

**Newfoundland Power Inc.
2003 Capital Budget**

ENERGY SUPPLY

	<u>(000s)</u>
HYDRO PLANTS - FACILITY REHABILITATION	\$2,345
THERMAL PLANTS - FACILITY REHABILITATION	1,561
PENSTOCK REPLACEMENT - LOCKSTON	1,520
PURCHASE PORTABLE DIESEL GENERATION	1,500
MAJOR ELECTRICAL EQUIPMENT REPAIRS	150
TOTAL - ENERGY SUPPLY	\$7,076

**Newfoundland Power Inc.
2003 Capital Budget**

SUBSTATIONS

	<u>(000s)</u>
REBUILD SUBSTATIONS	\$557
REPLACEMENT AND SPARE SUBSTATION EQUIPMENT	1,107
RELIABILITY AND POWER QUALITY IMPROVEMENTS	198
SUBSTATION PROTECTION AND MONITORING IMPROVEMENTS	425
DISTRIBUTION SYSTEM - FEEDER REMOTE CONTROL	1,200
VIRGINIA WATERS - ADD 66/12.5 kV TRANSFORMER	1,150
CHAMBERLAINS - ADD 66/25 kV TRANSFORMER	1,250
TOTAL - SUBSTATIONS	\$5,887

**Newfoundland Power Inc.
2003 Capital Budget**

TRANSMISSION

	<u>(000s)</u>
REBUILD TRANSMISSION LINES	\$4,129
TOTAL - TRANSMISSION	\$4,129

**Newfoundland Power Inc.
2003 Capital Budget**

DISTRIBUTION

	<u>(000s)</u>
EXTENSIONS	4,322
METERS	674
SERVICES	1,819
STREET LIGHTING	952
TRANSFORMERS	4,975
RECONSTRUCTION	2,745
ALIAN T POLE PURCHASE	4,044
TRUNK FEEDERS	
Rebuild Distribution Lines	3,504
Relocate/Replace Distribution Lines For Third Parties	275
Distribution Reliability Initiative	1,078
Improve Distribution System Protection/Operation	457
Switch Replacement & Upgrade Underground Distribution - Water Street, St. John's	762
INTEREST DURING CONSTRUCTION	100
TOTAL - DISTRIBUTION	\$25,707

**Newfoundland Power Inc.
2003 Capital Budget**

GENERAL PROPERTY

	<u>(000s)</u>
TOOLS AND EQUIPMENT	\$770
ADDITIONS TO REAL PROPERTY	140
ALLOWANCE FOR UNFORESEEN ITEMS	750
TOTAL - GENERAL PROPERTY	\$1,660

**Newfoundland Power Inc.
2003 Capital Budget**

TRANSPORTATION

	<u>(000s)</u>
PURCHASE OF VEHICLES AND AERIAL DEVICES	\$2,141
TOTAL - TRANSPORTATION	\$2,141

**Newfoundland Power Inc.
2003 Capital Budget**

TELECOMMUNICATIONS

	<u>(\$000s)</u>
REPLACE/UPGRADE COMMUNICATIONS EQUIPMENT	242
SUBSTATION TELEPHONE CIRCUIT PROTECTION	141
TOTAL – TELECOMMUNICATIONS	\$383

**Newfoundland Power Inc.
2003 Capital Budget**

INFORMATION SYSTEMS

	<u>(\$000s)</u>
APPLICATION ENHANCEMENTS	\$766
APPLICATION ENVIRONMENT	755
CUSTOMER SERVICE SYSTEM STUDY	170
FACILITIES MANAGEMENT	562
NETWORK INFRASTRUCTURE	542
OPERATIONS SUPPORT SYSTEMS	383
OUTAGE MANAGEMENT	284
PERSONAL COMPUTER INFRASTRUCTURE	634
SHARED SERVERS INFRASTRUCTURE	1,411
TOTAL - INFORMATION SYSTEMS	\$5,507

ENERGY SUPPLY

**HYDRO PLANTS
FACILITY REHABILITATION**

Project Cost

\$2,345,000

Nature of Project

This project is necessary for the replacement or rehabilitation of deteriorated hydro plant components that have been identified through routine inspections. It also includes expenditures necessary to improve the efficiency and reliability of the hydro plants or to maintain environmental compliance.

The project involves:

- a) replacement/rehabilitation work at 17 of the Company's 23 hydroelectric plants. The work includes the replacement or rehabilitation of various retaining walls, dams, bridges, a power house crane and cooling coils.
- b) work related to plant efficiency, reliability or the environment. The work includes the addition of fisheries habitat and replacement of programmable logic controllers (PLC) and governors at various hydroelectric plants.

The following table lists the projects for 2003:

Project	Cost (000s)
Dam rehabilitation - Seal Cove, Blackwoods & Whirl Pond	319
Generator, governor & PLC replacement at various plants	686
Communication cable & remote terminal unit replacement - Morris	255
Building rehabilitation - Petty Harbour	106
Bridge replacement - Cape Pond	90
Canal rehabilitation - Lockston	80
Fisheries habitat - various plants	50
Cooling coil, controls and filter replacement - various plants	68
Ventilation louver and heating replacement - various plants	90
Dam spillway rehabilitation - various plants	198
Various projects < \$50,000	403
Total	\$2,345

HYDRO PLANTS FACILITY REHABILITATION (Cont'd)

There are approximately 15 projects in the <\$50,000 category. They range in value from \$5,000 to conduct an assessment of the turbine runner at Seal Cove to \$45,000 to install a communications cable between the plant and the forebay at Tors Cove. In general, these 15 projects are similar in nature to those listed in the table except that they are on a smaller scale.

Customer Impact

These facilities provide energy to the Island Interconnected electrical system. Maintaining these generating facilities and infrastructure reduces the need for additional, more expensive, generation capacity.

Project Justification

The Company's 23 hydroelectric plants range in age from the 102 year old Petty Harbour Plant to the 4 year old Rose Blanche Plant. The average age is 57 years.

Projects involving replacement and rehabilitation work which are identified during ongoing inspections and maintenance activities are necessary to the continued operation of hydroelectric generation facilities in a safe, reliable and environmentally compliant manner. The alternative to maintaining these facilities would be to retire them. These facilities produce a combined average annual production of 426 GWh. Replacing only the energy produced by these facilities by increasing production at the Holyrood generation facility would require approximately 700,000 barrels of fuel annually. At current oil prices (\$28/bbl), this translates into approximately \$20 million in annual fuel savings. Maintaining these generating facilities also contributes to system stability and, in many cases, provides local backup generation.

All significant expenditures on individual hydroelectric plants, such as the replacement of penstocks, surge tanks, runners, or forebays, are justified on the basis of maintaining access to hydroelectric generation at a cost that is lower than the cost of replacement options.

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.

**THERMAL PLANTS
FACILITY REHABILITATION**

Project Cost

\$1,561,000

Nature of Project

This project is necessary for the replacement or rehabilitation of deteriorated thermal plant (diesel and gas turbine) components that have been identified through routine inspections. It also includes expenditures necessary to improve the safety and reliability of the thermal plants or to enhance environmental compliance.

The following table lists the projects for 2003:

Project	Cost (000s)
Governor and control logic replacement - portable gas turbine	975
Exhaust stack replacement - Greenhill Gas Turbine	550
Install remote control for the Port aux Basques diesel	36
Total	\$1,561

Customer Impact

These facilities benefit customers by ensuring the availability of backup power when supply from the electrical system is interrupted.

Project Justification

The 7.5 MW portable gas turbine located at Port aux Basques is 28 years old. The air intake structure and the governor have deteriorated and need to be replaced. There is minimal support available from the manufacturer of the governor and spare parts are not readily available. If the governor and the air intake structure are not replaced, the ability to operate the plant is compromised.

THERMAL PLANTS FACILITY REHABILITATION (Cont'd)

An alternative to maintaining this facility would be to retire it. The facility currently provides approximately 7.5 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 \$7,500,000.

The 25 MW gas turbine at Greenhill is 24 years old. A recent review by the Company and the equipment manufacturer, Rolls Royce, has determined that, in order to keep the plant in operation, the deteriorated exhaust stack needs to be replaced.

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.

These projects ensure the continued operation of Newfoundland Power's existing thermal generation facilities in a safe, reliable and environmentally compliant manner. These plants are used to provide emergency power during system problems, to facilitate repair to radial systems and to help meet the system peak when one or more generation facilities are unavailable.

The existing Port aux Basques diesel can only be started locally. The personnel assigned to this task are also responsible for the operation of the portable gas turbine. This limits the Company's ability to start both generators in a timely fashion when they are both required. Installing remote control of the diesel generator will reduce the time required to restore service to customers by ensuring the plant is started as quickly as possible.

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.

