P.U. 30 (2001-2002)

IN THE MATTER OF the Public Utilities Act, R.S.N. 1990, Chapter P-47, ("the Act@);

AND

IN THE MATTER OF an application by Newfoundland and Labrador Hydro (the "Applicant") for approvals of: (1) Under Section 70 of the Act, changes in the rates to be charged for the supply of power and energy to its retail customer, Newfoundland Power, its Rural Customers and its Industrial Customers; (2) Under Section 71 of the Act, its rules and regulations applicable to the supply of electricity to its Rural Customers; (3) Under Section 71 of the Act, the contracts setting out the terms and conditions applicable to the supply of electricity to its industrial customers; and (4) Under Section 41 of the Act, its 2002 Capital Budget

AND

IN THE MATTER OF an application by the Applicant for approval of certain projects in its 2002 proposed capital budget filed as part of the May 31, 2001 application **AND** for an order extending the interim rates charged Industrial Customers pursuant to Order Nos. P.U. 23 (1999-2000) and. P.U. 25 (2000-2001)

WHEREAS Section 41(1) of the Act requires that a public utility submit an annual capital budget of proposed improvements or additions to its property to the Board of Commissioners of Public Utilities (the "Board") for approval not later than the 15th day of December in each year for the next calendar year; and

WHEREAS Section 41(2) of the Act requires that the budget shall contain an estimate of future required expenditures on improvements or additions to the property of the public utility that will not be completed in the next calendar year; and

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

(a) the cost of the construction or purchase is in excess of $50,000; or

(b) the cost of the lease is in excess of $5,000 in a year of the lease

without the prior approval of the Board; and

WHEREAS on May 31, 2001 the Applicant filed an application requesting an Order of the Board to, *inter alia*, (1) set the rates to be charged Newfoundland Power, Rural Customers and Industrial Customers, to be effective January 1, 2002 and (2) approve the Applicant's 2002 Capital Budget; and

WHEREAS the Applicant provided details of its proposed 2002 Capital Budget in Section A of the May 31, 2001 application; and

WHEREAS the Applicant provided explanations of its proposed 2002 construction projects and capital purchases in excess of $50,000 in Sections B and C of the May 31, 2001 application; and

WHEREAS the public hearing with respect the May 31, 2001 application commenced on September 24, 2001 and is continuing as of this date and a final order from the Board is not expected until after January 2002; and

WHEREAS the intervenors in this hearing are Newfoundland Power, Industrial Customers, Consumer Advocate, Town of Labrador City, and the Town of Happy Valley- Goose Bay; and

WHEREAS on November 20, 2001 the Applicant filed with the Board an application requesting (i) approval of certain projects in the proposed 202 Capital Budget filed as part of the general rate application and (ii) an order extending the interim rates charged Industrial Customers pursuant to Order Nos. P.U. 23 (1999-2000) and P.U. 25 (2000-2001) until such time as the Board issues a final Order in the proceeding currently underway; and

WHEREAS the November 20, 2001 application indicated that discussions with counsel for the parties had taken place and that consenting to the hearing of this application seeking approval for those 2002 capital projects to which no party objected would be without prejudice to the other parties' right to address argument on (i) the sufficiency of the documentation supplied to support a capital project generally or the principles and procedures applied in the capital budget process and (ii) an adjustment to reflect the Applicant's past capital spending practice; and

WHEREAS Newfoundland Power, the Industrial Customers, the Consumer Advocate and Board Counsel filed replies to the November 20, 2001 application; and

WHEREAS the replies filed indicated certain projects that the parties objected to and accordingly the Applicant is not seeking approval of these projects as part of this application; and

WHEREAS the Board heard from the parties during the hearing on December 11, 2001 and has carefully considered the submissions and the evidence on the Capital Budget to date.

IT IS HEREBY ORDERED THAT:

1. The Applicant's proposed 2002 construction projects and capital purchases in excess of $50,000, as set out in Appendix "A" hereto, are hereby approved. This approval is granted without prejudice to the parties' right to address argument on (i) the sufficiency of the documentation supplied to support a capital project generally or the principles and

procedures applied in the Capital Budget process and (ii) an adjustment to the 2002 Capital Budget to reflect the Applicant's past capital spending practice.

2. The interim rates for the Industrial Customers approved by Order Nos. P.U. 23 (1999-2000) and P.U. 25 (2000-2001) are hereby extended until such time as the Board issues a final Order revising these rates.

DATED at St. John's, Newfoundland, this 20th day of December 2001.

Robert Noseworthy,
Chair & Chief Executive Officer.

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

G. Fred Saunders,
Commissioner.

Don R. Powell, C.A.,
Commissioner.

