

2002 Environmental  
Performance Report



With  
**NB POWER**  
comes responsibility



**Énergie NB Power**



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# HIGHLIGHTS

## 2002

NB Power received environmental approval for the refurbishment of the Coleson Cove Generating Station.

Following a positive review by federal environmental authorities, the National Energy Board gave approval for the International Power Line Project to proceed.

An Environmental Assessment Study Report on the Solid Radioactive Waste Management Facility for the Point Lepreau Generating Station was submitted to the Canadian Nuclear Safety Commission.

The Grand Lake Generating Station received a three-year air quality operating approval, while the combustion turbines at Millbank and Ste.-Rose received five-year approvals.

System sulphur dioxide emissions were well under the annual limit of 123 kilotonnes. Between 1994-2002, accumulated sulphur dioxide emissions have been 430 kilotonnes less than annual limits.

Particulate emission tests at the major thermal stations demonstrated success in keeping particulate emissions below 160 mg/m<sup>3</sup> which is Environment Canada's guideline for new station sources.

Over 99% of wastewater effluent analysis were within limits established for each generating station's approval to operate.

Gypsum, flyash and bottom ash from various generating stations were recycled for wallboard, concrete products and vanadium thereby reducing landfill requirements.

The Customer Service and Transmission business units adopted environmental management programs consistent with ISO 14001.

NB Power continued its successful program to reuse and recycle materials from its power line infrastructure such as conductors, insulators, cross-arms and poles.

Transmission line patrols discovered 12 new osprey nests during the year, bringing the total within the province on power lines to 274.

Wind energy evaluations are underway at Lamèque, Amherst, Dorchester and Escuminac/Baie St.-Anne.

NB Power was part of the recovery teams to rebuild the population of targeted endangered plant species.



## A Record of Leadership

NB Power has historically been a leader in environmental protection, initiating many ground-breaking programs:

### Generation

- At Belledune and Dalhousie, NB Power installed Canada's first and third electrical generating station "scrubbers" to significantly reduce sulphur dioxide emissions.
- Major thermal generating stations at Belledune, Dalhousie, Coleson Cove and Grand Lake are equipped with electrostatic precipitators to remove particulate from flue gases.
- State-of-the-art treatment facilities maintain wastewater quality.
- Fish-handling facilities at Mactaquac, Beechwood, Tobique and Milltown assist the movement of fish along the St. John, Tobique and St. Croix Rivers.
- Creative uses for generation by-products have reduced landfill requirements – gypsum is processed into wallboard, flyash is used in concrete and ash is recycled for its vanadium.
- NB Power was the first electric utility to commit to consistency with federal Environmental Codes of Practice for Steam Electric Power Generation.
- The Coleson Cove Generating Station was the first industrial facility to undergo the public participation process under New Brunswick's *Clean Air Act*.

### Nuclear

- The Point Lepreau Nuclear Generating Station is an important component of NB Power's emission reduction initiatives. In 2002, electricity generated at the station avoided emissions of 49,640 tonnes of sulphur dioxide, 2.9 million tonnes of carbon dioxide and 10,200 tonnes of nitrogen oxide.
- Environment Canada's Code of Practice cites the cooling water intake at Point Lepreau as a model.
- Point Lepreau was the first nuclear generating station to undergo a complete environmental impact assessment under federal guidelines.

### Transmission/Customer Service

- NB Power's protection program for the Osprey has helped remove this bird from the endangered species list.
- Materials from operations are reused or recycled each year.
- Most of NB Power's known transmission inventory of PCB equipment has been eliminated.
- Employees support Arbour Day by planting trees and shrubs.
- NB Power has implemented an environmental protection plan for staff and contractors working on transmission and distribution lines.

# Environmental POLICY

## Environmental Policy

Five principles guide NB Power's environmental performance and affirm the Corporation's commitment to environmental protection:

- 1. Leadership** – NB Power maintains a leadership role in the investigation of new environmentally responsible technologies and methodologies through co-operative efforts with the public, industry, researchers and government.
- 2. Environmental Standards** – NB Power complies with all applicable environmental legislation and other non-regulatory commitments at its facilities, from early planning through operation and, finally, decommissioning.
- 3. Environmental Audits** – NB Power is committed to periodic environmental audits of its facilities and associated monitoring programs to assess compliance with regulatory requirements and consistency with industry standards and internal procedures.
- 4. Environmental Protection** – NB Power provides a framework for setting and reviewing objectives, targets and procedures to assist its employees in meeting the utility's commitment to environmental protection, prevention of pollution and improvement of its environmental management systems.
- 5. Partnership** – NB Power strives to ensure that its Environmental Policy is respected by all its partners, including contractors, consultants and suppliers of goods and services.

Each business unit – Generation, Nuclear, Transmission and Customer Service – integrates the Environmental Policy with its operations. Environmental Management Systems including protection programs are in place, and employees are expected to perform their work in an environmentally responsible manner.

To provide support, the Corporate Environmental Affairs Division assists the business units to:

- integrate environmental management with operations and project planning
- acquire regulatory approvals for facilities and new construction
- monitor compliance with regulatory approvals and report to regulating agencies
- consult with external agencies and stakeholders on environmental issues
- provide environmental information to customers, staff, regulatory authorities and the public
- monitor and provide input on new and revised environmental standards and legislation



# A FEW WORDS From to action

NB Power operates one of North America's most diverse generating systems and interconnected transmission networks. Electricity is generated at 15 facilities using oil, uranium, water, coal, Orimulsion® or diesel as fuel. It is transmitted to 350,000 provincial and export customers via terminals, substations and interconnections networked by 32,000 km of power lines.

Our major generating facilities utilize state-of-the-art environmental protection equipment and operations are in compliance with environmental regulations and Environmental Management Systems. Taken together, these efforts have created significant advances in protecting the environment in New Brunswick. During 2002, NB Power's environmental performance was highlighted by:

- sulphur dioxide emissions below regulated levels
- particulate emissions below federal government levels required for new station sources
- over 99% of tested wastewater effluent satisfied environmental approvals
- recycling of generation by-products reduced landfill requirements
- ISO registered or consistent environmental management systems in each business unit

Our future environmental performance will result from our development plan. During the year, progress was significantly advanced on each of the development projects:

- environmental approval was received for the refurbishment of the Coleson Cove Generating Station
- following a positive review by federal environmental authorities, the National Energy Board gave approval for the proposed international power line project to proceed
- an environmental assessment report on the solid radioactive waste management facility for the Point Lepreau Generating Station, a precursor for refurbishment, was submitted to the Canadian Nuclear Safety Commission

There is the potential for even more environmental improvements. NB Power expects to reduce carbon dioxide emissions consistent with international and regional emission targets by refurbishing the Point Lepreau Generating Station and other initiatives such as acquiring carbon dioxide emission credits. We are working with the Provincial Government and other stakeholders on equitable reduction strategies.

Wind is an environmentally friendly renewable energy resource and in partnership with local developers, we are assessing development potential at several sites. Along with the Coleson Cove and Point Lepreau refurbishment projects, renewable energy will help to meet future emission stabilization and reduction targets.

NB Power's *Environmental Performance Report 2002* is the most complete overview of our environmental performance. This year, it has been produced in a CD-ROM format, a reflection of our on-going efforts to find innovative ways to preserve natural resources and our commitment to communicate effectively with all our stakeholders.