PENSTOCK REPLACEMENT LOCKSTON

Project Cost

\$1,520,000

Nature of Project

This project is necessary to replace deteriorated equipment and involves the replacement of the 46-year-old wood stave penstock at the Lockston Hydroelectric Plant.

Customer Impact

This project will help minimize increases in electricity rates by maintaining existing hydro generation and avoiding the use of more expensive thermal generation.

Project Justification

The penstock at the Lockston plant is in a deteriorated condition. The penstock was constructed in 1956, and deficiencies were identified by independent experts' dam safety inspection reports as early as 1991. Since that time, operations staff has extended the operating life of the penstock by carrying out ad hoc repairs, such as the replacement of broken bands and wood staves and the plugging of water leaks as they appear.

In recent years, the frequency of repairs has increased to the point where further extension of the operating life of the existing penstock is no longer practical or safe. The Company had tentatively scheduled replacement of the penstock for 2006. However, during the last year, the need for immediate leakage maintenance has been increasing. Leaks are evident throughout the penstock length, most noticeably in the high-pressure lower section near the powerhouse. The excessive leakage, combined with poor site drainage, has resulted in a deterioration of the bedding materials upon which the penstock rests and, in some cases, erosion of penstock cradle foundations. In recent years, the structural integrity of the penstock has continued to deteriorate due to corroded bands and the separation of wood fibres within the staves. Replacement is now essential for the continued safe operation of the plant.

The alternative to replacing the penstock and maintaining this plant would be to retire the plant. This facility has an average annual production of approximately 8.4 GWh. Replacing only the energy produced by this facility by increasing production at the Holyrood generation facility would require approximately 14,000 barrels of fuel annually. At a cost of \$28 per barrel, this translates into a fuel saving of approximately \$400,000 annually.

**PENSTOCK REPLACEMENT
LOCKSTON (Cont'd)**

An economic analysis of the Lockston Hydroelectric system, considering the penstock replacement and the expected capital and operating expenditures required over the next 25 years, indicates a positive net present value.

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.

PURCHASE PORTABLE DIESEL GENERATION

Project Cost

\$1,500,000

Nature of Project

The project consists of the purchase of a 2.5 MW portable diesel generation unit. The generator is required for emergency backup and will be stationed during the winter months at a radially fed substation. In the summer months, the unit will be moved as necessary to support construction or repair activities.

Customer Impact

The purchase of portable diesel generation is required to provide emergency backup by replacing portable generation that has reached the end of its useful life.

The project also contributes to reduced distribution and transmission construction costs by enabling the Company to maintain reasonable levels of electricity supply to customers during such construction.

Project Justification

Portable diesel generation is required for back up to ensure that a reasonable level of service can be provided to customers in emergency conditions.

Distribution feeder and radial transmission construction work is performed most cost-effectively when electrical circuits are de-energized. Portable generation enables the Company to maintain energy supply to customers while upgrade or repair work is performed on the de-energized electrical circuits. In addition, these units can be deployed to areas impacted by prolonged outages caused by major winter storms. As the generation unit will normally be connected to the electrical system, it can also be called upon when needed to support system capacity requirements.

Newfoundland Power presently has a total of 3 portable generation units, consisting of 1 portable gas turbine and 2 portable diesel generators. The portable gas turbine, which is rated at 7.2 MW, is located at Grand Bay Substation in Port aux Basques, except when it is required for emergencies or construction elsewhere. Portable Diesel #1, rated at 700 kW, and Portable Diesel #2, rated at 670 kW, are also located at Port aux Basques, except when they are required elsewhere. The transport chassis of Portable Diesel #2 is badly deteriorated, and the unit is no longer roadworthy. The Company plans to de-commission Portable Diesel #2 in 2003.

PURCHASE PORTABLE DIESEL GENERATION (Cont'd)

The Company also has a 2.5 MW diesel plant in St. John's. This plant was initially built to provide black start capability for the St. John's Thermal Plant. It was also available to provide some backup supply for the St. John's area, and to contribute to system capacity requirements. However, this plant has reached the end of its useful life, and the Company plans to decommission it in 2003. The new portable diesel generator has the ancillary benefit of replacing most of the capacity that will be lost with the decommissioning of these aged, obsolete units.

This generator will be available to Newfoundland and Labrador Hydro ("Hydro") under the Equipment Sharing Agreement between Hydro and the Company.

The Company currently plans to locate the unit at a site during the winter which will maximize overall system reliability. An appropriate site would be one subject to severe winter weather conditions and currently served by a radial transmission system.

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.

MAJOR ELECTRICAL EQUIPMENT REPAIRS

Project Cost

\$150,000

Nature of Project

This project is necessary to provide for the unanticipated cost of major equipment replacement or rehabilitation occasioned by deterioration or catastrophic failure. Major equipment includes transformers, generators and turbines. The project cost is based on an assessment of historical expenditures. For comparison purposes, a similar amount for this item was included in the 2002 Capital Budget.

Customer Impact

The project provides the funds to replace failed equipment to maintain or restore electrical service.

Project Justification

Past experience indicates that unforeseen equipment failures will occur. Projects covered by this budget item in the past include generator rewinding, power transformer rehabilitation, replacement of power connection cables and refurbishment of surge tank components.

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.

SUBSTATIONS

REBUILD SUBSTATIONS

Project Cost

\$557,000

Nature of Project

This project is necessary for the replacement of deteriorated and substandard substation infrastructure, such as bus structures, poles and support structures, equipment foundations, switches and other equipment.

The following table lists the projects for 2003:

Project	Cost (000s)
Replace switch connectors - various substations	60
Re-terminate feeders aerially at Greenhill and Marystown Substations	109
Trepassey Substation upgrade	96
Safety clearances - regulators at Frenchman's Cove and Gillams Substations	60
Site & foundation upgrades at Blaketown, Clarenville and St. John's Main Substations as well as others identified through foundation inspections.	150
Projects < \$50,000	82
Total	\$557

There are 3 projects in the <\$50,000 category. One involves the installation of a bypass switch at Monkstown Substation, the second involves rebuilding a section of Grand Beach Substation, and the third involves upgrading 404L terminations at Wheelers Substation.

Customer Impact

This project will maintain the reliability and continuity of electrical service and eliminate potential employee safety hazards associated with deteriorated substation infrastructure.

REBUILD SUBSTATIONS (Cont'd)

Project Justification

The Company has 137 substations varying in age from 1 year to 102 years. Equipment and structures that need to be replaced are identified as a result of monthly inspections, engineering studies and revisions to equipment standards. The project is justified by the need to replace deteriorated equipment identified through this process. These expenditures will ensure reliable service and address safety concerns.

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

\$1,107,000

Nature of Project

This project is necessary for the replacement of obsolete and/or unreliable electrical equipment and the maintenance of appropriate levels of spare equipment for use during emergencies.

The following table lists the projects for 2003:

Project	Cost (000s)
Replace deteriorated breakers & reclosers at Rattling Brook, St. George's and Pasadena Substations	353
Replace batteries & chargers	60
Replace step-up transformers at Fall Pond, West Brook and grounding transformers at Gander Substations	153
Replace transformer #2 cables at Hardwoods Substation	55
Replace oil filled equipment at Big Pond & King's Bridge Substation	136
Spare equipment	350
Total	\$1,107

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 system.

Project Justification

The Company has 137 substations. The major equipment items comprising a substation include power transformers, circuit breakers, reclosers, potential transformers and battery banks. In total the Company has approximately 190 power transformers, 400 circuit breakers, 200 reclosers, 500 potential transformers and 140 battery banks.

REPLACEMENT AND SPARE SUBSTATION EQUIPMENT (Cont'd)

The need to replace equipment is determined on the basis of tests, inspections and the operational history of the equipment. The provision of adequate levels of spare equipment is based on past experience and engineering judgement, as well as a consideration of the impact the loss of a particular apparatus would have on the electrical system.

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 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.

RELIABILITY AND POWER QUALITY IMPROVEMENTS

Project Cost

\$198,000

Nature of Project

This project involves the addition of equipment to substations that is necessary to improve power quality and reliability.

The following table lists the projects for 2003:

Project	Cost (000s)
Install recloser and associated equipment for additional feeder - Colliers substation	70
Install motor operator on switches - 39L (Holyrood to Bay Roberts)	100
Install high voltage switch equipment - Glenwood Substation	28
Total	\$198

Customer Impact

This project will ensure customers are supplied at appropriate voltage levels, and will reduce power interruptions to customers.

Project Justification

The installation of appropriate equipment at Colliers Substation will facilitate the addition of a new feeder. The addition of motor operators to the switches on 39L transmission line at various substations will minimize the number of outages required to maintain transmission lines in the Conception Bay North area.

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.