G. Cheryl Blundon,
Director of Corporate Services and
Board Secretary.

NEWFOUNDLAND AND LABRADOR HYDRO

2002 Capital Budget

Projects approved as per Order No. P.U. 30 (2001-2002)
Dated: December 20, 2001

Page		Description
B-8	**GENERATION**	Replace Unit 1 Exciter – Cat Arm (Previous $13,000; $863,000)
B -9	**GENERATION:**	Replace Hanlon 1301 Fire Protection System for Generation System ($697,000)
B-11	**GENERATION:**	Replace Governor Controls – Upper Salmon ($606,000)
B-12	**GENERATION:**	Replace Piping Surge Tank 3 – Bay D' Espoir ($326,000)
B-13	**GENERATION:**	Upgrade Controls on Spherical Value # 5 – Bay d'Espoir ($153,000)
B-20	**GENERATION:**	Upgrade Oil Systems for Fire Protection
B-24	**TRANSMISSION:**	Replace Instrument Transformers/Surge Arrestors-Central ($71,000)
B-26	**TRANSMISSION:**	Upgrade – TL227 – (69kV Berry Hill – Daniel's Harbour) ($496,000)
B-27	**TRANSMISSION:**	Replacement of Insulators – TL226 (69kV Deer Lake Berry Hill) ($224,000)
B-28	**TRANSMISSION:**	Replacement of Insulators – TL229 (69kV Wiltondale–Glenburnie)($145,000)
B-29	**TRANSMISSION:**	Replacement of Insulators–TL211 (230kV Massey Drive-Bottom Brook) ($570,000)
B-30	**TRANSMISSION:**	Replacement of Insulators – TL 228 (230kV Buchans-Massey Drive) ($450,000)
B-33	**TRANSMISSION:**	Purchase and Install Breaker Failure Protection Addition – Bottom Brook, Western Avalon & Holyrood ($229,000)
B-35	**RURAL SYSTEMS:**	Provide Service Extensions-Central, Northern and Labrador ($981,000)
B-36	**RURAL SYSTEMS:**	Upgrade Distribution Systems-Central, Northern and Labrador ($1,330,000)
B-37	**RURAL SYSTEMS:**	Replace Poles-South Brook and King's Point System (Previous $26,000; $173,000)
B-38	**RURAL SYSTEMS:**	Replace Insulators – English Harbour West ($669,000)
B-39	**RURAL SYSTEMS:**	Replace Insulators – South Brook Distribution System ($317,000)
B-40	**RURAL SYSTEMS:**	Replace Conductor/Poles – Burgeo ($300,000)
B-41	**RURAL SYSTEMS:**	Purchase & Install Voltage Regulators – Barachoix ($112,000)
B-42	**RURAL SYSTSMS:**	Replace Transformers – Burlington Substation ($149,000)
B-43	**RURAL SYSTEMS:**	Replace 136kW Diesel Unit No 278 – McCallum (Previous $220,000; $56,000)
B-44	**RURAL SYSTEMS:**	Replace 250kW Diesel Unit No. 2027–McCallum (Previous $209,000; $55,000)
B-45	**RURAL SYSTEMS:**	Replace 136kW Diesel Unit No. 279-Grey River (Previous $11,000; $297,000)
B-47	**RURAL SYSTEMS:**	Replace 75kW Diesel Unit No. 252 – Petites (Previous $36,000; $238,000)
B-48	**RURAL SYSTEMS:**	Upgrade Distribution Lines – St. Anthony Distribution System ($206,000)
B-49	**RURAL SYSTEMS:**	Relocation of Line – Cook's Harbour ($556,000)
B-50	**RURAL SYSTEMS:**	Replace Corroded Transformers – Northern ($276,000)
B-51	**RURAL SYSTEMS:**	Upgrade Distribution Line – Goose Cove ($87,000)
B-52	**RURAL SYSTEMS:**	Replace 136kV Diesel Unit No.266–William's Harbour ($11,000;Future $288,000)
B-53	**RURAL SYSTEMS:**	Replace 300 kW Diesel Unite No. 288-Black Tickle (Previous $11,000; $318,000)
B-54	**RURAL SYSTEMS:**	Replace 250 kW Diesel Unit No. 293 – Rigolet (Previous $11,000; $301,000)
B-55	**RURAL SYSTEMS:**	Upgrade – Fuel Storage – Nain ($339,000)
B-56	**RURAL SYSTEMS:**	Purchase and Install Fire Alarm System – Black Tickle ($50,000)
B-58	**RURAL SYSTEMS:**	Upgrade Diesel Plant – St. Lewis ($59,000; Future $769,000)
B-59	**RURAL SYSTEMS:**	Purchase Meters and Equipment – TRO System ($172,000)
B-65	**GENERAL PROPERTIES:**	Replace Power Line Equipment – Transmission System – West Coast (Previous $300,000; $651,000' Future $1,428,000)
B-70	**GENERAL PROPERTIES:**	Replace Remote Terminal Unit for Hydro – Phase 3 ($311,000)
B-73	**GENERAL PROPERTIES:**	Replace Telephone Isolation Equipment-Sunnyside & Western Avalon ($52,000)
B-75	**TRANSMISSION:**	Upgrade TL262 (69kV Daniels Harbour – Peter's Barren) (Previous $323,000' $367,000)

NEWFOUNDLAND AND LABRADOR HYDRO

2002 Capital Budget

Projects approved as per Order No. P.U. 30 (2001-2002)
Dated: December 20, 2001

Page		Description
C-11	**TRANSMISSION**	Upgrade TL242 (230kV Holyrood-Hardwoods) (Previous $461,000; $8,525,000)
C-12	**TRANSMISSION**	Upgrade TL236 (230kV Hardwoods-Oxen Pond) (Previous $170,000; $5,110,000)
C-13	**TRANSMISSION**	Uprate of TL203 (230kV Sunnyside-Western Avalon) ($15,000; Future years $192,000)

GENERATION:

Replace Unit 1 Exciter - Cat Arm (Previous $13,000; $863,000)

Nature of Project
This project (as previously approved by the PUB) involves the purchase, installation and commissioning of a new static exciter for Cat Arm Unit 1. The original exciter was installed in 1984 and is no longer supported by the equipment manufacturer. Critical spare parts for the existing exciter are not available from the manufacturer.

