropriate and directed the Industrial Customers to submit a bill of costs to the Board for its consideration. The Board found that the participation of the Industrial Customers contributed to the Board's understanding of the issues in Phase II and therefore the Industrial Customers will also be awarded costs in relation to Phase II of Hydro's 2012 Capital Budget Application, in accordance with s. 90 of the *Act*. The Industrial Customers will be required to submit a bill of costs to the Board for both Phase I and Phase II for its consideration.

V ORDER

IT IS THEREFORE ORDERED THAT:

1. **As set out in Schedule A, Hydro's proposed construction and purchase of improvements or additions to its property in excess of $50,000 to be completed in 2012 are approved, except:**
    a. **Upgrade Marine Terminal, Holyrood $5,859,600(2012) is not approved.**

2. **As set out in Schedule B, Hydro's proposed multi-year construction and purchase of improvements or additions to its property in excess of $50,000 are approved, except:**
    a. **Install Plant Operator Training Simulator, Holyrood $1,028,200(2012) $1,072,700 (2013) is not approved; and**
    b. **Replace Fuel Oil Heat Tracing, Holyrood $1,474,300, (2012) $1,413,900 (2013) is approved but, unless otherwise ordered by the Board, Hydro is not permitted to recover the costs of this project.**

3. **As set out in Schedule C, Hydro's 2012 Capital Budget for improvements or additions to its property in the amount of $76,992,300 is approved.**

4. **Unless otherwise directed by the Board Hydro shall file, in conjunction with the 2013 Capital Budget Application, an overview in relation to the proposed capital expenditures for the Holyrood Thermal Generating Station.**

5. **Unless otherwise directed by the Board Hydro shall file an annual report with the Board in relation to its 2012 capital expenditures by March 1, 2013, including the report in relation to expenditures to Refurbish the Fuel Storage Facility at the Holyrood Thermal Generating Station.**

6. **Unless otherwise directed by the Board Hydro shall file, in conjunction with its 2013 Capital Budget Application, a status report on the 2012 capital expenditures.**

7. **The Industrial Customers are entitled to an award of costs in an amount to be fixed by the Board.**

8. **Hydro shall pay all costs and expenses of the Board incurred in connection with the Application.**

Dated at St. John's, Newfoundland and Labrador this 10th day of February, 2012.

Darlene Whalen, P.Eng.
Vice-Chair

Dwanda Newman, LL.B.
Commissioner

James Oxford
Commissioner

Cheryl Blundon
Board Secretary

Schedule A

ORDER No. P. U. 5(2012)

Single Year Projects over $50,000

ISSUED: FEBRUARY 10, 2012

NEWFOUNDLAND AND LABRADOR HYDRO
2012 CAPITAL BUDGET - PHASE II
SINGLE YEAR PROJECTS OVER $50,000

PROJECT DESCRIPTION	2012
Generation	
THERMAL PLANT	
Refurbish Fuel Storage Facility - Holyrood[1]	2,641,200
Upgrade Stack Breaching Unit 1 - Holyrood[1]	1,522,300
Upgrade Stack Breaching Unit 2 - Holyrood	1,505,100
Upgrade Forced Draft Fan Ductwork Unit 2 - Holyrood	928,600
Replace Beta Attenuation Monitoring Analyzers - Holyrood	160,900
TOTAL GENERATION	6,758,100
Major Overhauls and Inspections	
MAJOR OVERHAULS AND INSPECTIONS	
Overhaul Unit 1 Turbine - Holyrood	4,193,100
Condition Assessment and Life Extension Phase 2 - Holyrood	1,215,700
TOTAL MAJOR OVERHAULS AND INSPECTIONS	5,408,800
TOTAL PHASE II SINGLE YEAR PROJECTS OVER $50,000	**12,166,900**

[1] As per Order No. P.U. 20(2011) where the Board decided that capital budget proposals for the refurbishment of Tank 3 at the fuel oil storage facility and the remaining work for the Unit 1 stack breeching should be considered in the Phase II review of Hydro's 2012 Capital Budget Application.

Schedule B

ORDER No. P. U. 5(2012)

Multi-year projects over $50,000

ISSUED: FEBRUARY 10, 2012

NEWFOUNDLAND AND LABRADOR HYDRO
2012 CAPITAL BUDGET - PHASE II
PROJECTS OVER $50,000
MULTI-YEAR PROJECTS
($000)

Multi-year Projects Commencing in 2012

PROJECT DESCRIPTION	2012	2013	2014	2015	2016	Total
Rewind Generator Units 1 and 2 - Holyrood	112,200	1,107,600	4,885,700	5,795,700		11,901,200
Replace Fuel Oil Heat Tracing - Holyrood*	1,474,300	1,413,900				2,888,200
TOTAL PHASE II MULTI YEAR PROJECTS OVER $50,000 COMMENCING 2012	**1,586,500**	**2,521,500**	**4,885,700**	**5,795,700**	**0.0**	**14,789,400**

* The project is approved but Hydro is not permitted to recover the costs of this project unless otherwise ordered by the Board.

Schedule C

ORDER No. P. U. 5(2012)

2012 CAPITAL BUDGET

ISSUED: FEBRUARY 10, 2012

NEWFOUNDLAND AND LABRADOR HYDRO

2012 CAPITAL BUDGET

Phase I [Order P.U. 2(2012)]	$61,495,000
Phase II	13,753,400[1]
Projects under $50,000[2]	743,900
Allowance for Unforeseen Items	1,000,000
	$76,992,300

[1] Includes 2012 expenditures to Replace Fuel Oil Heat Tracing at the Holyrood Thermal Generating Station in the amount of $1,474,300 but Hydro is not permitted to recover the costs of this project unless otherwise ordered by the Board.

[2] Approval of projects under $50,000 is not required but these expenditures are part of the 2012 Capital Budget.

Newfoundland & Labrador
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