**SUBSTATION PROTECTION AND
MONITORING IMPROVEMENTS**

Project Cost

\$425,000

Nature of Project

This project is necessary for the replacement and/or addition of protective relaying equipment and metering equipment required to maintain system protection and increase operating reliability.

The following table lists the projects for 2003:

Project	Cost (000s)
Replace protective relays on 302L and 305L at Greenhill, Laurentian and Salt Pond Substations	107
Add transformer tap-changer controls at Bay Roberts, Walbournes and Blaketown Substations	83
Add synchronizing clocks, transducers and voltage measuring devices at various substations	180
Projects <\$50,000	55
Total	\$425

There are 2 projects in the <\$50,000 category. One involves the installation of reclosing relays at Blaketown Substation. The other involves the installation of an under-frequency relay at Gallant Street Substation.

Customer Impact

This project will help maintain the reliability and security of the electrical system.

SUBSTATION PROTECTION AND MONITORING IMPROVEMENTS (Cont'd)

Project Justification

This project will make improvements to the protection and monitoring systems to allow for the safe and reliable operation of substations. It includes such items as the installation of reclosing and under-frequency relays, synchronizing clocks, digital recording voltmeters, replacement of over-current current relays and the addition of voltage measuring devices (potential transformers) to improve energy and demand metering at substations.

Protective relaying equipment is used to detect abnormal conditions on the electrical system, and to either initiate a disconnection of the affected portion of the system, where appropriate, or warn system operators of the existence of the condition.

The project is justified on the basis of maintaining the reliability and safe operation of the electrical system. Protection modifications will minimize outage times, while monitoring improvements will allow potential problems such as voltage variations to be identified before they lead to deteriorated service to customers.

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.

DISTRIBUTION SYSTEM FEEDER REMOTE CONTROL

Project Cost

\$1,200,000

Nature of Project

This is a continuation of a project initiated in 2002. It involves replacing a number of aging, limited function, electromechanical feeder relays and oil-filled reclosers with modern multi-function electronic relays and reclosers that can be remotely controlled from the System Control Center (SCC).

Customer Impact

The installation of electronic reclosers and relays that can be monitored and controlled from the SCC will result in faster detection of a failure on the feeder system and provide for more rapid restoration of service. Also, the SCC will be able to remotely de-energize feeders or sections of feeders in emergency situations thus increasing public safety.

Project Justification

The Company's existing 140 electromechanical feeder relays and 200 oil-filled reclosers are on average 25 years old and are nearing the end of their useful lives. All will require replacement over the next several years. In 2002 approximately 15 relays and 20 reclosers were replaced. In 2003 approximately 30 relays and 10 reclosers are budgeted for replacement. These devices are integral to maintaining the safety and reliability of the electrical system. The safety function of a recloser or relay stems from its ability to interrupt power to a section of a distribution feeder should the line become unsafe due to a catastrophic event, such as a downed power line or broken pole. A recloser will aid reliability in that it can operate to automatically restore service in the event of a temporary fault on the electrical system (e.g. lines slapping together), therefore reducing outage duration.

**DISTRIBUTION SYSTEM
FEEDER REMOTE CONTROL (Cont'd)**

The project is justified on the basis of improvements in safety, operating efficiencies, power system reliability and a reduction in risk to the environment. The new reclosers will: reduce operating costs by eliminating the field visits required to manually operate the recloser for maintenance on distribution lines; reduce power outage restoration times, by providing the SCC, and repair crews, with immediate notification of the location of power interruptions; reduce environmental risk by eliminating oil-filled reclosers; and, increase public safety by giving the SCC the ability to remotely de-energize feeders or sections of feeders in emergency situations.

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

Future Commitments

None.

**VIRGINIA WATERS
ADD 66/12.5 kV TRANSFORMER**

Project Cost

\$1,150,000

Nature of Project

This project involves the addition of a third 66/12.5 kV 25 MVA transformer at the Virginia Waters Substation. It includes the purchase and installation of the transformer as well as the modifications to the Virginia Waters Substation necessary to install the transformer.

Customer Impact

This project will provide the additional capacity necessary to serve the growing customer base in the Virginia Waters, Torbay Rd., Stavanger Drive and Logy Bay areas. A third transformer will also improve service reliability for customers supplied from the Virginia Waters Substation. Should one transformer fail, the other two transformers are capable of carrying the load, except during peak load conditions. This would reduce power interruptions experienced by customers until such time as the other transformer is repaired or a portable unit is installed.

The additional transformer would also be available for emergency deployment at another location in the event of a failure of a substation transformer. In the event of a failure necessitating either the replacement of the failed transformer or a lengthy repair period, the deployment of a standard transformer provides for a more reliable longer-term replacement than a portable transformer.

Project Justification

The area served by the Virginia Waters Substation is one of the highest customer growth areas in the Company's service territory. The two existing transformers are each rated at 25 MVA. The peak load on one of the two transformers is forecast to exceed its nameplate capacity in 2003, and the other transformer is approaching nameplate capacity. The third transformer will accommodate this growth. It will also provide sufficient transformer capacity to carry the substation load in the event of the failure of one of the substation transformers, except during peak load conditions.

**VIRGINIA WATERS
ADD 66/12.5 kV 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.

Future Commitments

None.

**CHAMBERLAINS
ADD 66/25 kV TRANSFORMER**

Project Cost

\$1,250,000

Nature of Project

This project involves the addition of a second 66/25kV 25 MVA transformer at the Chamberlains Substation. It includes the purchase and installation of the transformer as well as the modifications to the Chamberlains Substation necessary to accommodate installation of the transformer.

Customer Impact

This project will provide the additional capacity necessary to serve the growing customer base in the Chamberlains, Manuels and Topsail areas of Conception Bay South. The second transformer will also improve service reliability for customers supplied from the substation. Should one transformer fail, the other transformer are capable of carrying the load, except during peak load conditions. This would reduce power interruptions experienced by customers until such time as the other transformer is repaired or a portable unit is installed.

The additional transformer would also be available for emergency deployment at another location in the event of a failure of a substation transformer. In the event of a failure necessitating either the replacement of the failed transformer or a lengthy repair period, the deployment of a standard transformer provides for a more reliable longer-term replacement than a portable transformer.

Project Justification

The area served by the Chamberlains Substation is one of the highest customer growth areas in the Company's service territory. The existing transformer is rated at 25MVA. The peak load at the substation exceeds the nameplate capacity of the substation transformer. The second transformer is necessary to accommodate this growth. It will also provide sufficient transformer capacity to carry the substation load in the event of the failure of one of the substation transformers, except during peak load conditions.

CHAMBERLAINS
ADD 66/25 kV 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.

Future Commitments

None.

TRANSMISSION

REBUILD TRANSMISSION LINES

Project Cost

\$4,129,000

Nature of Project

This project is necessary to replace poles, crossarms, conductors, insulators and miscellaneous hardware due to deficiencies identified during annual inspections.

This project category includes numerous projects aimed at rebuilding and replacing deteriorated transmission line structures and conductors. As well, in recent years the extensive use of our transmission line right of ways by the general public has increased the need to mark guy wires with appropriate guards to reduce the likelihood of accidents. The project cost is based on a combination of historical costs and individual project estimates.

Many of the Company's older transmission lines are experiencing pole, crossarm, and brace deterioration to the point where replacement is required to maintain the strength and integrity of the line. Thirty per cent of the Company's 110 transmission lines are in excess of forty years of age. As well, inspections and testing activities have revealed significant increases in the quantities of corroded conductors in some locations. This is causing upward pressure on transmission line rebuild requirements.

The following table lists the projects for 2003:

Project	Cost (000s)
Goulds to Mobile - rebuild 24L	650
Grand Beach to Salt Pond - replace conductor 301L	2,000
Clarenville to Catalina - replace deteriorated bolts, and insulators 123L	74
Clarenville to Gambo - rebuild 124L	500
Bay View to Massey Drive - rebuild 357L	55
Install guy guards	100
Projects < \$50,000	750
Total	\$4,129

Transmission lines 24L and 17L run parallel to each other between Goulds and Mobile Substations. These lines were built in the early 1950s and are significantly deteriorated. The Company intends to decommission 17L, which has suffered greater deterioration due to age, and focus its resources on 24L. In total, 11 kilometres of the line will be rebuilt in 2003.

REBUILD TRANSMISSION LINES (Cont'd)

Transmission line 301L forms part of the Company's looped transmission system on the Burin Peninsula. In total, approximately 38 kilometres of the line will be rebuilt in 2003. These portions of the line, which were constructed in 1959 and 1966, have a number of deteriorated poles. Due to salt contamination along the coast, and exposure to high winds and severe ice accumulation, large sections of the line contain damaged and severely corroded conductor. The portions to be rebuilt will be constructed to a higher design standard to accommodate the harsh environment and, where possible, will be relocated closer to the highway.