Customer Impact
Failure to complete this work will result in increased unit unavailability, thus impacting power supply to our customers.

Cost Benefit Study
A formal cost benefit study was not required.

Future Commitments
This is a two-year project. The engineering will be completed in 2001 and installation will be completed in 2002. There are no future commitments.

GENERATION:

Replace Halon 1301 Fire Protection Systems for Generation System ($697,000)

Nature of Project
This project involves the replacement of all remaining halon fire suppression systems in accordance with Hydro's *Strategic Plan for Phase-Out and Replacement of Halons*. (This plan was prepared as a requirement of the provincial *Ozone Depleting Substance Regulations* and has been approved by the provincial Department of Environment and Labour). Phase 1 of the program was completed in 2000 and Phase 2 is being implemented in 2001. The remaining systems are scheduled for replacement in the third and final phase of the program in 2002. Replacement fire protection systems will meet criteria for performance, health and safety, and environmental acceptability and shall include new control, alarm and detection devices where necessary.

Customer Impact
There is no direct customer impact.

Cost Benefit Study
A formal cost benefit study was not required.

Future Commitments
There are no future commitments, this project will be completed in 2002.

GENERATION:

Replace Governor Controls - Upper Salmon ($606,000)

Nature of Project
This project involves the replacement of Woodward governor controls at the Upper Salmon Generating Plant that was commissioned in 1982. A product rationalization by the manufacturer has determined that they are unable to support this version due to a lack of spare parts.

Customer Impact
The loss of the governor will cause extended generator outage and may impact the supply of power to Hydro's customers.

Cost Benefit Study
A formal cost benefit study was not required.

Future Commitments
There are no future commitments, this project will be completed in 2002.

GENERATION:

Replace Piping Surge Tank 3 - Bay d'Espoir ($326,000)

Nature of Project
This project involves the replacement of the existing hot water piping system on Surge Tank No. 3 at Bay d'Espoir. The work consists of the replacement of the piping, insulation, distribution ring and the protective weather housing. The purpose of the hot water system is to prevent ice pan formation in the surge tanks which can cause severe turbine/penstock damage.

Customer Impact
Failure to perform this work will result in prolonged damage to the penstocks and the generating equipment, Units 5 and 6, at the Bay d'Espoir plant due to the inability of the equipment to absorb excessive hydraulic surges. This would result in a prolonged outage and hence higher cost to consumers.

Cost Benefit Study
A formal cost benefit study is not required.

Future Commitments
There are no future commitments, this project will be completed in 2002.

GENERATION:

Upgrade Controls on Spherical Valve #5 - Bay d'Espoir ($153,000)

Nature of Project
This project involves the replacement of obsolete equipment in the Bay d'Espoir Unit #5 spherical valve control system. The work on this unit consists of replacement of main servomotor 4-way valve, pilot valves, controls piping, and replacement of mechanical controls with a new Program Logic Controller.

Customer Impact
Failure to perform this work could adversely affect the operation and availability of the unit and impact the supply of power to Hydro's customers.

Cost Benefit Study
A formal cost benefit study was not required.

Future Commitments
There are no future commitments, this project will be completed in 2002.

GENERATION:

Upgrade Oil Systems for Fire Protection on Unit No. 3 - Holyrood ($225,000)

Nature of Project
This project involves the installation of containment dykes and the upgrade of sprinkler piping on Unit No. 3 lube oil, seal oil, and heavy oil systems, as recommended by Hydro's Insurers. Completion of this project will contain potential oil spills, and prevent spread of any resulting fire between major equipment and units.

Customer Impact
Failure to complete this work could result in major property damage and the interruption of power supply to Hydro's customers.

Cost Benefit Study
A formal cost benefit study was not required.

Future Commitments
There are no future commitments, this project will be completed in 2002.

TRANSMISSION:

Replace Instrument Transformers/Surge Arrestors - Central ($71,000)

Nature of Project
This project involves the replacement of instrument transformers / surge arrestors. Each year a number of high voltage current and potential transformers and surge arrestors are required to be replaced. These units are identified for replacement either through field tests, which indicate that failure is imminent, or by actual failure in service.

Customer Impact
Failure to complete this work could result in the interruption of power supply to Hydro's customers.

Cost Benefit Study
A formal cost benefit study was not required.

Future Commitments
This is a yearly allotment which will be adjusted from year to year depending on historic information.

TRANSMISSION:

Upgrade - TL227 - (69kV Berry Hill - Daniel's Harbour) ($496,000)

Nature of Project
This project is the second phase of a program to upgrade TL227 on the Great Northern Peninsula.

This 85 km, 30-year-old 69kV line from Berry Hill Terminal Station to Daniel's Harbour Terminal Station operates in a severe salt spray environment. An investigation of this line identified 25 kilometers requiring upgrading. 15km of line upgrading was approved in Hydro's 2001 Capital Budget, including the replacement of 680 suspension insulators and 543 post insulators. The 2002 project will involve upgrading 10km of this line, and the replacement of 219 insulators, 74 poles, and 10 km of conductor. TL 227 has a total of 5,400 suspension and 3,100 post type insulators.

From 1995 to 2000 this line experienced two (2) momentary outages of less than one minute and 25 sustained outages of greater than one minute.

Customer Impact
Failure to complete this work could result in the interruption of power supply to Hydro's customers.

Cost Benefit Study
A formal cost benefit study was not required.