Stewart MacPherson  
Acting President and CEO





# Our CORPORATE of success

## Environmental Management System

NB Power's Environmental Management System (EMS) provides a structured approach to managing environmental issues in the business units. Activities are based on the ISO 14001 standard of continual improvement through planning, implementation, auditing, corrective action and management review.

By providing a framework that can be audited, the EMS ensures there are environmental goals with defined accountabilities and performance measures. Other benefits include due diligence and improved relationships with stakeholder communities and regulatory agencies.

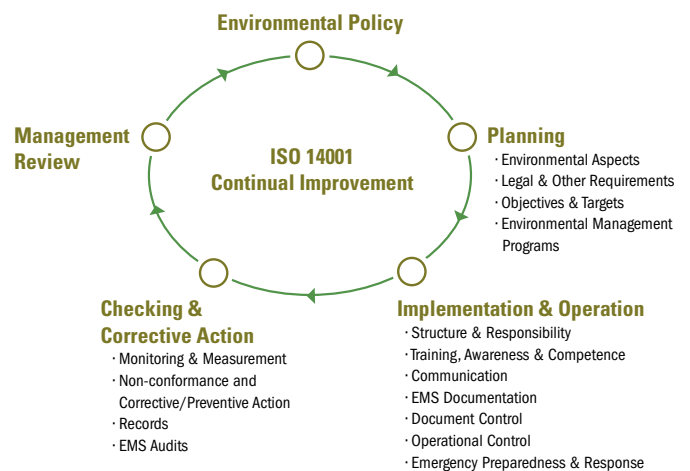
## National Benchmarks

NB Power is a member of the Canadian Electricity Association and participates in the Environmental Commitment and Responsibility (ECR) Program. In this industry-wide initiative, electric utilities report on specific measures and indicators to benchmark performance. The principles of the ECR Program are:

- To be more efficient in our use of resources.
- To reduce the adverse environmental impact of our business.
- To be accountable to our constituents.
- To ensure that our employees understand the environmental implications of their actions and have the knowledge and skills to make the right decisions.

**NB Power is committed to excellence and innovation  
in protecting the environment while meeting its mandate  
to provide economic and reliable energy  
to the people of New Brunswick.**

## Environmental Management System



Environmental Commitment and Responsibility Program Indicators 2001*		
	NB Power	Industry
Energy Conversion Efficiency of Fossil Fuel Generating Stations	35.9%	34.5%
Internal Energy Efficiency		
Generation	94.5%	97.5%
Transmission	97.4%	96.0%
Distribution	95.4%	95.8%
Reuse of Electrical Insulating Oil	58.3%	77.7%
Utilization of Solid Combustion By-Products	61.8%	24.8% <sup>1</sup>
Atmospheric Emissions <sup>2</sup>		
CO <sub>2</sub> Emitted Per Unit of Net Fossil Generation (kg/kWh)	0.83	0.92
CO <sub>2</sub> Emitted Per Unit of Net System Generation (kg/kWh)	0.54	0.26
Mass Net CO <sub>2</sub> Emitted Per Unit of Net Fossil Generation (kg/kWh)	0.83	0.83
Mass Net CO <sub>2</sub> Emitted Per Unit of Net System Generation (kg/kWh)	0.54	0.23
SO <sub>2</sub> Emitted Per Unit of Net Fossil Generation (g/kWh)	9.1	4.77
SO <sub>2</sub> Emitted Per Unit of Net System Generation (g/kWh)	6.0	1.32
NO <sub>x</sub> Emitted Per Unit of Net Fossil Generation (g/kWh)	2.4	1.73
NO <sub>x</sub> Emitted Per Unit of Net System Generation (g/kWh)	1.6	0.42
Spills		
Spills Reported to External Agencies	123	1,167
PCB Management		
Total inventory of high level PCB material in storage (tonnes)	8.5	103.6
Total inventory of low level PCB material in storage (tonnes)	38.5	849.3
Total amount of high level PCB material sent for destruction (tonnes)	0	510.2
Total amount of low level PCB material sent for destruction (tonnes)	0	1,193.1
Generation of Low and Intermediate Level Radioactive Waste (m <sup>3</sup> )	66.1	324.7 <sup>3</sup>

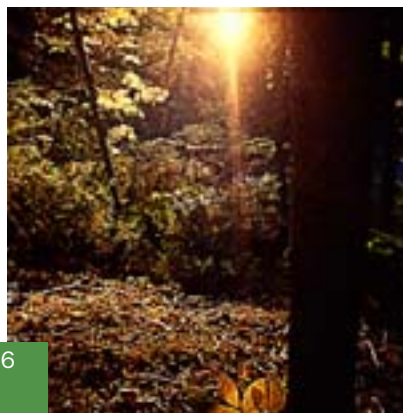
\* Please note that these figures are for calendar year 2001 consistent with the reporting timeframe for the ECR Program.

Notes : 1 NB Power's measure is significantly higher than the industry average due to the utilization of gypsum from the flue gas desulphurization units at Belledune and Dalhousie. The utilization of solid combustion by-products increased slightly in 2001 due to decreased ash production during the year.

2 NB Power's measure is higher than the industry average due to the large percentage of hydroelectric generation in Canada. NB Power's emission rate of SO<sub>2</sub> per unit of fossil generation is higher than the industry average due to generation from fuels with a higher sulphur content.

3 NB Power's measure is significantly lower than the industry average due to the number of reactors in prolonged outages in Ontario.

As part of the ECR program, an independent verification will be undertaken in June 2003 to ensure the indicator reports are accurate and that EMS implementation is consistent with the ISO 14001 standard. A verification team, comprised of an independent assessor and a provincial representative, will conduct interviews and review the data and then present its findings to the ECR Public Advisory Panel and NB Power.



## Future Issues

Local, regional and global responses to environmental issues have an influence on NB Power's operations and system development. The licensing of existing or new generating stations and the construction of transmission infrastructure must satisfy current or emerging regulatory requirements for improved environmental performance.

### Climate Change

Canada has ratified the Kyoto Protocol to reduce greenhouse gas (GHG) emissions by 6% of 1990 levels by 2008-2012. The Federal Government has initiated negotiations with large GHG emitters on covenant agreements for reduction targets. The agreement framework includes provisions for a domestic emissions trading program.

Additionally, the New England Governors and Eastern Canadian Premiers agreed in 2001 to a Climate Change Action Plan to reduce regional GHG in a manner that is cost effective while maintaining reliable energy supplies. That plan set regional reduction targets:

- reduce regional GHG emissions to 1990 emission levels by 2010
- reduce regional GHG emissions by at least 10% below 1990 emissions by 2020 and establish a five-year process in 2005 to adjust or establish future emissions reductions goals
- reduce regional rate of emissions by 20% per MWH by 2025 from the 2000 rate

While New Brunswick accounts for 3% of Canada's GHG emissions, all jurisdictions will be called upon to address climate change. Approximately 90% of New Brunswick's 20 million tonnes of carbon dioxide emissions come from the combustion of fossil fuels with electricity generation accounting for 47% or 9 million tonnes.