Transmission line 124L is a portion of a longer transmission line built in 1964. Portions of the line have been rebuilt in recent years to establish adequate vertical ground clearance. In a number of locations, ground clearance is inadequate and will be corrected. In addition, an evaluation of the line design will be conducted to determine whether it is of a standard that is adequate for expected ice and wind loading. Where inadequacies exist, the line will be rebuilt.

There are approximately 50 projects included in the <\$50,000 category. These projects chiefly involve individual pole, crossarm or insulator replacements that have been identified through annual inspections

Customer Impact

This project maintains the structural integrity of transmission lines and addresses upgrade requirements identified during inspections. This is critical for the safe operation and reliable performance of the transmission system.

Project Justification

Replacement of this deteriorated transmission line equipment is necessary to prevent service interruptions.

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.

DISTRIBUTION

EXTENSIONS

Project Cost

\$4,322,000

Nature of Project

This project is necessary to construct both primary and secondary lines to connect new customers to the electrical distribution system. The project also includes upgrades to the capacity of existing lines to accommodate customers who increase their electrical load. The project cost estimate includes all labour, materials, and other costs to install poles, wires and related hardware.

The following table provides a breakdown of cost by region and operating area.

Region/Area	2003 Budget (000s)
St. John's	1,900
Avalon	840
Burin	130
Eastern Region	\$2,870
Bonavista	296
Gander	315
Grand Falls	270
Corner Brook	243
Stephenville	328
Western Region	\$1,452
Total	\$4,322

The project cost for the connection of new customers is calculated on the basis of historical data for specific operating areas. Historical annual expenditures are adjusted for inflation and divided by the number of new customers in each year to derive an average extension cost per customer. Unusually high and low data is excluded from the average. This historical average is then modified by the GDP Deflator for Canada before being multiplied by the forecast number of new customers to determine the budget estimate. The forecast number of new customers is derived from economic projections provided by the Conference Board of Canada.

The cost of capacity upgrades is based on individual project estimates.

EXTENSIONS (Cont'd)

Customer Impact

This project enables the Company to construct power lines to extend service in response to customer requests. It also allows the Company to upgrade lines in response to customers requesting additional supply capacity.

Project Justification

This project is justified on the basis of customer requirements.

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.

METERS

Project Cost

\$674,000

Nature of Project

This project is necessary to accommodate customer growth and to replace deteriorated electrical equipment. The project cost includes the cost of meters for new customers and replacement meters for existing customers. The quantity of meters for new customers is based on the Company's forecast of customer growth. The quantity of meters for replacement purposes is determined using historical data for damaged meters and sampling results from previous years. Sampling of Company meters is performed by Newfoundland & Labrador Hydro in accordance with regulations under the *Electricity and Gas Inspection Act*.

Customer Impact

This project provides for metering installations necessary to meet customers' electrical service requirements. Through a rigorous meter testing and replacement program, customers are provided with accurate metering of their electricity consumption.

Project Justification

This project is justified on the basis of customer requirements and Industry Canada regulations.

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.

SERVICES

Project Cost

\$1,819,000

Nature of Project

This project is necessary to provide for the installation of service wires to connect new customers to the electrical distribution system. Service wires are low voltage wires that connect the customer's electrical service equipment to the utility's transformers. Also included in this category is the replacement of existing service wires due to deterioration, failure or damage, as well as the installation of larger wires to accommodate customers' additional loads.

Expenditures on this project are driven by both customer growth and the Company's experience with regard to service wires that must be replaced to maintain reliable service and power quality. The projected expenditures for Services for 2003 are \$1,200,000 for new services and \$619,000 for replacement services.

The following table provides a breakdown of cost by region and operating area.

Region/Area	New (000s)	Replacement (000s)	Total (000s)
St. John's	525	250	775
Avalon	212	157	369
Burin	46	30	76
Eastern Region	\$783	\$437	\$1,220
Bonavista	86	25	111
Gander	85	32	117
Grand Falls	79	19	98
Corner Brook	72	75	147
Stephenville	95	31	126
Western Region	\$417	\$182	\$599
Total	\$1,200	\$619	\$1,819

With the exception of some small individually estimated projects, the project cost is calculated on the basis of historical data. For new services, historical annual expenditures are adjusted for inflation and divided by the number of new customers in each year to derive an average new service cost per customer. Unusually high and low data is excluded from the average.

SERVICES (Cont'd)

This historical average is then modified by the GDP Deflator for Canada before being multiplied by the forecast number of new customers to determine the budget estimate. A similar process is followed for replacement services using historical actual expenditures to replace damaged or deteriorated service wires. Street light customers are excluded for the purpose of this calculation.

Customer Impact

These projects provide and maintain electric service to new and existing customers. Service wire replacements help maintain a reliable high quality power supply to customers.

Project Justification

These projects are justified on the basis of customer requirements.

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.

STREET LIGHTING

Project Cost

\$952,000

Nature of Project

This project is necessary to provide for the installation of new street lighting fixtures, replacement of existing street lighting fixtures, and provision of associated overhead and underground wiring. A street lighting fixture includes the light head complete with bulb, photocell and starter as well as the pole mounting bracket and other hardware. The project is driven by customer requests and historical levels of street lighting fixture failures requiring replacement.

The projected expenditures for Street Lighting for 2003 are \$587,000 for new units and \$365,000 for replacement units.

The following table provides a breakdown of cost by region and operating area.

Region/Area	New (000s)	Replacement (000s)	Total (000s)
St. John's	300	133	433
Avalon	90	65	155
Burin	24	33	57
Eastern Region	\$414	\$231	\$645
Bonavista	31	25	56
Gander	31	26	57
Grand Falls	31	19	50
Corner Brook	30	33	63
Stephenville	50	31	81
Western Region	\$173	\$134	\$307
Total	\$587	\$365	\$952

The project cost is calculated on the basis of historical data. For new units, historical annual expenditures are adjusted for inflation and divided by the number of new customers in each year to derive an average cost per new customer. This historical average is then modified by the GDP Deflator for Canada before being multiplied by the forecast number of new customers to determine the budget estimate.

STREET LIGHTING (Cont'd)

For replacement units, historical annual expenditures for replacement of damaged, deteriorated or failed units are adjusted for inflation and divided by the total number of customers served in each year to derive an average replacement unit cost per customer. This historical average is then modified by the GDP Deflator for Canada before being multiplied by the forecast of the total number of customers served to determine the budget estimate.

Customer Impact

These projects provide and maintain street lighting service to new and existing customers.

Project Justification

These projects are justified on the basis of customer requirements.

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.

TRANSFORMERS

Project Cost

\$4,975,000

Nature of Project

This project is necessary to accommodate customer growth and to replace deteriorated electrical equipment. The project includes the cost of purchasing transformers for customer growth and the replacement of transformers that have deteriorated or failed. The project cost is based on historical data and field surveys.

Transformer requirements are determined as follows:

- a) The number of transformers required for new customers is based on estimates for each of the Company's operating areas. The estimate is created by regional engineering personnel in light of the forecast number of new residential customers for each area and their judgment as to additional transformers required for new general service customers based on a combination of historical experience and specific knowledge.
- b) The number of replacement transformers is based on field surveys of rusty or deteriorated transformers.
- c) The number of transformers required for conversions and upgrades, and an allowance for contingency (burnouts and storm damage, etc.) are estimated on the basis of planned projects and historical data.

The Company expects to purchase approximately 3,000 pole mounted transformers in 2003. There is also an allotment of \$500,000 for approximately 50 padmount transformers. As of year end 2001, the Company had a total of approximately 56,000 pole mounted transformers and approximately 600 padmount transformers in service.

Customer Impact

Transformers provide service to new customers, increase supply capacity for existing customers who increase their load, and replace transformers that deteriorate or fail.

TRANSFORMERS (Cont'd)

Project Justification

This project is required to provide and maintain service to customers.

The corrosion of transformer tanks leads to both service reliability and environmental problems. In 2001, the Company started using longer life stainless steel transformer tanks, which were expected to reduce the frequency of such problems. This initiative has placed upward pressure on overall transformer expenditures as the stainless steel tanks are approximately 18% more expensive than the electrostatic tanks purchased previously. The Company expects this trend to continue for the next few years.

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.

RECONSTRUCTION

Project Cost

\$2,745,000

Nature of Project

This project is necessary to provide for the replacement of deteriorated or storm damaged distribution structures and electrical equipment. This project is primarily comprised of a number of smaller projects that are identified during line inspections or recognized following operational problems. By their nature these are high priority projects that normally cannot be deferred to the next budget year. This project differs from the Rebuild Distribution Lines project described at page 46 of 82, which involves rebuilding entire sections of trunk lines that are identified and planned in advance of budget preparation.