Future Commitments
There are no future commitments, this project will be completed in 2002.

TRANSMISSION:

Replacement of Insulators - TL226 (69kV Deer Lake - Berry Hill) ($224,000)

Nature of Project
This project involves the replacement of insulators on a 78 km, 30-year-old 69kV line from Deer Lake Terminal Station to Berry Hill Terminal Station. The predominant outage causes on this line are high winds and defective equipment.

Approximately 65 outages were experienced between 1990 and 1999; 16 were caused by defective insulators; and high winds accounted for an additional 16 outages. The majority of the insulator failures was on the dead-end and angle structures. The total insulators on this line are 5,400 suspension and 2,200 post type. This project will replace 2000 suspension insulators in critical areas.

Customer Impact
Failure to complete this work could result in the interruption of power supply to Hydro's customers.

Cost Benefit Study
A formal cost benefit study was not required.

Future Commitments
This project will be completed in 2002, however the investigation into the outages due to high winds may result in future commitments.

TRANSMISSION:

Replacement of Insulators - TL229 (69kV Wiltondale - Glenburnie) ($145,000)

Nature of Project
This project involves the replacement of insulators on this 35 km, 25-year-old 69 kV line from Glenburnie Terminal Station to Wiltondale Terminal Station. An insulator inspection and testing program demonstrated deteriorating insulator conditions that will result in mechanical stress failures. This line has a total of 2,100 suspension and 735 post type insulators. This project will
* replace *150* insulators.

Customer Impact
Failure to complete this work could result in the interruption of power supply to Hydro's customers.

Cost Benefit Study
A formal cost benefit study was not required.

Future Commitments
There are no future commitments, this project will be completed in 2002.

TRANSMISSION:

Replacement of Insulators - TL211 (230kV Massey Drive - Bottom Brook) ($570,000)

Nature of Project
This project involves the replacement of insulators on the 56 km, 34-year-old 230 kV line from Massey Drive Terminal Station to Bottom Brook Terminal Station. In 2000 an inspection and testing program on a 6% sampling of insulators revealed an increase in defective insulators. These Canadian Ohio Brass (COB) insulators manufactured prior to 1974, experience failures due to cement growth causing radial cracks leading to moisture ingress. This project will replace all 6700 insulators.

Customer Impact
Failure to complete this work could result in the interruption of power supply to Hydro's customers.

Cost Benefit Study
A formal cost benefit study was not required.

Future Commitments
There are no future commitments, this project will be completed in 2002.

TRANSMISSION:

Replacement of Insulators - TL228 (230kV Buchans - Massey Drive) ($450,000)

Nature of Project
This project involves the replacement of insulators on the 85 km, 34-year-old 230 kV line from Buchans Terminal Station to Massey Drive Terminal Station. In 2000 an insulator inspection and testing program on a 20% sampling revealed a failure rate of 10% in defective insulators. These Canadian Ohio Brass (COB) insulators manufactured prior to 1974 experience failures due to cement growth causing radial cracks leading to moisture ingress. This project will replace 3,700 insulators, which completes a total replacement program of 13,500 insulators.

Customer Impact
Failure to complete this work could result in the interruption of power supply to Hydro's customers.

Cost Benefit Study
A formal cost benefit study was not required.

Future Commitments
There are no future commitments, this project will be completed in 2002.

TRANSMISSION:

Purchase and Install Breaker Failure Protection Addition - Bottom Brook, Western Avalon & Holyrood ($229,000)

Nature of Project
This project involves the purchase and installation of a 138 kV breaker failure protection at Bottom Brook, Western Avalon and Holyrood Terminal Stations. This is comprised of a new panel at each station for each of 138 kV breakers.

Customer Impact
The installation of this protection will mitigate severe breaker damage and improve reliability.

Cost Benefit Study
A formal cost benefit study was not required.

Future Commitments
There are no future commitments, this project will be completed in 2002.

RURAL SYSTEMS:

Provide Service Extensions - Central, Northern and Labrador ($981,000)

Nature of Project
This project is a yearly allotment based on past expenditures to provide service connections (including street lights) to new customers. This summary identifies the total budget allotment for all regions even though the Capital Budget is presented by individual region.

For the period 1996 to 2000, the total actual expenditures for all regions averaged $1,206,000. The Capital Budget for all regions for 2002 is $981,000.

Customer Impact
This project will facilitate the connection of new customers.

Cost Benefit Study
A formal cost benefit study was not required.

Future Commitments
This is a yearly allotment, which will be adjusted from year to year depending on historic information.

RURAL SYSTEMS:

Upgrade Distribution Systems - Central, Northern and Labrador ($1,330,000)

Nature of Project
This project involves the upgrade of distribution lines and equipment to maintain a safe and reliable distribution system. Typical items covered are replacement of poles, streetlights, conductors, transformers, voltage regulators, etc., which are replaced due to substandard conditions. This summary identifies the total budget allotment for all regions even though the Capital Budget is presented by individual region.

For the period 1996 to 2000, the total actual expenditures for all regions averaged $1,438,000. The Capital Budget for all regions for 2002 is $1,330,000.

Customer Impact
Failure to complete this work could result in the interruption of power supply to Hydro's customers.

Cost Benefit Study
A formal cost benefit study was not required.

Future Commitments
This is a yearly allotment, which will be adjusted from year to year depending on historic information.

