

P.U. 15 (2002-2003)

IN THE MATTER OF the
Public Utilities Act, (“the Act”)

AND

IN THE MATTER OF an
Application by Newfoundland
Power Inc. (the “Applicant”) for
approval to proceed with the
construction and purchase of
certain improvements to its
property pursuant to Section 41 (3)
of the Act.

WHEREAS the Applicant is a corporation duly organized and existing under the laws of the Province of Newfoundland and Labrador, is a public utility within the meaning of the Act, and is also subject to the provisions of the *Electrical Power Control Act, 1994*; and

WHEREAS due to the configuration of the electrical system on the Burin Peninsula, a failure of the 138 kV – 66 kV system transformer at the Salt Pond Substation (the “System Transformer”) results in a power outage for all of the Applicant’s Burin Peninsula customers south of the substation; and

WHEREAS until the System Transformer is returned to service, or is replaced with another transformer, electrical service to customers must be supplied from the gas turbine generators at Salt Pond or Greenhill; and

WHEREAS on April 19, 2002 the Applicant experienced a failure of the System Transformer and the Applicant initiated restoration of service by utilizing the gas turbine generators at Salt Pond and Greenhill; however, due to difficulties in bringing the Greenhill unit on-line, service restoration was delayed; and

WHEREAS the Applicant subsequently installed a portable power transformer at Salt Pond; and

WHEREAS on May 11, 2002 the Applicant experienced a failure of the portable power transformer at its Salt Pond Substation and the Applicant again initiated restoration of service by utilizing the gas turbine generators at Salt Pond and Greenhill and difficulties with the Greenhill unit again delayed service restoration; and

WHEREAS the Applicant subsequently installed a second portable power transformer at Salt Pond; and

WHEREAS as a consequence of the difficulties experienced in restoring service to customers on the Burin Peninsula during these incidents, the Applicant conducted a review of the Burin Peninsula electrical system (the "Burin Peninsula Engineering Review"); and

WHEREAS a report of the findings of the Burin Peninsula Engineering Review was submitted as Schedule "A" to the Application; and

WHEREAS the review identified certain deficiencies in the Burin Peninsula electrical system which the Applicant proposes to correct by undertaking the following initiatives:

- (a) Purchase and install a second system transformer at the Salt Pond Substation at an estimated cost of \$2,000,000, thus providing an additional measure of redundancy in the electrical system; and

- (b) Refurbish the Greenhill gas turbine generator at an estimated cost of \$350,000 to improve the generator's reliability as a backup power supply; and

WHEREAS in Order No. P. U. 21 (2001-2002) the Board approved expenditures of \$1,605,000 for replacement and spare substation equipment; and

WHEREAS the estimated total cost to repair the System Transformer and portable transformer that failed in service at the Salt Pond Substation is \$870,000, and this expenditure will require a corresponding increase to the Replacement and Spare Substation Equipment budget category; and

WHEREAS the proposed expenditures are necessary for the Applicant to provide service and facilities which are reasonably safe and adequate and just and reasonable as required pursuant to s. 37 of the Act.

IT IS THEREFORE ORDERED THAT:

Pursuant to Section 41 (3) of the Act, the Board approves:

1. The construction projects and capital purchases in excess of \$50,000, as set forth in Appendix "A" attached hereto.
2. The revised 2002 capital budget as set forth in Appendix "B" attached hereto.

DATED at St. John's, Newfoundland and Labrador this 9th day of July 2002.

Darlene Whalen, P.Eng.,
Vice-Chairperson.

G. Fred Saunders,
Commissioner.

G. Cheryl Blundon,
Board Secretary.

PURCHASE POWER TRANSFORMER

Project Cost

\$2,000,000

Nature of Project

This project is necessary for the installation of a second system transformer for the Salt Pond Substation. The cost includes the purchase and installation of the transformer as well as the necessary modifications to the Salt Pond Substation to facilitate its installation.

Customer Impact

This project will improve the reliability and security of the electrical supply for customers serviced by the 66kV transmission system on the Burin Peninsula through the provision of a second system transformer at the Salt Pond Substation. The second transformer would also be available to be relocated in the event of the failure of a system transformer at another location.

Project Justification

The existing system transformer at the Salt Pond Substation is 30 years old and experienced a failure in April 2002. At that time, a portable transformer was installed until the system transformer was repaired and returned to service.

In May 2002, the portable transformer installed at the Salt Pond Substation also failed in service. The failure of the system transformer at the Salt Pond Substation and the subsequent failure of the portable transformer demonstrated the vulnerability of the entire Burin Peninsula 66kV transmission system to the contingency of transformer failure. Because of the configuration of the Burin Peninsula 66 kV transmission system, a system transformer failure at Salt Pond Substation will result in a power interruption to all customers located south of the substation.

The Company recently undertook a review of the Burin Peninsula electrical system. A report of the findings of the review is attached to the Application as Schedule "A". One of the recommendations in the report is the addition of a second system transformer at the Salt Pond Substation. A second system transformer in that location will provide the additional security required to ensure that a failure of the system transformer does not result in an extended outage to customers.