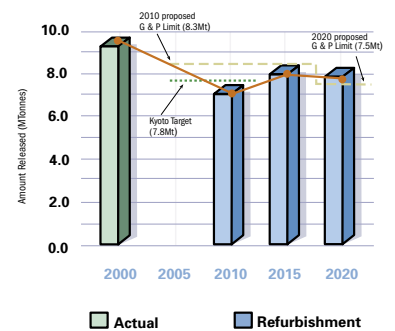
Options to substantially change the generation mix in the short term to address GHG are limited. The refurbishment of the Point Lepreau Generating Station is key to NB Power's strategy to mitigate carbon dioxide emissions and meet projected limits. On an annual basis, the station reduces carbon dioxide emissions by about 2 - 4 million tonnes compared to other fossil-fired generation alternatives.

NB Power expects to reduce carbon dioxide emissions to the 2010 target of the New England Governors and Eastern Canadian Premiers (G&P) by:

- refurbishing the Point Lepreau Generating Station
- reducing low margin export sales and dispatching lower emission generation
- energy efficiency and renewable generation sources

To achieve the additional reduction required in 2020, higher margin exports would be foregone or carbon dioxide emission credits acquired. These emission credits may be acquired by the purchase of low emission energy from inside or outside the province or by the purchase of credits through emissions trading mechanisms.

CO<sub>2</sub> Emissions Comparison



New Brunswick's economy is largely natural resource-based and manufacturing industries are energy intensive and export driven. This presents the challenge of linking GHG emission reduction strategies to energy costs and economic competitiveness. The Provincial Government is developing a Climate Change Action Plan for New Brunswick. In early 2003, an initial consultation process encompassed discussion of emissions reductions targets, sequestration measures and the economic impact of mitigation and adaptation actions.

Clarifying the role of nuclear energy will be a priority of the consultation process, as well as defining the reduction targets for each sector of the economy.

### Nitrogen Oxide

Nitrogen oxide emissions are regulated by federal government point source emission guidelines and applied to newly constructed or upgraded generating facilities. In addition, the New England Governors and Eastern Canadian Premiers have targeted a 30% reduction in nitrogen oxide emissions by 2007. The Coleson Cove Generating Station currently contributes about 60% of NB Power's nitrogen oxide emissions. The refurbishment project at the station includes control technology that will enable NB Power's nitrogen oxide emissions to be reduced by about 40% from year 2000 levels beginning in 2004.

### Sulphur Dioxide

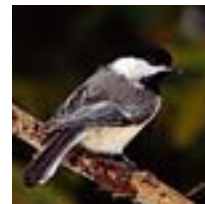
The Government of Canada and the New England Governors and Eastern Canadian Premiers are working to achieve regional and national reductions in sulphur dioxide emissions. The Provincial Department of Environment and Local Government has indicated it favours a two-phase reduction of NB Power's existing annual sulphur dioxide limit of 123,000 tonnes:

- Phase 1 – a 30% reduction by 2005 (86,100 tonnes limit)
- Phase 2 – a 50% reduction by 2010 (61,500 tonnes limit)

NB Power's "Sulphur Dioxide Emissions Reduction Program – January 2001" outlined specific actions to satisfy the emission constraints. The Coleson Cove refurbishment project, described below, and the planned closure of the Grand Lake Generating Station will enable NB Power to meet emerging sulphur dioxide emissions reduction targets.

### Particulate Matter and Ozone

In 2000, federal, provincial and territorial governments signed the Canada-Wide Standards (CWS) for particulate matter (PM) and ozone. These standards commit governments to significantly reduce PM and ground-level ozone by 2010. By 2005, scientific, technical and economic analysis will be completed by the regulatory authorities to reduce information gaps and establish the PM and ozone CWS for 2015.



### Mercury

Canada-Wide Standards for mercury emissions from coal-fired electric power generation are being developed. Working through the Canadian Electricity Association (CEA), NB Power believes a decision is most appropriately timed for 2005 when information from the CEA Mercury Program will be available as will similar policy direction in the United States and developed control strategies for environmental issues of climate change, particulate matter and ozone.

Regionally, the New England Governors and Eastern Canadian Premiers are developing an implementation plan for reductions in mercury emissions. Their current recommendations for annual total mass-basis mercury emissions in the coal-fired electric utility sector call for a 20-50% reduction (from the 1995 base year) by January 2005 and a 60-90% reduction by January 2010.

NB Power's mercury emissions account for 1.7% of the total from northeastern North America and are mostly attributable to use of indigenous coal. The Belledune Generating Station stopped using indigenous coal in 2002 thereby significantly reducing its mercury emissions. Following the retirement of the Grand Lake Generating Station, system emissions should be reduced by 85% from the base year.

### Federal Emissions Guidelines

NB Power participated in consultations with the federal government on "Thermal Power Generation Emissions - National Guidelines for New Stationary Sources" issued under the *Canadian Environmental Protection Act*. The revisions were enacted in early 2003 and apply to new generating units including a generating unit that replaces an existing unit. By undertaking a provincial environmental impact assessment and meeting significant emission reductions for the Coleson Cove refurbishment project, NB Power satisfied the intent of the new national guidelines.

### PCBs

Current draft federal legislation requires elimination of PCBs in existing equipment by 2007. NB Power has removed PCBs from its large power transformers and is proceeding with a review of the implications of the draft legislation.



## Business Development

The goals of NB Power's business development plan are to:

- ensure the availability of reliable power
- meet evolving environmental standards
- maintain stable and competitive power rates that support economic growth

Investment analysis identified key projects that are in various stages of regulatory assessment or construction.

### Coleson Cove Generating Station Refurbishment

The operation of the 1000 MW oil-fired Coleson Cove Generating Station beyond 2005 required investment to meet new environmental standards. The station refurbishment, currently underway, includes installation of control technologies to significantly reduce emission rates. Lower fuel costs from using Orimulsion® as a fuel will help to finance the new environmental protection equipment.

During 2002, the project received environmental approval from the Department of Environment and Local Government. The review concluded that the project wouldn't have significant impact on the environment if appropriate mitigation measures proposed by NB Power were implemented. The reduction in emission rates for sulphur dioxide, particulate matter and nitrogen oxide was a major factor in the environmental approval. The approval conditions relate to air quality, marine impacts, spill prevention/response, fuel delivery and emissions.

Construction on the project began in November 2002 and is scheduled for completion by November 2004.

### Point Lepreau Nuclear Generating Station Refurbishment

NB Power is proposing to refurbish the Point Lepreau Generating Station during an 18-month outage beginning April 2007 or 2008.

The major activity during the outage is replacement of all 380 fuel channel and calandria tube assemblies and other reactor components. Other equipment replacements, inspections and upgrades would also be completed during the maintenance outage. Successfully completing the project would allow the station to operate for an additional 25 to 30 years.



In September 2002, the Public Utilities Board recommended to NB Power's Board of Directors that the project, as presented, not proceed because there was no significant financial advantage. NB Power recognizes that many factors outside the scope of the review will be important inputs towards a final decision on refurbishment. These include the environmental benefits from continued operation of the station along with the uncertainty in the pricing and supply of natural gas, a potential replacement source of generation.

A final decision on the project is pending. The Province of New Brunswick intends to seek external investment for this project.

Related to refurbishment, NB Power has submitted an environmental assessment study report on the modifications to the solid radioactive waste management facility to the Canadian Nuclear Safety Commission (CNSC). The CNSC, in conjunction with other designated federal and provincial authorities, have drafted a screening report which was issued for public review in March 2003. A hearing on the environmental assessment, in which members of the public are encouraged to participate as intervenors, is planned for June 2003. A decision from federal and provincial regulatory authorities on the environmental assessment is expected in mid-2003.