RURAL SYSTEMS:

Replace Poles - South Brook and King's Point System (Previous $26,000; $173,000)

Nature of Project
This project (as previously approved by the PUB) involves the replacement of poles on the South Brook and King's Point System. Hydro's inspection program identified forty (40) poles on this system, which have deteriorated and are approaching the end of their useful life. The age of these poles range from 31 to 36 years.

Customer Impact
Failure to complete this work could result in the interruption of power supply to Hydro's customers.

Cost Benefit Study
A formal cost benefit study was not required.

Future Commitments
There are no future commitments, this project will be completed in 2002.

RURAL SYSTEMS:

Replace Insulators - English Harbour West ($669,000)

Nature of Project
This project involves the replacement of insulators in the English Harbour West area. The line from English Harbour West to Belleoram / Coombs Cove has experienced major outages due to insulator problems. These outages of 20-minute to 4-hour duration have affected an average of 550 customers.

The Canadian Ohio Brass (COB) insulators manufactured prior to 1974 experience failures due to cement growth causing radial cracks leading to moisture ingress. This project will replace 3,400 insulators out of a total of 3,700.

Customer Impact
Failure to complete this work could result in the interruption of power supply to Hydro's customers.

Cost Benefit Study
A formal cost benefit study was not required.

Future Commitments
There are no future commitments, this project will be completed in 2002.

RURAL SYSTEMS:

Replace Insulators - South Brook Distribution System($317,000)

Nature of Project
This project involves the replacement of insulators on the South Brook Distribution System. The line on the South Brook Distribution system consists of a 34-year old section from Roberts Arm to Pilley's Island, and a 21-year old section from Pilley's Island to Long Island. Both sections have Canadian Ohio Brass (COB) insulators which are deteriorating with hairline cracks.Hydro has experienced major outages of 20-minute to 21-hour durations affecting anywhere from 173 to 1,283 customers. This line has 1995 suspension and 1,500 pintype insulators. This project
* will replace ***1,420*** insulators.

Customer Impact
Failure to complete this work could result in the interruption of power supply to Hydro's customers.

Cost Benefit Study
A formal cost benefit study was not required.

Future Commitments
There are no future commitments, this project will be completed in 2002.

RURAL SYSTEMS:

Replace Conductor/Poles - Burgeo ($300,000)

Nature of Project
This project involves the replacement of conductor and poles on the Burgeo Distribution System. The line is a 36-year-old, three-phase distribution line with deteriorated conductor and poles. During icing conditions and high winds in October 2000, 312 customers were interrupted for 4.5 hours due to conductor breakage and pole failure. Since 1995 Hydro experienced 9 outages on this line. This project will replace 62 spans of #4 copper conductor with 4/0 aluminum and also replace 17 deteriorated poles.

Customer Impact
Failure to complete this work could result in interruptions of power to Hydro's customers.

Cost Benefit Study
A formal cost benefit study was not required.

Future Commitments
There are no future commitments. This project will be completed in 2002.

RURAL SYSTEMS:

Purchase & Install Voltage Regulators - Barachoix ($112,000)

Nature of Project
This project involves the purchase and installation of voltage regulators on the Barachoix System. Peak load level on the feeder has resulted in low voltage levels.

Customer Impact
This project will provide a more stable and regulated source of power to Hydro's customers.

Cost Benefit Study
A formal cost benefit study was not required.

Future Commitments
There are no future commitments, this project will be completed in 2002.

RURAL SYSTEMS:

Replace Transformers - Burlington Substation ($149,000)

Nature of Project
This project involves the replacement of transformers at the Burlington Substation. The existing transformation for the Burlington L2 feeder is three single-phase units installed on a pole mounted platform structure. These transformers are located in a separate station from the recloser serving the same feeder. The increase in transformer capacity requires that the new transformer be a three-phase, pad- mounted unit. Expanding the recloser station is the most cost effective means to accomplish the work and maintain the reliability of the system, and allow for future load growth.

Customer Impact
There is no direct customer impact.

Cost Benefit Study
A formal cost benefit study was not required.

Future Commitments
There are no future commitments, this project will be completed in 2002.

RURAL SYSTEMS:

Replace 136kW Diesel Unit No. 278 - McCallum (Previous $220,000; $56,000)

Nature of Project
This project (as previously approved by the PUB) involves the purchase and installation of a 100kW diesel generating set to replace the existing unit at McCallum. The existing unit was purchased in 1975 and will have approximately 93,000 operating hours by 2002. The unit will be replaced rather than complete its seventh major overhaul.

Due to a declining load forecast the size of the replacement unit has been reduced, as less generation will be needed to meet peak demand and maintain optimum fuel efficiency. The new unit would offer better efficiency, lower maintenance costs and improved exhaust emissions.

Customer Impact
A new engine will help maintain system reliability and reduce the risk of customer outages.

Cost Benefit Study
A formal cost benefit study was not required.

Future Commitments
This is a two-year project. The engineering and material ordering will be completed in 2001 and the construction completed in 2002.

RURAL SYSTEMS:

Replace 250kW Diesel Unit No. 2027 - McCallum (Previous $209,000; $55,000)

Nature of Project
This project (as previously approved by the PUB) involves the purchase and installation of a 170kW diesel generating set to replace the existing 250kW unit at McCallum. The existing unit was purchased and installed in McCallum in 1989 and has a total of 10,000 operating hours. The community load profile indicated a declining load forecast resulting in the requirement for a smaller unit to meet peak demand and maintain optimum fuel efficiency. The existing 250kW unit will replace an obsolete unit in Harbour Deep coincident with the plant upgrade in 2002.