PURCHASE POWER TRANSFORMER (Cont'd)

The Company will ensure this project is completed at the lowest possible cost consistent with reliable service. All material and contract labour will be obtained through competitive tendering.

Invitations to tender for the supply of the transformer will be extended to major transformer suppliers VA Tech Escher Wyss Canada, Carte International, Pioneer Transformers, ABB, Pauwel Transformers and Maloney Transformer.

Future Commitments

None.

REFURBISH GREENHILL GAS TURBINE

Project Cost

\$350,000

Nature of Project

This project is necessary to upgrade and refurbish the Greenhill Gas Turbine so as to improve the generator's reliability as a backup power supply. The project will consist of:

- (a) reinstallation and realignment of the power turbine to reduce overall vibration levels;
- (b) installation of a new vibration monitoring system into the unit's protection and control scheme;
- (c) installation of a new cooling ventilation system to lower the lube oil room temperature;
- (d) refurbishment and upgrading of the glycol cooler;
- (e) replacement of all exhaust gas temperature monitoring thermocouples; and
- (f) replacement of all lube oil and bearing temperature monitoring thermocouples.

Customer Impact

This project will decrease service restoration time and improve service reliability for customers on the Burin Peninsula. The project will ensure the Greenhill Gas Turbine is readily available to operate as an emergency backup generator to supply customers on the Burin Peninsula in the event of the loss of normal power supply.

Project Justification

The Greenhill Gas Turbine is a 25MW generator located at Grand Bank on the Burin Peninsula. It is used primarily as a backup power supply to the Burin Peninsula during emergency situations when the normal power supply is interrupted. The generator is also available for purposes of system capacity during peak load periods.

The Greenhill Gas Turbine was used extensively during the power interruptions associated with loss of the power transformer at the Salt Pond Substation on the Burin Peninsula in April and May of 2002. The operation of the generator during this time resulted in the identification of a number of problems that impacted the reliability and capacity of the unit.

The Company recently undertook a review of the Burin Peninsula electrical system. A report of the findings of the review is attached to the Application as Schedule "A". The report identifies a number of factors that contributed to the problems experienced with the unit's operation. These are: (1) the "black start" capability of the unit; (2) the amount of vibration present in the unit

REFURBISH GREENHILL GAS TURBINE (Cont'd)

when it is running under full load; and (3) deficiencies in the unit's temperature monitoring and cooling systems.

The problem with the black start capability of the unit is being addressed through the addition of an auxiliary power unit, already scheduled for installation as part of the Company's 2002 capital program.

To address the other identified deficiencies in the Greenhill Gas Turbine, and to improve its reliability as an emergency backup power supply to customers on the Burin Peninsula, this project will implement the specific recommendations contained in the report attached as Schedule "A" to the Application.

This project will ensure the continued operation of the Greenhill Gas Turbine in a safe and reliable manner. This plant is used to provide emergency power during system problems and to support the system peak when required.

An alternative to maintaining this facility would be to retire it. The facility currently provides approximately 25 MW of backup generation capacity. Replacement of this capacity would cost in excess of \$1,000,000 per MW utilizing existing sites. Therefore, the replacement cost of the facility would be approximately \$25,000,000.

The Company will ensure this project is completed at the lowest possible cost consistent with reliable service. All material and contract labour will be obtained through competitive tendering.

Future Commitments

None.

REPLACEMENT AND SPARE SUBSTATION EQUIPMENT

Project Cost

<u>Original Budget</u>	<u>Revised Budget</u>	<u>Increase</u>
\$1,605,000	\$2,475,000	\$870,000

Nature of Project

This project is necessary for the replacement of obsolete and/or unreliable electrical equipment, the maintenance of the appropriate levels of spare equipment and the repair of electrical equipment due to failure.

Customer Impact

This project provides for the ready availability of spare or replacement equipment to facilitate restoration of service following failure of a major component of the electrical equipment infrastructure.

Project Justification

The cost of this project is justified based on the need to replace equipment to restore and maintain service. The budget estimate is based on equipment inspections and historical replacement requirements, as well as on assessments of the current stock of spare equipment.

The Company recently experienced two significant electrical equipment failures that were not anticipated at the time the 2002 capital budget was prepared. The system transformer at the Salt Pond Substation required repairs of approximately \$170,000 and the Company's 50 MVA portable power transformer is currently undergoing repair at an estimated cost of \$700,000. These capital expenditures are in addition to those included in the original capital budget and as a result will require a corresponding increase to this budget category.

The Company will ensure this project is completed at the lowest possible cost consistent with reliable service.

Future Commitments

None

Newfoundland Power Inc.
2002 Capital Budget
Budget Summary
(000s)

	Approved By Order No. P.U. 21 (2001-2002)	Proposed Changes	Revised Budget
Energy Supply	\$ 7,173	\$ 350	\$ 7,523
Substations	4,477	2,870	7,347
Transmission	2,861	-	2,861
Distribution	27,188	-	27,188
General Property	1,420	-	1,420
Transportation	2,200	-	2,200
Telecommunications	502	-	502
Information Systems	6,298	-	6,298
General Expenses Capital	2,500	-	2,500
Total	<u>\$ 54,619</u>	<u>\$ 3,220</u>	<u>\$ 57,839</u>