### **International Power Line Project**

Greater transmission access in the region would be enhanced with the proposed construction of a second New England interconnection. The 345 kV transmission line and interconnection with Maine would increase opportunities to import and export power, improve overall system reliability and enhance transmission efficiency.

To initiate the project, NB Power made an application to the National Energy Board (NEB) for a Certificate of Public Convenience and Necessity to construct, operate and maintain the proposed power line. A Comprehensive Study Report (CSR), consisting of an environmental assessment, was submitted to the NEB in 2002 and a public hearing was held in Saint John in March 2003.

The CSR was prepared as a requirement of the *Canadian Environmental Assessment Act* and outlines the route selection process detailing how the transmission line will be designed, constructed, operated and maintained to minimize environmental effects. The study involved environmental mapping, corridor selection and a complete environmental assessment of the preferred 1 kilometre-wide corridor.

After reviewing the CSR prior to the NEB hearing, the Minister of Environment for Canada concluded that the project, with mitigation, was not likely to cause significant adverse environmental effects and no further environmental assessment by a review panel or mediator was warranted. Following a public hearing, the National Energy Board gave approval for the project to proceed. Current work is focused on designing the associated tariff and securing environmental and regulatory permitting in the United States.



### Alternative Energy

Wind power is an environmentally friendly and renewable energy resource that NB Power has been exploring as part of possible alternative energy development. In concert with the projects at Coleson Cove and Point Lepreau, renewable energy development will help meet emission stabilization and reduction targets.

Development work has focused on wind generation assessments, seeking financial assistance from the federal government, developing a green power option for customers, and developing project proposals that would invite the private sector to develop a wind project. In partnership with local developers, NB Power is assessing the potential for wind development at several sites around the province:

- **Lamèque** – In 2001, NB Power contributed funding towards a wind energy feasibility study which included the construction of a tower to record wind data. In December 2002, NB Power installed a second wind monitoring tower that records wind data up to a 60 metre height.
- **Dorchester** – NB Power is partnering with the University of New Brunswick and the village of Dorchester to share the costs of a wind monitoring station and a feasibility study. A 50 metre wind monitoring tower was installed in November 2002.
- **Escuminac/Baie St.-Anne** – NB Power is exploring the installation of a wind monitoring station.
- **Tantramar** – Nova Scotia Power and NB Power are sharing data from a 50 metre wind tower that was installed in August 2002 near Amherst.

To enhance understanding of alternative energy development, NB Power partnered with the Université de Moncton and the University of New Brunswick to conduct wind energy information seminars. Two seminars in Fredericton and Shippagan attracted over 300 individuals interested in alternative energy development. Discussions with groups around the province on potential wind development sites are underway.

Consistent with the Province of New Brunswick's energy policy directives, NB Power is developing a green power pricing option. This would allow customers to voluntarily purchase monthly blocks of green energy at a premium and the funds collected would be channelled towards the purchase of energy from a wind project.

In May 2002, NB Power and the Federal Government signed a memorandum of understanding for the sale of green energy to federal facilities located in New Brunswick. A final agreement is under negotiation. Concurrently, NB Power is applying to the federal government's Market Incentive Program which provides funding to electric utilities to market green energy to their customers.

Detailed information on each of the development projects, including evidence supporting various regulatory filings and decisions, may be found at [www.nbpower.com](http://www.nbpower.com).





# GENERATION

# ON

## the challenge

**NB Power operates one of North America's most diverse generating systems, consisting of fourteen oil, hydro, coal, Orimulsion® and diesel powered facilities.**

**These conventional generating stations have an installed capacity of 3,134 MW.**



### Overview

NB Power is committed to protecting the environment and producing economical and reliable energy for New Brunswickers. Installing advanced environmental protection equipment to manage air emissions and wastewater discharges ensures this success. NB Power has also established a progressive waste management and minimization program. Each generating station operates with approvals issued under the New Brunswick Department of Environment and Local Government's (NBDELG) *Clean Environment Act* and *Clean Air Act*.

NB Power is committed to ensure that its generating stations meet air emission standards. The Coleson Cove and Grand Lake Generating Stations have electrostatic precipitators to control particulate emissions. The Dalhousie Generating Station has an electrostatic precipitator and a flue gas desulphurization system called a scrubber, which significantly reduces sulphur dioxide (SO<sub>2</sub>) emissions. The Belledune Generating Station also has an electrostatic precipitator and a scrubber, as well as a specially designed burner to limit nitrogen oxide (NO<sub>x</sub>) emissions.

Hydroelectricity is a renewable energy source that does not emit the by-products of thermal generators. NB Power operates six hydro generating stations on the St. John, Tobique and St. Croix Rivers. The primary impact of hydro stations is on the rivers that power them and NB Power has measures in place to reduce that impact.

NB Power has an agreement with Fisheries and Oceans Canada and the New Brunswick Department of Natural Resources and Energy regarding its three storage dams on the Tobique River headwaters. This agreement ensures that there is enough water above and below the dams for fish habitat. Additionally, four hydro stations – Mactaquac, Tobique, Beechwood and Milltown – have facilities that enable fish to make their way upstream.

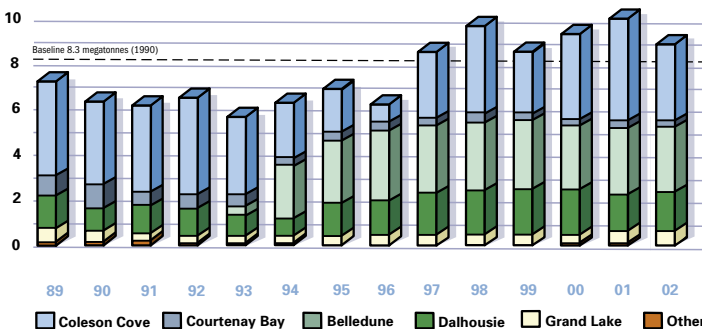
The spring thaw brings high water and potential ice jams to New Brunswick rivers. Together with the Provincial Emergency Measures Organization and River Forecasting Centre, NB Power monitors water and ice levels. In addition, NB Power clears driftwood and other debris that accumulate in the headponds.

Air quality is also an important factor in the generation of electricity. Therefore, each NB Power generating station has equipment to monitor emissions. Stations at Dalhousie, Belledune, Millbank, Grand Lake and Courtenay Bay receive SO<sub>2</sub> data from monitors connected to local ambient air quality networks. This helps to ensure that regulated ambient air quality levels are being met. Stations at Dalhousie, Belledune, Grand Lake and Coleson Cove also run an air quality computer model to predict hourly SO<sub>2</sub> levels so that operations can maintain authorized levels. These stations also have continuous emissions monitoring systems and/or computer systems to measure SO<sub>2</sub> and NO<sub>x</sub> emissions and opacity.