The project also includes an allowance of \$400,000 to provide for the reconstruction of distribution lines necessary to render them suitable for joint use with Aliant Telecom Inc.

The project cost is estimated on the basis of average historical expenditures related to unplanned repairs to distribution feeders, and on the estimated cost of anticipated requirements of Aliant Telecom Inc.

The following table provides a breakdown of cost by region and operating area:

Region/Area	2003 Budget (000s)
St John's	522
Avalon	460
Burin	401
Eastern Region	\$1,383
Bonavista	304
Gander	271
Grand Falls	236
Corner Brook	281
Stephenville	270
Western Region	\$1,362
Total	\$2,745

RECONSTRUCTION (Cont'd)

Customer Impact

These projects maintain the distribution system and improve reliability to customers. The reconstruction of existing distribution lines also provides for safer operation of the electrical system to protect the public and employees.

Project Justification

These projects are justified on the basis of reliability, on the need to replace deteriorated and damaged electrical equipment, and on the need to reconstruct lines to render them suitable for joint use. The incremental cost of reconstruction to render distribution lines suitable for joint use will be recovered from Aliant Telecom Inc. in accordance with the terms of the Joint Use Facilities Partnership Agreement between the Company and Aliant Telecom Inc.

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.

ALIAN T POLE PURCHASE

Project Cost

\$4,044,000

Nature of Project

This project is necessary to cover the 2003 installment associated with the Support Structures Purchase Agreement entered into with Aliant Telecom Inc.

Customer Impact

This project will contribute to the Company's ongoing efforts to achieve operating efficiencies.

Project Justification

This project is necessary to comply with the terms of the Support Structures Purchase Agreement entered into by Newfoundland Power Inc. and Aliant Telecom Inc. covering the purchase of all joint-use poles within Newfoundland Power's service territory over a five year period.

Future Commitments

As per the terms of the Support Structures Purchase Agreement, the following amounts are required to complete the purchase of all joint-use poles within Newfoundland Power's service territory from Aliant Telecom Inc.

2004	\$4,044,000
2005	\$4,044,000

**TRUNK FEEDERS
REBUILD DISTRIBUTION LINES**

Project Cost

\$3,504,000

Nature of Project

This project is necessary to provide for the replacement of deteriorated distribution structures and electrical equipment for entire sections of trunk lines that have been previously identified through ongoing line inspections. The total budget estimate for this category is based on individual project estimates.

This project is distinguished from the Reconstruction project described at page 43 of 82 in that these projects are larger, and are previously defined and estimated in advance of the budget process. Plans for these projects are developed from line inspection reports that assess the age, condition, maintenance costs, and overall integrity of the distribution line to provide for public and employee safety. Unlike the Distribution Reliability Initiative projects described at page 50 of 82, the selection of lines for rebuilding focuses more on the actual physical condition of the lines than on their historical reliability performance.

Distribution rebuild projects can involve either the complete rebuilding of deteriorated distribution lines or the selective replacement of various line components. These typically include pole replacement, crossarm replacement, conductor replacement including replacement of underground distribution equipment, and insulator replacement.

The following table lists the projects for 2003.

Project	Cost (000s)
Extend GLV-02 to Charlottetown	247
Rebuild feeder (KBR-08) - St. John's	190
Rebuild feeder (KBR-11) - St. John's	187
Rebuild feeder (SLA-09) - St. John's	225
Rebuild feeder (SPR-03) - Springdale	390
Rebuild sections of feeders in Port-Aux-Basques	200
Insulator replacement - various feeders	568
Relocate feeder (SPO-02) - Lewins Cv to Epworth Jct	120
Rebuild feeder (NWB-01) - Goobies to North Hr.	407
Rebuild feeder (WES-02) - Lumsden to Deadmans Bay	50
Relocate feeder (WAL-05) - Georgetown Traylor Park	50
Relocate feeder (HCT-01) Hearts Content Barrrens	70
Relocate feeder (COL-01) - Colliers	80
Upgrade distribution small projects <\$50,000	720
Total	\$3,504

TRUNK FEEDERS REBUILD DISTRIBUTION LINES (Cont'd)

Newfoundland Power's Springdale feeder (SPR-03) supplies Newfoundland & Labrador Hydro's ("Hydro") Little Bay system. The feeder is deteriorated and requires substantial upgrading or replacement. A joint planning study by Newfoundland Power and Hydro determined that the least cost solution is to rebuild the feeder along the highway. As part of a joint initiative, Newfoundland Power will rebuild the feeder to Hydro's St. Patrick's Substation, and Hydro will convert its 4.16 kV system to 25 kV and take supply from Newfoundland Power at St. Patrick's Substation. The Little Bay Substation will then be retired.

There are approximately 30 items in the < \$50,000 category. The majority of these involve replacement of deteriorated conductors on sections of various feeders. The remainder are mostly associated with the relocation of lines to road right of ways and the replacement of deteriorated cross arms.

Customer Impact

This project is focused on rebuilding and maintaining distribution lines so as to replace lines and equipment before failures due to deterioration create power interruptions, safety hazards and increased operating costs associated with emergency repairs.

Project Justification

The Company has over 8,000 kilometres of distribution lines in service and has an obligation to maintain this plant in good condition to safeguard the public and its employees. The replacement of deteriorated distribution structures and equipment is critical in preventing failures and maintaining reliable service to customers.

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.

**TRUNK FEEDERS
RELOCATE/REPLACE DISTRIBUTION LINES FOR THIRD PARTIES**

Project Cost

\$275,000

Nature of Project

This project is necessary to accommodate third party requests for relocation of distribution lines. The relocation or replacement of distribution lines result from (1) work initiated by municipal, provincial and federal governments, (2) work initiated by other utilities such as Aliant Telecom and Rogers Cable, (3) requests from customers or (4) vehicle accident damage.

The cost estimate is based on historical expenditures and some individual project estimates. Generally these expenditures are associated with a number of small projects that are not specifically identified at the time the budget is prepared.

Work initiated by government is estimated to be \$105,000 in 2003 and is primarily associated with road widening and road realignment. Aliant Telecom and Rogers Cable work, estimated at \$40,000 in 2003, involves relocation or replacement of lines for additional conductor installations. Customer requests typically involve relocation of poles, anchors and guy wires from private property. The cost of such work is estimated to be \$80,000 in 2003. The estimated cost for vehicle accident damage in 2003 is \$50,000.

Customer Impact

There is no direct customer impact, except in the case of some vehicle accidents where electrical service has to be restored.

Project Justification

The Company must respond to requests for relocation and replacement of distribution facilities under the provisions of agreements in place with the requesting parties.

Estimated contributions from customers and requesting parties associated with this project have been included in the \$1.5 million contribution in aid of construction amount referred to in the Application.

TRUNK FEEDERS
RELOCATE/REPLACE DISTRIBUTION LINES FOR THIRD PARTIES (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.

Future Commitments

None.

TRUNK FEEDERS DISTRIBUTION RELIABILITY INITIATIVE

Project Cost

\$1,078,000

Nature of Project

This project is necessary to improve service reliability on distribution lines with below-average reliability. The project involves the upgrading of trunk feeder structures and equipment to reduce both the frequency and duration of power interruptions to the customers served by the distribution line. The nature of the upgrading work follows from a detailed assessment of past problems, knowledge of local environmental conditions (such as salt contamination and wind and ice loading), and engineering knowledge to apply location specific design and construction standards. Project plans are subsequently developed from an engineering analysis and options are evaluated that improve reliability performance.

These are special projects selected on the basis of the reliability performance of the distribution lines. Prioritizing these projects also requires consideration of the costs, the number of customers affected, and judgment as to the reliability improvement that can be expected as a result of the line upgrade project.

Customer Impact

The customers served by the feeders selected for upgrading will experience reductions in both the number of power interruptions and the duration of outages that may occur.

Project Justification

These projects are justified on the basis of reliability improvement. Customers currently supplied by these feeders experience power interruptions significantly more often than the Company average. Individual feeder projects have been prioritized based on their historic SAIFI and SAIDI statistics.

Expenditures on the distribution reliability initiative have had a positive impact on the reliability performance of the feeders that have been upgraded.

**TRUNK FEEDERS
DISTRIBUTION RELIABILITY INITIATIVE (Cont'd)**

The following table identifies the feeder projects selected for upgrading in 2003 and indicates the estimated project cost, the number of customers affected, and the average yearly interruption statistics for the five-year period ending December 31, 2001. The SAIFI and SAIDI statistics exclude planned power interruptions and interruptions due to loss of supply from Hydro.

In the case of the Milton feeder, much of the feeder has been upgraded in recent years. Consequently, the reliability statistics for the entire feeder do not truly reflect the experience of customers on Random Island who are served by the 10.5-kilometre portion of the line that is to be upgraded in 2003. This portion of line is 40 years old and has not been upgraded in recent years. There were 9 unscheduled outages on this portion of the line in a 12-month period commencing in April 2001. The outages were primarily caused by the failure of insulators and other equipment on the line.