Customer Impact
A new unit will help maintain system reliability and reduce the risk of customer outages.

Cost Benefit Study
A formal cost benefit study was not required.

Future Commitments
This is a two-year project. The engineering and material ordering will be completed in 2001 and the construction completed in 2002.

RURAL SYSTEMS:

Replace 136kW Diesel Unit No. 279 - Grey River (Previous $11,000; $297,000)

Nature of Project
This project (as previously approved by the PUB) involves the purchase and installation of a 136kW diesel generating set to replace an existing unit at Grey River. The existing unit was purchased in 1975 and will have approximately 108,000 operating hours by 2002. The unit will be replaced rather than complete its eighth major overhaul. The new unit would offer better efficiency, lower maintenance costs, and improved exhaust emissions.

Customer Impact
A new engine will help maintain system reliability and reduce the risk of customer outage.

Cost Benefit Study
A formal cost benefit study was not required.

Future Commitments
This is a two-year project. The engineering and material ordering will be completed in 2001 and the construction will be completed in 2002.

RURAL SYSTEMS:

Replace 75kW Diesel Unit No. 252 - Petites (Previous $36,000; $238,000)

Nature of Project
This project (as previously approved by the PUB) involves the purchase and installation of a 40kW diesel generating set to replace an existing unit at Petites. The existing unit, which was purchased in 1974, will have approximately 98,000 operating hours by 2002. The unit will be replaced rather than complete its seventh major overhaul. Due to a declining load forecast, the unit size has been reduced, as less generation will be needed to meet peak demand and also to maintain optimum fuel efficiency. The new unit would offer better efficiency, lower maintenance costs, and improved exhaust emissions.

Customer Impact
A new engine will help maintain system reliability and reduce the risk of customer outage.

Cost Benefit Study
A formal cost benefit study was not required.

Future Commitments
This is a two-year project. The engineering and material ordering will be completed in 2001 and the construction will be completed in 2002.

RURAL SYSTEMS:

Upgrade Distribution Lines - St. Anthony Distribution System ($206,000)

Nature of Project
This project involves the upgrading of several lines on the St. Anthony Distribution System. These lines are: a 33-year-old 22.8km section of line in Cook's Harbour, a 25-year-old 0.8km section of line in Gunners Cove; and a 20-year-old 0.9km double circuit line in the Town of St. Anthony. These sections contributed to outages during the January 1999 storm, which interrupted 2500 customers in St. Anthony. From 1997 to 2000 the St. Anthony section saw an average of 104 recloser operations per year, Cook's Harbour - 88 reclosers per year, and Gunners Cove - 90 recloser operations per year. This project will shorten the span lengths, upgrade the conductor in all sections, and separate the double-circuit lines in St. Anthony.

Customer Impact
Failure to complete this work could result in the interruption of power to Hydro's customers.

Cost Benefit Study
A formal cost benefit study was not required.

Future Commitments
There are no future commitments, this project will be completed in 2002.

RURAL SYSTEMS:

Relocation of Line - Cook's Harbour ($556,000)

Nature of Project
This project involves the relocation of part of the distribution line to the community of Cook's Harbour. Part of the line feeding Cook's Harbour is a 7.5 km section of three-phase line which is located on barren country and exposed to harsh conditions with winds in excess of 100 kms/hour. During January 19-20, 1999, the northern tip of the Great Northern Peninsula (GNP) experienced a severe wind and ice storm. The extreme winds and heavy ice build-up resulted in 43 broken poles and conductors. This project will relocate this section of line and upgrade the structures, conductor, and insulators.

Customer Impact
Relocating and upgrading this line will improve customer service reliability.

Cost Benefit Study
A formal cost benefit study was not required.

Future Commitments
There are no future commitments, this project will be completed in 2002.

RURAL SYSTEMS:

Replace Corroded Transformers - Northern ($276,000)

Nature of Project
This project involves the replacement of transformers in the Northern Region. The distribution systems in the Northern Region have a high exposure to salt contamination. Hydro's transformer maintenance inspection program in 2000 identified corroded transformers which require replacement in 2002. This project will replace 109 distribution transformers with new units having stainless steel tanks.

Customer Impact
Failure to replace these transformers will result in interruptions of power to Hydro's customers and cause environmental damage.

Cost Benefit Study
A formal cost benefit study was not required.

Future Commitments
There are no future commitments, this project will be completed in 2002.

RURAL SYSTEMS:

Upgrade Distribution Line - Goose Cove ($87,000)

Nature of Project
This project involves the upgrade of an 8 km section of a 34 years old line in the Goose Cove area. Some of the poles are at the end of their useful life. In March 2000 severe icing conditions caused an outage of 48 hours duration to 110 customers. This project will replace 18 poles and 30 insulators.

Customer Impact
Failure to upgrade this section of line will result in interruptions of power to Hydro's customers.

Cost Benefit Study
A formal cost benefit study was not required.

Future Commitments
There are no future commitments, this project will be completed in 2002.

RURAL SYSTEMS:

Replace 136kW Diesel Unit No. 266 - William's Harbour ($11,000; Future $288,000)

Nature of Project
This project involves the purchase and installation of a 136 kW diesel generating set to replace an existing unit at William's Harbour. The existing unit, which was purchased in 1975, will have approximately 86,500 operating hours by 2002. The unit will be replaced rather than complete its sixth major overhaul. The new unit will offer better efficiency, lower maintenance costs and improved exhaust emissions.