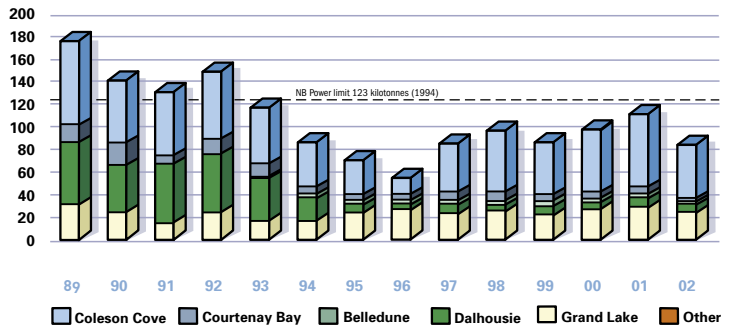
Our proactive recycling of generation by-products underlines environmental commitment. Recycling efforts have significantly reduced landfill. Dalhousie and Coleson Cove recycle bottom ash and flyash for extraction of vanadium for use in the steel industry. Courtenay Bay also recycles bottom ash. Belledune recycles flyash for use in concrete products and industrial operations. Unmarketable ash, gypsum and wastewater treatment sludge from the stations are contained in engineered landfills that protect groundwater. At Grand Lake and Belledune, coal pile run-off is collected and treated.

All thermal stations have treatment systems to monitor and control wastewater quality. Combustion turbines at Millbank and Ste.-Rose are equipped with water treatment plants that produce ultra-high pure water in the combustion turbines to reduce NO<sub>x</sub> emissions. Millbank, Ste.-Rose and Grand Manan use a low-sulphur light fuel oil (less than 0.5%), which ensures low SO<sub>2</sub> emissions.

**Carbon Dioxide Emissions**  
(megatonnes)



**Sulphur Dioxide Emissions**  
(kilotonnes)



## Air Quality

Following a public consultation process, the Grand Lake Generating Station received air quality operating approval for three years. The consultation process included a 120-day public review period pursuant to the *Clean Environment Act*. The latest operating approval contains a number of requirements, including strategies aimed at reducing emissions from the facility. NB Power is required to submit an emissions reduction plan for the station by March 2004. The plan will include measures to reduce emissions of sulphur dioxide and mercury to assist the Province in meeting reduction target commitments made by the New England Governors and Eastern Canadian Ministers.

Millbank and Ste.-Rose both received five-year air quality operating approvals.

NB Power and NBDELG operate the New Brunswick Acid Rain Monitoring Program. Last year, audits of all sites were conducted ensuring proper procedures were followed in collecting samples and recording information. This program showed that as much as 85% of the acid rain falling on New Brunswick is transported by weather systems from other parts of Canada and the United States.

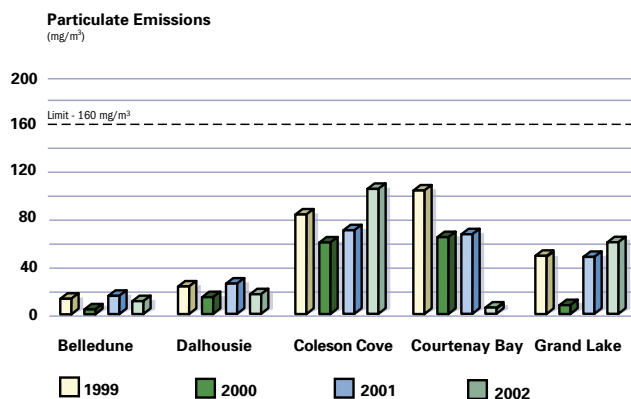
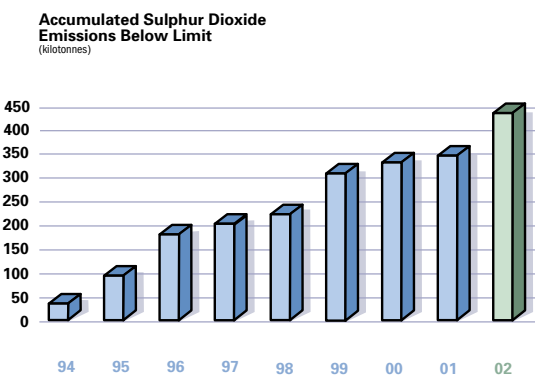
During 2002, carbon dioxide (CO<sub>2</sub>) emissions were lower than during the previous year due to lower fossil fuel generation.

NB Power's sulphur dioxide emissions control program has reduced emissions from over 176 kilotonnes in 1989 to 83 kilotonnes in 2002. During 2002, SO<sub>2</sub> emissions were lower year-over-year because of lower fossil fuel generation.



Consistently, NB Power has kept sulphur dioxide emissions under its annual limit of 123 kilotonnes established in 1994. Between 1994 and 2002, accumulated sulphur dioxide emissions were 430 kilotonnes less than the annual limits. This success in reducing sulphur dioxide levels is primarily due to emissions control equipment installed at the Belledune and Dalhousie Generating Stations.

Annual particulate emission tests at Belledune, Dalhousie, Coleson Cove, Courtenay Bay and Grand Lake demonstrated success in keeping emissions below the 160 mg/m<sup>3</sup> guideline for new station sources. There are no significant particulate emissions from the Millbank and Ste.-Rose combustion turbines.



## Water Quality

Millbank and Ste.-Rose both received approval to operate the wastewater treatment system under the *Clean Environment Act*.

An Aquatic Thermal Plume Monitoring Study was conducted at Belledune in 2002. This study confirmed the actual thermal plume produced at the station is consistent with the size and intensity of the computer model plumes. This monitoring study fulfils a commitment made during the environmental impact assessment of the station.

Analyses were performed on wastewater effluent in accordance with each generating station's environmental approval to operate. During the year, over 99% of wastewater effluent analyses were found to be within approval limits.

NB Power continues to work on improving its wastewater use and treatment. A study was conducted at the Grand Lake Generating Station to identify alternative ways of controlling ash-particle sedimentation.

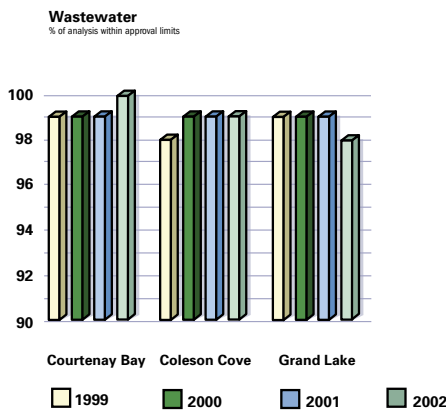
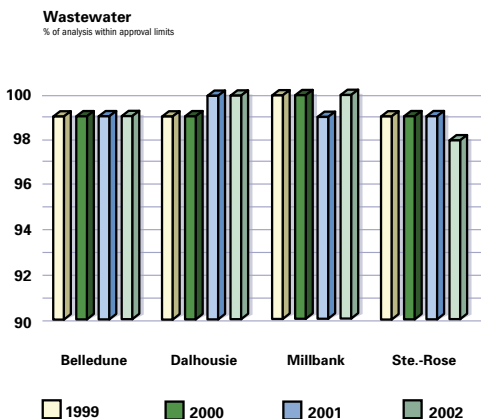
## Waste Management

NB Power has found creative ways to use generation by-products to reduce landfills. For example, the Canadian Gypsum Company received over 225,400 tonnes of gypsum, a by-product of desulphurization at Dalhousie and Belledune, for processing into wallboard.

Over 21,864 tonnes of flyash from Belledune was sold for use in concrete products. Approximately 2,050 tonnes of ash from Dalhousie and Coleson Cove was recycled for the extraction of vanadium, used in the steel industry. This initiative reduced the materials sent to landfill.