Feeder	Cost (000s)	Number of Customers	SAIFI ¹ Interruptions Per Year	SAIDI ² Hours Per Year
Glovertown (GLV-02)	350	1,195	3.7	8.2
Long Lake (LGL-02)	200	688	3.7	5.5
Milton (MIL-02)	528	1,293	2.9	2.2
Company Average			1.8	2.9

Notes:

¹ System Average Interruption Frequency Index (SAIFI) is the average number of interruptions per customer. It is calculated by dividing the number of customers that have experienced an outage by the total number of customers in an area.

² System Average Interruption Duration Index (SAIDI) is the average interruption duration per customer. It is calculated by dividing the number of customer-outage-hours (e.g., a two hour outage affecting 50 customers equals 100 customer-outage-hours) by the total number of customers in an area.

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.

**TRUNK FEEDERS
IMPROVE DISTRIBUTION SYSTEM PROTECTION/OPERATION**

Project Cost

\$457,000

Nature of Project

Distribution system protection involves the installation of equipment and devices that provide for improved operation of the electrical system when problems such as electrical faults, short circuits or lightning strikes occur. This project involves the installation of lightning arresters on transformers and other electrical equipment, the installation of fuses, and the installation of switches to improve sectionalizing of distribution lines.

The following table lists the projects for 2003:

Project	Cost (000s)
Install lightning arrestors	73
Install current limiting fuses	169
Install cutouts and switches for sectionalizing and isolation purposes	215
Total	\$457

Customer Impact

This project will improve service reliability, reduce outage time, and reduce the number of customers affected by certain distribution problems.

Project Justification

This project will improve distribution system protection so as to increase system reliability and reduce damage costs associated with lightning strikes.

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.

**TRUNK FEEDERS
SWITCH REPLACEMENT AND
UPGRADE UNDERGROUND DISTRIBUTION
WATER STREET, ST. JOHN'S**

Project Cost

\$762,000

Nature of Project

This project is necessary to remove 3 high voltage oil-filled switches and 3 banks of platform-mounted transformers that form part of the Water Street underground distribution system. The project will require the installation of pad-mount switches and pad-mount transformers, as well as the establishment of loop feeds for sections of the underground distribution system at three locations along Water Street, St. John's.

Customer Impact

The upgrading of the Water Street underground system will improve the reliability of service to customers in the Water Street area.

Project Justification

The existing high voltage oil-filled switches are 30 years old and the manufacturer states that they cannot guarantee that the switches have load break capability. The manufacturer no longer supplies replacement parts for these switches. As well, there are safety issues associated with certain operations of the existing switches. For example, the switches rely on manual operation, and internal arcing and deterioration of contacts may occur. New switches have technology that eliminates these safety concerns.

Also, in conjunction with the switch replacements, there are other areas along the Water Street distribution system that require attention. For example, there are several locations where transformers are located on platforms that are 30 years old and are located next to buildings, resulting in clearance problems for workers engaged in maintaining the exterior of these buildings.

**TRUNK FEEDERS
SWITCH REPLACEMENT AND
UPGRADE UNDERGROUND DISTRIBUTION
WATER STREET (Cont'd)**

There were originally 12 underground high voltage switches that needed to be addressed. By the end of 2002, 7 of these switches will either have been replaced or eliminated. All of the remaining switches are being considered for replacement or elimination by 2004. The 2002 underground switch program involves some new technology, and the choice of replacement or elimination of the remaining switches will depend on the results achieved.

Future Commitments

None.

INTEREST DURING CONSTRUCTION

Project Cost

\$100,000

Nature of Project

This is an estimate of the interest during construction that will be charged on distribution work orders with an estimated expenditure of less than \$50,000 and a construction period in excess of three months. This calculation is based on an estimated monthly average of total distribution work in progress of \$1.0 million. The interest rate which is applied each month is dependent on the source of funds to finance the capital expenditure and is calculated in accordance with Order No. P.U. 37 (1981).

Customer Impact

No direct customer impact.

Project Justification

These costs are justified on the same basis as the distribution work orders to which they are charged.

Future Commitments

None.

GENERAL PROPERTY

TOOLS AND EQUIPMENT

Project Cost

\$770,000

Nature of Project

This project is necessary for the addition or replacement of tools and equipment utilized by line and support staff in the day-to-day operations of the Company, as well as the replacement or addition of office furniture and equipment.

The following table lists the projects for 2003:

Category	Cost (000s)
Line tools and equipment ¹	550
Office furniture and equipment ²	220
Total	\$770

Notes:

¹ Line Tools and Equipment includes various tools and equipment used by line staff, electrical maintenance staff, and engineering and field technical staff. The tools and equipment include fall arrest devices, hydraulic tools, instruments, test gear, tension stringers for conductor installation and inspection equipment.

² Office Furniture and Equipment includes the replacement of broken or deteriorated furniture and office equipment, as well as the purchase of additional filing and storage equipment.

The project cost is based on historical costs for the replacement of tools and equipment that become broken or worn out. Additional or replacement tools are purchased to increase employee productivity, quality of work and overall operational efficiency.

Customer Impact

The addition or replacement of these tools and equipment help employees work efficiently and produce higher quality work.

TOOLS AND EQUIPMENT (Cont'd)

Project Justification

This equipment enables staff to perform work in a safe, effective and efficient manner.

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.

ADDITIONS TO REAL PROPERTY

Project Cost

\$140,000

Nature of Project

The project is necessary to maintain buildings and facilities and to operate them in an efficient manner. It involves the addition to, or renovation of, Company property.

The following table lists the projects for 2003:

Category	Cost (000s)
Additions ¹	75
Renovations ²	65
Total	\$140

Notes:

¹ Additions include a material storage area for the electrical maintenance facility on Topsail Road, the installation of a transformer ramp at the Twillingate facility and improvements to security at Company facilities.

² Renovations include replacement of the roof at the Maple Valley building in Corner Brook, as well as other service building improvements.

The project cost is based on a combination of historical costs and individual project estimates.

Customer Impact

Most of these projects have no direct customer impact. However, some are renovations to buildings and property frequented by customers.

Project Justification

Property renovations are required to ensure safe and efficient working areas for employees.

ADDITIONS TO REAL PROPERTY (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.

Future Commitments

None.

ALLOWANCE FOR UNFORESEEN ITEMS

Project Cost

\$750,000

Nature of Project

This item is necessary to cover any unforeseen capital expenditures which have not been budgeted elsewhere. Examples of such expenditures are the replacement of facilities and equipment due to major storm damages or equipment failure.

Customer Impact

This project provides funds for timely service restoration.

Project Justification

Projects for which these funds are intended are justified on the basis of reliability, or on the need to immediately replace deteriorated or damaged equipment.

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 Commitment

None.

TRANSPORTATION

PURCHASE OF VEHICLES AND AERIAL DEVICES

Project Cost

\$2,141,000

Nature of Project

This project involves the necessary replacement of passenger vehicles and aerial devices (line trucks). The existing units to be replaced have reached the end of their useful lives and are beyond economical repair.

The following table lists the projects for 2003:

Category	Cost (000s)	No. of Units
Passenger/off-road vehicles ¹	866	48
Heavy fleet vehicles ²	1,275	7
Total	\$2,141	55

Notes:

- ¹ The Passenger/Off-Road Vehicles category includes the purchase of cars, light duty trucks, snowmobiles, ATVs and trailers.
² The Heavy Fleet Vehicles category includes the purchase of replacement line trucks.

Customer Impact

This project will help maintain an acceptable level of customer service and employee safety.

Project Justification

All units to be replaced have been evaluated for factors such as overall condition, maintenance history and immediate repair requirements. Based on this evaluation, it has been determined that each unit has reached the end of its useful life and is beyond economical repair. For passenger vehicles the average life span is five years or 150,000 kilometers. For heavy fleet vehicles the average life span is 10 years or 250,000 kilometers.

New vehicles are acquired through competitive tendering and lease/buy analyses are prepared to ensure the lowest possible cost consistent with reliable service.

Future Commitments

None.

TELECOMMUNICATIONS

REPLACE/UPGRADE COMMUNICATIONS EQUIPMENT

Project Cost

\$242,000

Nature of Project

This project is necessary to upgrade or replace deteriorated communications equipment.

The following table lists the projects for 2003:

Project	Cost (000s)
Replace UHF System (Rattling Brook to Sandy Brook Hydro Plants)	155
Projects < \$50,000	87
Total	\$242

There are three items in the < \$50,000 category. These include, upgrading radio towers, upgrading the local centrex system and replacement of VHF radios.

The project cost is based on a combination of historical costs and individual project estimates.