Customer Impact
A new engine will help maintain system reliability and reduce the risk of customer outage.

Cost Benefit Study
A formal cost benefit study was not required.

Future Commitments
This is a two-year project. The engineering and material ordering will be completed in 2002 and the construction will be completed in 2003.

RURAL SYSTEMS:

Replace 300 kW Diesel Unit No. 288 - Black Tickle (Previous $11,000; $318,000)

Nature of Project
This project (as previously approved by the PUB) involves the purchase and installation of a 300kW diesel generating set to replace existing unit at Black Tickle. The existing unit, which was purchased in 1978, will have approximately 88,000 operating hours by 2002. The unit will be replaced rather than complete its sixth major overhaul. The new unit would offer better efficiency, lower maintenance costs and improved exhaust emissions.

Customer Impact
A new engine will help maintain system reliability and reduce the risk of customer outages.

Cost Benefit Study
A formal cost benefit study was not required.

Future Commitments
This is a two-year project. The engineering and material ordering will be completed in 2001 and the construction will be completed in 2002.

RURAL SYSTEMS:

Replace 250 kW Diesel Unit No. 293 - Rigolet (Previous $11,000; $301,000)

Nature of Project
This project (as previously approved by the PUB) involves the purchase and installation of a 250kW diesel generating set to replace an existing unit at Rigolet. The existing unit, purchased in 1974, will have approximately 95,000 operating hours by 2002. The unit will be replaced rather than complete its sixth major overhaul. The new unit would offer better efficiency, lower maintenance costs and improved exhaust emissions.

Customer Impact
A new engine will help maintain system reliability and reduce the risk of customer outages.

Cost Benefit Study
A formal cost benefit study was not required.

Future Commitments
This is a two-year project. The engineering and material ordering will be completed in 2001 and the construction will be completed in 2002.

RURAL SYSTEMS:

Upgrade - Fuel Storage - Nain ($339,000)

Nature of Project
This project involves the installation of a new liner under the fuel storage tanks, upgrading the dyke walls, upgrading the fuel transfer system, and improving drainage around the perimeter of the site.

This fuel storage site was constructed in 1975 and does not meet the current Storage and Handling of Gasoline and Associated Products (GAP) Regulations.

Customer Impact
There is no direct customer impact.

Cost Benefit Study
A formal cost benefit study was not required.

Future Commitments
There are no future commitments, this project will be completed in 2002.

RURAL SYSTEMS:

Purchase and Install Fire Alarm System - Black Tickle ($50,000)

Nature of Project
This project involves the purchase and installation of a fire detection and alarm system at the Black Tickle generating plant.

The installation of a fire detection and alarm system, which shuts off the fuel supply to the plant in the event of an activation, will reduce the risk of severe damage to this diesel generating facility.

Customer Impact
Failure to complete this work could result in a long interruption of power supply to Hydro's customers.

Cost Benefit Study
A formal cost benefit study was not required.

Future Commitments
There are no future commitments, this project will be completed in 2002.

RURAL SYSTEMS:

Upgrade Diesel Plant - St. Lewis ($59,000; Future $769,000)

Nature of Project
This project involves the upgrading of the diesel plant building at St. Lewis and will provide adequate area and height for the safe performance of operation and maintenance activities.

Customer Impact
Failure to complete this work could result in the interruption of power supply to Hydro's customers.

Cost Benefit Study
A formal cost benefit study was not required.

Future Commitments
This is a two-year project. The engineering and material ordering will be completed in 2002 and the construction will be completed in 2003.

RURAL SYSTEMS:

Purchase Meters and Equipment - TRO System ($172,000)

Nature of Project
This project will provide for an adequate inventory level of various types of meters, instrument transformers, meter test switches and other metering equipment.

Customer Impact
Failure to have adequate metering equipment available could result in customer hook-up delays.

Cost Benefit Study
A formal cost benefit study was not required.

Future Commitments
There are no future commitments, this project will be completed in 2002.

GENERAL PROPERTIES:

Replace Power Line Carrier Equipment - Transmission System - West Coast
(Previous $300,000; $651,000; Future $1,428,000)

Nature of Project
This project (as previously approved by the PUB) involves the purchase and installation of new Power Line Carrier and High Voltage Coupling equipment. This is Phase IV of the Strategic Telecommunications Plan which addresses the replacement of the obsolete Power Line Carrier equipment on the West Coast as presented to PUB. This equipment provides power system protection signalling and operational voice and data to support the Energy Control Centre.

Customer Impact
Failure to replace this equipment could cause failure of the transmission system thus impacting Hydro's customers.

Cost Benefit Study
A formal cost benefit study was not required.

Future Commitments
This is a three-year project starting in 2001 and will be completed in 2003.

GENERAL PROPERTIES:

Replace Remote Terminal Unit for Hydro - Phase 3 ($311,000)

Nature of Project
This project involves the replacement of four (4) Quindar Remote Terminal Units (RTUs) which have reached the end of their useful life. This equipment is used for the control and monitoring of Hydro's transmission and generation system.

Customer Impact
Failure to replace this equipment could result in the interruption of power supply to Hydro's customers.

Cost Benefit Study
A formal cost benefit study was not required.

Future Commitments
This is phase 3 of a 6 year program and requests for the approval of additional phases will be included in future submissions to the PUB.