Additionally, a new landfill cell was constructed at Coleson Cove for the disposal of by-products. This landfill was designed and constructed consistent with NBDELG guidelines. The exhausted portion of the landfill at Coleson Cove was capped in accordance with the guidelines established by NBDELG.

The Belledune Generating Station produces up to 100,000 tonnes of flyash annually as a by-product of generation. The high carbon level in the ash had made it unusable in concrete products though Generation has identified a carbon beneficiation technology to produce flyash acceptable as a substitute for Portland cement. This environmentally proactive recycling also avoids capital and operations costs for land filling.



To assist with the proper disposal and recycling of PCB contaminated material from the Service Center, NB Power evaluated PCB tenders and conducted a site visit of a contracted PCB disposal facility to inspect environmental and managerial practices. A total of 31,000 kg of material was recycled where possible or properly incinerated. Site assessments were also carried out on NB Coal and Customer Service properties located in Minto, Chipman, Aulac, Sackville and Scoudouc, prior to property transactions.

NB Power's Environmental Policy requires all petroleum product spills be reported. In Generation, there were five spills compared to 20 the previous year – two of these spills involved less than nine litres, while three spills were more than 50 litres. There were no spills involving PCB contaminated oil. All spills were contained, cleaned up and reported to the regulatory authorities.

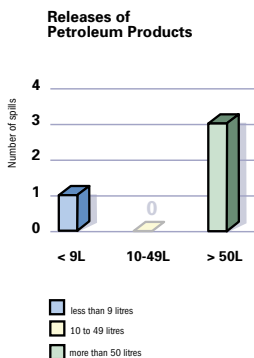
## Environmental Management Systems

Environmental Management Systems (EMS) consistent with the ISO 14001 standard are in place at Coleson Cove, Grand Lake, Dalhousie, Belledune, Millbank, Ste.-Rose, Grand Manan and in the Hydro Region. Station staff continued to maintain their management systems by monitoring performance, training employees, and reviewing the adequacy of procedures and emergency response plans.

External EMS audits were conducted at Grand Lake, Belledune, Dalhousie, Millbank, Ste.-Rose, Coleson Cove, Grand Manan and Hydro Generating Stations during February and March 2003. Remote sites managed by the five stations were also assessed.

Non-conformances from the audits were associated with the Corporate EMS and related to documented procedures for communicating regulatory or legal changes and corrective actions held over from the previous audit report. Other non-conformances were related to document control, records management, emergency preparedness and implementation of operational control. Plans are currently being developed to address these non-conformances.

Compliance audits were also conducted at all generating stations. Action plans have been developed to address audit findings at each facility.



## Environmental Enhancement

Wood removal and clean-up programs at several hydro facilities have been successful, making the shoreline and headpond cleaner and safer for recreational activities. During 2002, Beechwood removed 31 truck loads of wood from the headpond.

NB Power continued to collect wood debris from the Grand Falls, Beechwood and Mactaquac Generating Stations. The debris was stockpiled and will be ground to produce a coarse mixture of wood, which will be delivered to power stations in northern Maine. By providing an alternative fuel source, this innovative activity reduced waste destined for landfills, as well as fossil fuel consumption.

## In the Community

At NB Power, we strive to be active in the community. In January 2002, the New Brunswick Department of Natural Resources and Energy established recovery teams to rebuild the population of two endangered plant species. One of these species is the Furbish's Lousewort, which grows only on the shores of the upper St. John River in New Brunswick and Maine. Because there is a known population of Furbish's Lousewort at the headpond of the Grand Falls Generating Station, NB Power is active on the team assisting in the recovery strategy for this plant.

All thermal stations offer site tours to the public, as well as providing information on operations and environmental controls. Grand Lake's recycling program continues to support Minlak, a community-recycling depot. Minlak segregates and recycles paper and cardboard collected within the community. The depot is funded by the New Brunswick Department of Health and Community Services, and supported by NBDELG as well as the Village of Minto.

The Atlantic Salmon Federation, with the support of Fisheries and Oceans Canada and NB Power, continues to examine salmon management in the St. John River Basin. Discussions with stakeholders have provided a forum on issues such as the operation of the Mactaquac Fish Hatchery, salmon stocking and salmon support programs.

The Beechwood site offers an arboretum where visitors can enjoy native trees, flowers, shrubs and also a nine-metre flower clock. The Milltown site is used by the community for walking, biking, picnics and sports as well as the annual New Brunswick Day Lumberjack Competition.



## Environmental Management Systems

Objective	Targets	Performance
<b>Southern Region (Coleson Cove [CC], Grand Lake [GL] and Grand Manan [GM] Generating Stations)</b>		
Reduce energy consumption	Have no more than 10 work-ordered high-pressure steam leaks at one time - CC	Target achieved
	Have no more than 9 work-ordered low-pressure steam leaks at one time - CC	Target achieved
	Reduce electrical requirements by replacing failed ballasts	Replaced 9 ballasts for savings of 447 kWh
Reduce freshwater consumption	Reduce freshwater consumption by 7.7 million gallons at the station - CC	Achieved 2-3 million gallons by installing boiler feed pump cooler
Reduce potential for spills that may cause a significant impact on the environment	Reduce the number of reportable spills to land as defined by the Canadian Electricity Association Environmental Commitment and Responsibility Program - GL	2 reported spills
Reduce waste on-site <sup>1</sup>	Maintain less than 10 barrels of oily waste on site at any one time - CC	Target achieved, except for one month
Improve wastewater quality	Reduce number of wastewater exceedences from 8 in 2001 to 7 - CC	Target achieved - number of wastewater exceedences reduced to 3
	Reduce number of wastewater exceedences to be no greater than 6 - GL	10 wastewater exceedences
Improve local air quality	Reduce number of times the SO <sub>2</sub> analyzers are outside the range of +/- 10% error for autocalibration from 62 in 2001 to 50 in 2002 - GL	Achieved 91 - Work is underway to develop a corrective action plan
	Reduce number of opacity exceedences to 3 - CC	Work is underway to develop a corrective action plan
Assure scheduled job specific and EMS awareness training is provided to all employees	Provide 8 scheduled training courses to employees - CC	Target not met. A non-conformance was generated to take appropriate action

<sup>1</sup> The waste-to-landfill reduction targets for Coleson Cove and Grand Lake are being monitored by the EMS Teams but are no longer reported.