Customer Impact

Effective communications are critical to ensuring the safe and reliable operation of the power system.

Project Justification

This project is required to ensure the integrity of the Company's communication system. The UHF communications system between Rattling Brook and Sandy Brook was installed in 1985. It is obsolete and is not providing reliable service. The UHF system is a link in the Company's voice communications system in Central Newfoundland, and also enables remote control and monitoring of the Sandy Brook Hydro Plant.

REPLACE/UPGRADE COMMUNICATIONS EQUIPMENT (Cont'd)

Over a 12-month period to July 2002, the system functioned at a level below that sufficient to provide remote control capability for the Sandy Brook Plant approximately 9 per cent of the time. Reliable remote control of this unattended hydro plant is essential to ensure proper control of dam gates and the safety of the main forebay dam during periods of high inflow. Remote monitoring enables the Company to anticipate operational problems with the unit that could result in an oil spill or in damage to the generating unit itself.

The smaller projects involve the replacement or upgrade of deteriorated equipment.

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.

SUBSTATION TELEPHONE CIRCUIT PROTECTION

Project Cost

\$141,000

Nature of Project

This project involves:

- a) Field visits to measure soil resistivity and calculation of ground potential rise at five Newfoundland Power substations (Pierre's Brook, Bay Roberts, Carbonear, Riverhead and Clarenville).
- b) Upgrades to teleline isolation installations at five Newfoundland Power substations (Bay Roberts, Carbonear, Blaketown, Bishop's Falls and Mobile). This work involves extending and increasing the diameter of the conduit containing Aliant Telecom's incoming cable.
- c) An engineering study into the actual versus calculated ground potential rise at substations in the Newfoundland environment.

Customer Impact

This work will assist in ensuring all personnel using or working on the communication equipment at each of these substations, and at the telephone exchange serving the substation, will be protected from electrical shock caused by excessive ground potential rise. It will also eliminate the possibility that ground potential rise may damage communications equipment of third parties sharing cable plant with Newfoundland Power equipment.

Project Justification

This project is justified on the basis of safety and reliability. Teleline isolation equipment will ensure that Aliant Telecom equipment remote from the substation will also be protected from any ground potential rise. The use of teleline isolation also ensures that the Company's SCADA communications circuits remain available to control and monitor the electrical system. This communication is necessary to ensure the safe and reliable management of power system devices.

SUBSTATION TELEPHONE CIRCUIT PROTECTION (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, except in the case of teleline isolation equipment where Aliant Telecom Inc. is the sole supplier.

Future Commitments

None.

INFORMATION SYSTEMS

APPLICATION ENHANCEMENTS

Project Cost

\$766,000

Nature of Project

The Company has many software applications (including custom developed applications like the Customer Service System (“CSS”) and software packages such as Microsoft Great Plains eEnterprise). This project is necessary to enhance these applications to support changing business requirements and take advantage of new developments and product improvements.

The project involves:

- a) *Customer Systems (\$251,000)*
This project includes enhancing the integration between CSS and the Handheld Meter Reading System to improve service order processing and meter reader efficiency, streamline processes (i.e. meter reading estimating and closing customer accounts), improve customer service and Call Centre efficiency, as well as the evaluation of alternatives for the replacement of the Company’s outdated cash processing system.
- b) *Business Support Systems (\$84,000)*
This project includes the development of new reporting capabilities required to analyse purchasing discount opportunities with frequently used suppliers, improvements to credit card workflow processes, improvements to the accounts receivable collections processes and improved access to employee information to enhance employee performance management.
- c) *Safety Management System Enhancements (\$99,000)*
This project involves extending the functionality of the current Safety Management System to include the tracking of contractor safety performance, safety-auditing protocols, tracking of occupational health concerns, and the handling and control of workplace hazardous materials to meet the requirements of occupational health and safety legislation.

APPLICATION ENHANCEMENTS (Cont'd)

d) *Internet/Intranet (\$116,000)*

This project involves the identification, design, and implementation of enhancements to the Company's external Internet web site and internal Intranet web site to improve on-line services to our customers and improve employee access to Company data (including policies, procedures and data stored in business applications). This will eliminate redundant processes and reduce the manual effort associated with maintaining Company information.

e) *Various Minor Enhancements (\$216,000)*

This project involves enhancements to the Company's computer applications in response to unforeseen requirements, such as legislative and compliance changes; vendor driven changes, and employee driven enhancements designed to improve customer service or staff productivity. Examples of previous changes have included Canada Post-initiated changes related to customer addresses, government-driven changes to income tax calculations in the payroll application and the development of workflow applications to enhance current environmental and operational processes.

Customer Impact

This project will contribute to the Company's ongoing efforts to achieve operating efficiencies and improve customer service.

Project Justification

This project is justified on the basis of improvements in customer service and increased operational efficiencies.

All materials and services for this project will be purchased after examining the competitive bids of prospective suppliers. Where alternative suppliers do not exist, all materials and services will be negotiated with a sole-source supplier to ensure least cost.

Future Commitment

None.

APPLICATION ENVIRONMENT

Project Cost

\$755,000

Nature of Project

This project is necessary in order to provide a stable and effective technology environment for the delivery and operation of the Company's business applications. This includes upgrades to current software tools, processes, and applications as well as the acquisition of new software licenses.

The project involves:

- a) *Microsoft Enterprise Agreement (\$250,000)*
The Microsoft Enterprise Agreement provides the Company with the right to use and upgrade Microsoft desktop products including Word, Excel, Access, and PowerPoint and back office products such as SQL Server.
- b) *Application Software Upgrades (\$155,000)*
Application software upgrades are necessary to keep versions of software products, such as Oracle database management software, up-to-date in order to ensure stable operation of the business applications that rely on them and to maintain vendor support. This project includes the internal labour to test the applications affected by such product upgrades.
- c) *Environment Management (\$145,000)*
Environment Management ensures that application development and implementation tools are updated and maintained to reflect changing technology and business requirements.
- d) *Microsoft Great Plains eEnterprise Upgrade (\$205,000)*
The Finance, Human Resources, Materials Management, Purchasing, and Payroll applications use the Microsoft Great Plains eEnterprise software. This project includes internal and external labour to implement and test a major upgrade to the eEnterprise software (to version 7.0 from version 6.0), and several vendor supplied software patches.

APPLICATION ENVIRONMENT (Cont'd)

Customer Impact

This project will contribute to the Company's ongoing efforts to achieve operating efficiencies and improve customer service.

Project Justification

This project is necessary to assess and take advantage of newly developed technology capabilities that contribute to improvements in the Company's information technology systems and ensure that corporate applications continue to operate in a stable and reliable manner. The proper maintenance of the application environment also provides the flexibility to accommodate new application and business requirements.

All materials and services for this project will be purchased after examining the competitive bids of prospective suppliers. Where alternative suppliers do not exist, all materials and services will be negotiated with a sole-source supplier to ensure least cost.

Future Commitment

None.

CUSTOMER SERVICE SYSTEM STUDY

Project Cost

\$170,000

Nature of Project

This project consists of a study that will assess the risk of continuing to use the existing Customer Service System (CSS) system and will present options for maintaining or replacing the Company's CSS in the future. The CSS system is ten years old and is becoming more costly to maintain. Also, the CSS is installed on the OpenVMS computer operating system, for which support by independent software vendors is in decline.

The CSS is the Company's largest and most complex application. The study will examine whether feasible alternatives to replacement exist that will extend the useful life of the CSS while mitigating the risk associated with declining industry support of the OpenVMS operating system.

Customer Impact

This project will contribute to the Company's ongoing efforts to achieve operating efficiencies and improve customer service.

Project Justification

The Company currently depends on the CSS to track customer information, bill customers and respond to customer inquiries. The CSS is used to process approximately 2,500,000 customer bills, 500,000 customer telephone calls and 130,000 service orders yearly. Without a system like the CSS, the Company would be unable to provide an acceptable level of service to its customers.

Due to declining industry support for OpenVMS, there is a risk associated with running such critical software applications as the CSS on the OpenVMS operating system. This study will assess the implications of this risk.

All materials and services for this project will be purchased after examining the competitive bids of prospective suppliers. Where alternative suppliers do not exist, all materials and services will be negotiated with a sole-source supplier to ensure least cost.

Future Commitments

None.

FACILITIES MANAGEMENT

Project Cost

\$562,000

Nature of Project

This is the completion of a 2002 project to improve the tracking and scheduling of maintenance activities associated with the Company's generation, substation and distribution electrical equipment.

The Company's facilities management application (known as MP2) has functional deficiencies. This project, as described in the Company's 2002 capital budget application, contemplated an expansion of the MP2 application. However, it has since been determined that, in order to provide the Company with more effective facilities management and preventative maintenance capabilities, the application must be replaced.