GENERAL PROPERTIES:

Replace Telephone Isolation Equipment - Sunnyside & Western Avalon ($52,000)

Nature of Project
This project involves the replacement of obsolete telephone isolation equipment at the Sunnyside and Western Avalon Terminal Stations. The equipment is required to protect personnel and telephony equipment. Fibre optic technology will be used to replace the copper circuits which provide backup communications for the monitoring and control of the power system as well as voice communications.

Customer Impact
There is no direct customer impact.

Cost Benefit Study
A formal cost benefit study was not required.

Future Commitments
There are no future commitments, this project will be completed in 2002.

TRANSMISSION:

Upgrade TL262 (69kV Daniels Harbour - Peter's Barren) (Previous $323,000; $367,000)

Nature of Project:
This project involves the upgrading of TL262 (Daniel's Harbour - Peter's Barren), a 5km 69kV transmission line, to mitigate interruption problems now being experienced. The project will involve rerouting the existing line away from the seacoast by going inland from Daniel's Harbour Terminal Station to intersect and follow the existing right-of-way of TL259 (Berry Hill - Peter's Barren).

The proposed new structure and insulator configuration will be designed to mitigate the problems presently being experienced with severe salt contamination.

Customer Impact
Failure to complete this work could result in the interruption of power supply to Hydro's customers.

Cost Benefit Study
A formal cost benefit study was not required.

Future Commitments
The work was started in 2001 and will be complete in 2002. There are no future commitments.

Note*:* The detail engineering of the project determined that the re-routing of TL262 will have to traverse an area of bog resulting in higher than anticipated construction costs. Once the environmental review was completed, it was determined that there would be less of an environmental impact if the construction was completed by traversing frozen ground, hence the project completion was delayed to early 2002.

TRANSMISSION:

Upgrade TL242 - (230kV Holyrood - Hardwoods)

Nature of Project
TL218 is a 230kV transmission line located on the Avalon Peninsula connecting the Holyrood Terminal Station to Oxen Pond Terminal Station, a distance of approximately 37.5km. This total line can be divided into two major segments. The first segment, approximately 25km, is a steel line consisting of suspension and light angle towers (guyed V-type), and self supported towers at heavy angle and deadend locations. This steel line segment runs from Holyrood Terminal Station to a point near the Hardwoods Terminal Station. The second segment, approximately 11km, from Hardwoods to Oxen Pond, is part of a double circuit wood-pole arrangement with TL236.

To improve the overall reliability for the Avalon Peninsula Transmission System a plan has been developed to upgrade several transmission lines. This proposal includes the upgrading of the first segment of TL218 and terminating it at the Hardwoods Terminal Station. The line will be renamed TL242. The structures and conductors will be designed such that they will withstand the estimated 25-year ice load of 66mm radial glaze ice.

It should be noted that the existing wood-pole line TL242 will be disconnected from Hardwoods Terminal Station, joined with the existing wood-pole section of TL218 to Oxen Pond and renamed TL218.

Customer Impact
Failure to complete this upgrade could result in extensive line outages affecting reliability to customers at a frequency of those previously experienced.

Cost Benefit Study
A formal cost benefit study was completed and reviewed by the Public Utility Board at the hearing for Hydro's 1997 Capital Budget.

Future Commitments
This is a two-year project. The engineering will be completed in 2001 and construction will be completed in 2002. There are no future commitments.

TRANSMISSION:

Upgrade TL236 - (230kV Hardwoods - Oxen Pond)

Nature of Project
TL236 is a 230kV transmission line located on the Avalon Peninsula connecting Hardwoods and Oxen Pond Terminal Stations, a distance of approximately 11km. The present line is built in a wood-pole double-circuit arrangement with TL218.

To improve the overall reliability for the Avalon Peninsula Transmission System, a plan has been developed to upgrade several transmission lines. This proposal covers the upgrading of TL236. The work will include dismantling one side of the existing double-circuit wood-pole line and constructing a separate single-circuit lattice steel line along the existing alignment within the existing right-of-way. Since this will be a completely new transmission line, the structures and conductors will be designed such that they will withstand the estimated 50-year ice load of 76mm radial glaze ice.

Customer Impact
Failure to complete this upgrade could result in extensive line outages affecting reliability to customers at a frequency of those previously experienced.

Cost Benefit Study
A formal cost benefit study was completed and reviewed by the Public Utilities Board at the hearing for Hydro's 1997 Capital Budget.

Future Commitments
This is a two-year project. The engineering will be completed in 2001 and construction will be completed in 2002. There are no future commitments.

TRANSMISSION:

Uprate of TL203 (230kV Sunnyside – Western Avalon)

Nature of Project
TL203 is a 230kV transmission line connecting the Sunnyside Terminal Station to the Western Avalon Terminal Station. This proposal involves the thermal uprating of the line to allow operation at conductor temperatures up to 75^0C. Presently, this line is limited to a maximum conductor temperature of 50^0C. The proposal involves the addition of mid-span structures at critical locations to limit the line sag to acceptable standard when operated at higher temperatures.

Customer Impact
The thermal uprating of TL203 will increase the transfer capability of the east coast transmission grid affording the system operators increased flexibility during periods when the Holyrood thermal plant is off line or when the system is experiencing a 230kV transmission line outage.

Cost Benefit Study
The 1995 Hydro report the "East Coast Voltage Study" identified the deficiency with TL203 and recommended remedial actions. This report has been reviewed by the Public Utility Board at the hearing for Hydro's 1997 Capital Budget.

Future Commitments
This is a two-year project. The engineering and material ordering will be completed in 2002 and construction will be completed in 2003.