<b>Northern Region (Dalhousie [DH], Belledune [BD], Millbank [MB] and Ste.-Rose Generating Stations)</b>		
Reduce potential for spills that can have a significant impact on the environment	Reduce the number of spills in Northern Region from 10 in 2002 to 7	Target achieved - 1 spill in 2002
Reduce freshwater consumption	Maximize use of recycled water by 30% - DH	Target achieved - 41%
	Divert spring water to FGD make-up by 1.9 million gallons - DH	Target achieved - 3.4 million gallons
	Reduce fire water consumption by 23 million US gallons - DH	Achieved 8.3 million US gallons
	Reduce auxiliary steam consumption by 6 million pounds - DH	Work is underway to calculate steam consumption
	Reduce freshwater consumption by 25% by 2005 from 2000 baseline - BD	Work is underway to determine a measurable target and to identify areas of improvement
Reduce waste sent to landfill	Reduce freshwater consumption by 5% from Millbank	Work is underway to determine water usage at the station
	Increase recycled paper and cardboard by 5,000 lbs. - DH	Target achieved - 10,100 lbs.
	Increase amount of ash and gypsum recycled to 100% - DH	Target achieved - 100%
	Reduce amount of waste oil disposal by 20% from 2000 baseline - BD	Achieved 25%
	Reduce amount of waste to landfill by 20% from 2000 baseline - BD	Achieved 48%
Reduce waste sent to landfill	Reduce amount of waste to landfill by 5% from 2001 - MB	A measurable target could not be determined. The EMS Team will continue to track waste disposal and to promote recycling opportunities.
	Improve local air quality	Reduce fugitive dust by 25% by 2005 - BD
Reduce risk of a release of ozone depleting substance	Remove all 21 bottles of halon from Millbank and Ste.-Rose	Target achieved



# So we can NUCLEAR the air



**The Point Lepreau Generating Station produces low-cost electricity supplying up to 30% of New Brunswick's energy requirements. The station is important to the environmental performance of NB Power because it displaces carbon dioxide, sulphur dioxide and nitrogen oxide emissions.**

## Overview

Point Lepreau operates under approval from the Canadian Nuclear Safety Commission (CNSC), the federal regulator of nuclear facilities. It also has approvals from the New Brunswick Department of Environment and Local Government (NBDELG) under the *Clean Environment Act* and *Clean Air Act*.

Whether it's the transportation of fuel to the site, station operations or the storage of used fuel, activities at Point Lepreau are carefully managed, regulated and monitored. All radioactive liquid and gaseous waste matter is closely measured and monitored. In addition, Point Lepreau operates an Environmental Radiation Monitoring Program and results are reviewed by the CNSC each year.

Point Lepreau plays an extremely important role in NB Power's climate change and sulphur dioxide management initiatives. In 2002, nuclear generation avoided emissions of approximately 49,640 tonnes of sulphur dioxide, 2.9 million tonnes of carbon dioxide and 10,200 tonnes of nitrogen oxide.

## Radiation Monitoring

The objectives of Point Lepreau’s Environmental Radiation Monitoring Program are:

- To provide data confirming Point Lepreau’s compliance with applicable guidelines and regulations.
- To establish and maintain the capability for monitoring so that an effective response can be made to emergency conditions.
- To maintain a database of results to help with the detection of trends.

The staff of the Health Physics Department is responsible for managing the Environmental Radiation Monitoring Program. The program is reviewed annually to ensure the samples collected, collection frequency and analytical techniques are appropriate. A 2001 CNSC evaluation of the monitoring program showed favourable results.

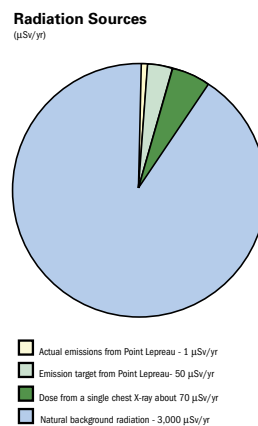
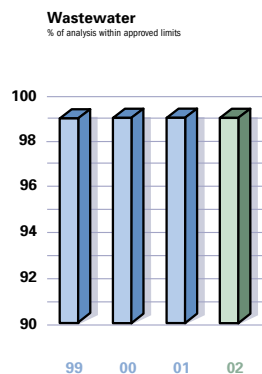
During 2002, analyses were performed on samples of air, water, food, vegetation, soil, sediment and sea life from around the station and from remote locations. These analyses found that the public radiation dose from Point Lepreau’s total emissions was about 0.9 microsieverts in 2002. This is well below the:

- legal limit of 1,000 microsieverts per year
- natural radiation background in the area (about 2,000 to 3,000 microsieverts per year)
- station design target of 50 microsieverts per year



## Water and Air Quality

The sewage treatment system has been significantly modified to improve effluent parameters such as pH and turbidity. More than 99% of the analyses performed on conventional wastewater effluent produced results within the approved limits. The gaseous effluent air-monitoring program observes radioactive emissions from Point Lepreau. The station is well below its operational target, which is a fraction of the radiation level occurring naturally in the environment.



## Waste Management (Nuclear/Conventional)

At Point Lepreau, spent nuclear fuel is stored in on-site fuel bays for a period of seven years. The spent fuel is then moved to on-site, above-ground, dry fuel storage containers. These containers, which are made of concrete and steel, are designed to protect the environment from spent fuel radiation.

In June 2002, the Canadian nuclear electric utilities established the Nuclear Waste Management Organization (NWMO) to meet the requirements of the new *Nuclear Fuel Waste Act*. Over the next three years, the NWMO will be responsible for:

- recommending approaches for the disposal of spent nuclear fuel to the Federal Government
- preparing a business plan to implement the approach selected by the government
- evaluating the options for geological disposal, prolonged reactor site storage and centralized storage
- program development for consultations with the public and special interest groups

This work will proceed in conjunction with technical review activities, which have been conducted by the utilities on behalf of the NWMO.

## Environmental Management System

Point Lepreau's Environmental Management System (EMS) is registered to the International Standard ISO 14001. An ISO 14001 Maintenance Audit was conducted in August 2002 to assess the station's abilities in accordance with key EMS programs, standards and procedures.

The audit concluded that Point Lepreau maintains a good system for managing environmental aspects of its operation, however, auditors identified opportunities for improving the station's EMS. These were a larger scale drill of the emergency response plan with a chemical release, a contractor's environmental checklist, a general orientation presentation given to new employees/contractors and a chemistry lab verification review. The audit also noted non-conformances related to employee awareness training, document control and auditing. In addition to the EMS Audit, a compliance audit was completed at the station and an action plan was developed to address issues raised by the auditors.

The station will begin developing energy conservation strategies. A team will identify the station's primary energy expending areas and once energy amounts and cost/benefit factors are determined, a five-year plan will be implemented to reduce energy consumption.



## In the Community

Point Lepreau employees play an active role in their community. In 2002, staff members celebrated Earth Day with students from the Fundy Shores School. Staff from Point Lepreau and NBDELG visited the school to speak with students about Earth Day and the importance of protecting the environment.

The students participated in a recycling contest, which challenged them to create monsters using only recyclable materials found at school or in the home. The winners received special awards.

Point Lepreau staff continue to offer station tours and workshops to school groups, university students, organizations and the public, although tours within certain areas of the station have been suspended. The general public attended information sessions on the refurbishment of the station where environmental information was presented.



## Environmental Management System<sup>1</sup>

Objective	Targets	Performance
Improve Ozone-Depleting Substance (ODS) management	Document five-year plan for the management and removal of ODS from the site by March 2003	Target achieved
Upgrade Sewage Treatment Plant	Develop engineering design and obtain approval from the regulator by March 31, 2003	Target achieved – upgrades to the Sewage Treatment Plant are underway
Reduce amount of solid radioactive waste	Reduce amount of solid radioactive waste by 30% or 70 m <sup>3</sup>	Target achieved
Develop a strategy to reduce the quantity of radioactive waste oil and solvents	Develop strategy and obtain approval by March 31, 2003	Target achieved
Develop a reclamation plan for the waste disposal site	Develop a reclamation plan for the waste disposal site and obtain approval by March 31, 2003	Target achieved
Reduce energy consumption	Develop a five-year plan for energy conservation by March, 2003	Target achieved

<sup>1</sup> In accordance with the budget and work management processes, the objectives and targets are tracked on a fiscal year basis.