This project will also address the replacement of several applications that currently run on the OpenVMS operating system. These include:

- Transmission Line Inspection System
- Street Light Management System
- Protective Equipment System
- Pole Management System
- Metering Equipment System

Customer Impact

Establishment of an effective facilities management capability will allow the Company to improve operating effectiveness and enhance the Company's ability to respond to customers' service requirements.

Project Justification

An improved facilities management system will enable more effective management of company assets. Properly maintained assets such as relays and transformers are important for the provision of a reliable and safe electrical system.

FACILITIES MANAGEMENT (Cont'd)

Due to declining industry support for OpenVMS, the business risk associated with running software applications on the OpenVMS operating system is unacceptable to Newfoundland Power.

All materials and services for this project will be purchased after examining the competitive bids of prospective suppliers. Where alternative suppliers do not exist, all materials and services will be negotiated with a sole-source supplier to ensure least cost.

Future Commitments

None.

NETWORK INFRASTRUCTURE

Project Cost

\$542,000

Nature of Project

This is a two-year project involving the replacement of aging network components that no longer support the business needs of the Company or are no longer supported by the vendor.

This project involves:

- a) *The upgrade/replacement of network equipment in St. John's that connects the Company's Head Office on Kenmount Road to the Duffy Place office building. The existing network equipment in these buildings is aging and no longer provides the capacity required to connect shared servers and other network equipment to the corporate network. (\$255,000)*
- b) *The replacement of network equipment in offices outside of St John's that is used to transport SCADA, VHF radio, and corporate data from these offices back to St. John's computer facilities. The existing equipment is no longer manufactured, no new software upgrades are available, and new parts can no longer be purchased. (\$260,000)*
- c) *The purchase of additional communications equipment to provide connectivity between the SCADA network and the SCADA computers at the backup computer facility at Duffy Place. This equipment is required in order to provide remote monitoring and control of the electrical system in the event of a communications equipment failure at the System Control Centre at Topsail Road. (\$27,000)*

Customer Impact

This project will contribute to the Company's ongoing efforts to achieve operating efficiencies and improve customer service.

NETWORK INFRASTRUCTURE (Cont'd)

Project Justification

The network is used by employees to access applications like the Customer Service System and the SCADA system that reside on shared servers. The additional network capacity that will be provided at the Company's computer rooms at Kenmount Road and Duffy Place is required to maintain an acceptable level of network performance for employees who use these applications to perform their employment duties.

The project will also reduce the Company's reliance on technology that is no longer manufactured. The network components that need to be replaced connect Company offices across the province to the St. John's offices. Due to the lack of support for these network components, the business risk associated with running software applications and SCADA on these components is unacceptable to Newfoundland Power.

All materials and services for this project will be purchased after examining the competitive bids of prospective suppliers. Where alternative suppliers do not exist, all materials and services will be negotiated with a sole-source supplier to ensure least cost.

Future Commitments

Further expenditures of \$305,000 are estimated for 2004.

OPERATIONS SUPPORT SYSTEMS

Project Cost

\$383,000

Nature of Project

This is the completion of a 2002 project to replace a number of computer applications used by the Company's operations and engineering personnel for the estimating, scheduling and tracking of projects and other related field work. The total expenditure on this two-year project is lower than initially anticipated because the Company is able to achieve some of the project's objectives by availing of the capabilities of information technology systems either implemented in 2002 or to be implemented in 2003 through the Business Support Systems and Facilities Management capital projects.

Customer Impact

Implementation of a computer application for managing work in the Company's engineering and operations groups will improve operating effectiveness and enhance the Company's ability to respond to customers' service requirements.

Project Justification

There is an opportunity to improve operating efficiency and customer service through enhanced work management in the operations and engineering areas of the Company. Work planning, scheduling and tracking is currently supported by a variety of systems. The implementation of new software will eliminate the need for manual coordination between these systems and increase productivity.

One of the applications remaining to be replaced in 2003, the Switching Order System, runs on the aging, proprietary computer operating system known as OpenVMS. Due to declining industry support for OpenVMS, the business risk associated with running software applications on the OpenVMS operating system is unacceptable to Newfoundland Power.

OPERATIONS SUPPORT SYSTEMS (Cont'd)

All materials and services for this project will be purchased after examining the competitive bids of prospective suppliers. Where alternative suppliers do not exist, all materials and services will be negotiated with the sole-source supplier to ensure least cost.

Future Commitments

None.

OUTAGE MANAGEMENT

Project Cost

\$284,000

Nature of Project

This project will involve the replacement of the principal applications that support the Company's ability to respond to electrical system failures and incoming customer trouble calls. The principal applications to be replaced are the Problem Call Logging System and the Interruption Reporting System.

Customer Impact

This project will contribute to the Company's ongoing efforts to ensure the reliability of the electrical system and improve customer service.

Implementation of a new Outage Management System will ensure the Company continues to respond efficiently and effectively to widespread power outages as well as to customer trouble calls.

Project Justification

This project will result in the replacement of a number of systems currently running on the Company's aging, proprietary computer operating system known as OpenVMS. Due to declining industry support for OpenVMS, the business risk associated with running software applications on the OpenVMS operating system is unacceptable to Newfoundland Power.

While the replacement of these applications is necessary to address the OpenVMS issue, this project will also provide an opportunity to improve customer trouble call response time through functional enhancements.

OUTAGE MANAGEMENT (Cont'd)

All materials and services for this project will be purchased after examining the competitive bids of prospective suppliers. Where alternative suppliers do not exist, all materials and services will be negotiated with a sole-source supplier to ensure least cost.

Future Commitments

None.

PERSONAL COMPUTER INFRASTRUCTURE

Project Cost

\$634,000

Nature of Project

This project is necessary for the replacement or upgrade of personal computers, printers and associated assets that have reached the end of their useful life. Of the Company's total of 602 personal computers, 123 desktop computers and 17 laptop computers will be replaced. This is in keeping with the Company's expectation of a three to four year life cycle for personal computers.

The project also involves the replacement of eight laser printers, several scanners, and other peripheral equipment.

The Company annually reviews its personal computing requirements in detail as a part of its capital budgeting process.

The following table contains a projection of the number of personal computers in the Company at the end of 2003.

PCs	2001 Total	2002 Plan			2003		
		Added	Retired	Total	Added	Retired	Total
Desktop	522	134	166	490	123	123	490
Laptop	111	29	28	112	17	17	112
Total	633	163	194	602	140	140	602

Customer Impact

This project will contribute to the Company's ongoing efforts to achieve operating efficiencies and improve customer service.

PERSONAL COMPUTER INFRASTRUCTURE (Cont'd)

Project Justification

This project will enable the Company to accommodate application enhancements and new applications while maintaining current performance standards. The replacement of personal computer infrastructure and the reassignment of older, less powerful personal computers to users with lesser capacity requirements will extend the useful life of personal computers and reduce costs.

All materials and services for this project will be purchased after examining the competitive bids of prospective suppliers.

Future Commitments

None.

SHARED SERVERS INFRASTRUCTURE

Project Cost

\$1,411,000

Nature of Project

This project is necessary to maintain current performance on the Company's shared servers and to provide the additional infrastructure needed to accommodate new and existing applications. This involves the replacement and upgrade of disks, processors, and memory, as well as security and monitoring software.

This project involves:

- a) *Server upgrades and replacements* for the existing infrastructure including new servers, disks, processors, memory, tape backup units and storage cabinets. (\$404,000)
- b) *Two new servers* to accommodate the Outage Management application. (\$36,000)
- c) *Monitoring and security software* including associated training/consulting to maintain and improve current monitoring and security procedures to protect the Company's technology investment. (\$168,000)
- d) *Upgrade of the Call Centre Technology (CTI)*. The vendor, Aspect Telecommunications, will not support the current version of the CTI module of the Call Centre Technology beyond 2002. The CTI module provides customers 24-hour access to their account information and is a critical technology component in the provision of service to customers. (\$278,000)
- e) *Hardware and software upgrades to the SCADA computer system*. This includes replacement of the existing disk storage, and upgrades to the Unix operating system and SCADA software. (\$525,000)

Customer Impact

This project will contribute to the Company's ongoing efforts to achieve operating efficiencies and improve customer service.

SHARED SERVERS INFRASTRUCTURE (Cont'd)

Project Justification

This project is justified on the basis of the need to provide additional capacity to support new applications and to maintain the performance of the Company's servers. Some of the Company's major shared servers are used by as many as 400 employees at one time. Degradation of server performance can have a negative impact on employee productivity, customer service, and the integrity of stored corporate data.

All materials and services for this project will be purchased after examining the competitive bids of prospective suppliers. Where alternative suppliers do not exist, all materials and services will be negotiated with a sole-source supplier to ensure least cost.

Future Commitments

None.