# A vital TRANSMISSION MISSION

## Overview

The Transmission Business Unit is responsible for transmitting electricity from the generating stations to in-province and point-to-point transmission customers. Environmental efforts are focused on minimizing impacts related to the construction, operation and maintenance of power lines, rights-of-way, substations and terminals. Transmission recently implemented an Environmental Management System consistent with the ISO 14001 standard.

Construction, maintenance and dismantling of transmission lines is undertaken in compliance with the *Clean Environment Act*. Work that could affect waterways is performed in accordance with the *Clean Water Act*, and work conducted during the fire season requires approval from the Department of Natural Resources and Energy. The use of pesticides must be approved according to the provisions of *Pesticide Control Act*.



**Transmission delivers electricity in a safe and reliable manner to the distribution system and point-to-point transmission customers. Employees operate and maintain more than 6,600 km of transmission lines as well as industrial substations, microwave/mobile towers, terminal/station switchyards, and interconnection facilities.**

## Line Maintenance

Transmission employees maintained brush along 1,188 kilometres of transmission line rights-of-way in 2002. In addition, equipment maintenance was conducted to extend the life of existing transmission lines along approximately 260 kilometres of rights-of-way. These activities included replacing insulators, cross-arms and poles on older lines which were susceptible to wind and ice loading. More than 225 substations, terminals and remote radio sites were treated with herbicides approved under the *Pesticide Control Act*.

## Environmental Management System

During the year, Transmission implemented an Environmental Management System (EMS) consistent with the ISO 14001 standard. An initial external compliance audit was conducted and areas for future improvement will focus on updating documentation and communication procedures for public inquiries.

Specialized environmental training continued in 2002. Ten maintenance employees participated in a general pesticide safety course and were certified to apply Pole Topper, a fungicide used to treat the tops of poles to prevent decay. Seventy employees were trained for the Environmental Protection Plan. This plan involves minimizing the environmental impact of route selection, design, construction and maintenance of transmission lines. Additionally, employees took part in a forestry and industrial certification course.

During the year, three audits were conducted as crews worked on transmission lines and two facility audits were conducted in Fredericton and Saint John. Findings related to the watercourse alteration permitting, availability of spill kits, oil spill potential around transformers and labelling of non-PCB transformers. These findings were addressed immediately; the importance of the Watercourse Alteration Permit and the availability of spill kits on vehicles were re-inforced by management.

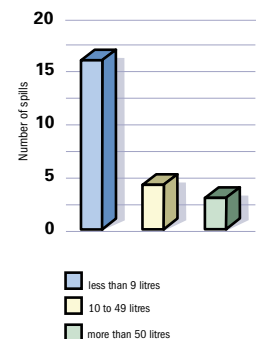
From 2001 to 2002, the number of reported releases of petroleum products involving Transmission increased from 13 to 23. Sixteen spills involved less than 50 litres. One spill of 14 litres involved PCB contaminated oil which was quickly contained, cleaned up and reported to the regulator.



## Waste Management

NB Power has developed and implemented several successful programs to reuse and recycle various materials from transmission lines. During the decommissioning of existing lines, hardware such as conductors, insulators, cross-arms and poles are removed and transported off-site for reuse or recycling. If reuse or recycling opportunities are not available, the hardware is disposed of at approved facilities.

**Releases of Petroleum Products**  
Transmission



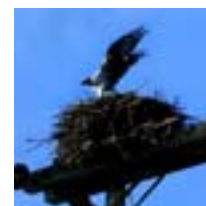
## PCB Management

As part of the ongoing management of PCB contaminated material, NB Power successfully shipped 31,000 kg of PCB contaminated material to approved, out-of-province disposal facilities.

## In the Community

NB Power's facilities have an impact on those who live near substations, terminals, distribution lines and transmission lines. For this reason, we offer communication programs to ensure that communities and individuals understand the technical, economic and environmental aspects of new construction and maintenance work. Public activities for projects in Dieppe, Memramcook, St. Stephen and Chipman have included meetings with community residents, property owners and elected representatives, as well as public advertising.

In 2002, regular patrols of transmission lines discovered 12 new osprey nests, bringing the total number of nests in New Brunswick to 274. As well, one hawk nest has been recorded. Transmission employees routinely trim these nests to preserve the osprey's habitat and to prevent contact with electrical conductors.



Another example of community involvement was the planting of 120 trees and shrubs by transmission employees at several schools and work locations throughout the province to celebrate Arbour Day.

## Recycling Programs

Material	Quantity	Handling
Street lights and dusk-to-dawn lights	1100	Refurbished and returned to inventory for reuse
	0.9 tonnes	Sold to scrap dealer for recycling
Insulating oil from low-voltage electrical apparatus	88,163 litres	Recycled at Marysville Service Centre and returned to inventory
	1,754,568 litres*	Recycled during field operations and reused
	0 litres	Sold to contractor for energy recovery
	120,350	Recycled by a third party for use other than in electrical equipment (i.e., chain saw oil, lubricating oil, asphalt)
PCB contaminated oil	14,400 litres	Recovered and stored for disposal by a hazardous waste contractor
Transformers	386	Tested and repaired for reuse
	1361	Sold to scrap dealers for recycling
	116	Rewound by a third party and returned to inventory for reuse
Scrap metal	179 tonnes	Sold to scrap dealer for recycling
Aluminium	79 tonnes	Sold to scrap dealer for recycling
	23 tonnes	Reused
Copper	36 tonnes	Sold to scrap dealer for recycling

\* At the time of report preparation the total volume of insulating oil reused following processing or cleaning during field operations was being investigated. The volume reported for 2002 is ten times the volume reported in 2001.



# CUSTOMER

# Responsible SERVICE

## Overview

Customer Service's environmental efforts are focused on minimizing impacts related to the construction, operation and maintenance of the distribution system, rights-of-way and substations. Customer Service has implemented an Environmental Management System (EMS) consistent with the ISO 14001 standard.

## Fleet Management Study

NB Power conducted a comprehensive Vehicle Emissions Assessment of its vehicle fleet in 2002 to quantify emissions from the vehicle fleet and recommend ways of reducing vehicle emissions in a cost effective manner.

The study concluded that vehicles are being managed in an environmentally responsible manner as the existing program effectively ensures the operational efficiency of vehicles. The study identified promising emission reduction alternatives which could further reduce the potential for adverse effects on air quality and reduced capital, maintenance, and operating costs. NB Power is exploring the feasibility of implementing these emission reduction alternatives.

**Serving residential, commercial and industrial customers across the province, the Customer Service Business Unit delivers safe, reliable and competitively-priced energy by way of its 26,000 km of distribution lines.**

**It also provides valuable customer services through its regional offices, customer contact centres, account managers and energy advisors.**



## Oil Management

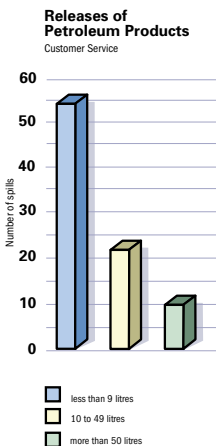
NB Power has installed three vegetable oil transformers at a wellhead pump house in McAdam. These new transformers are identical to existing mineral oil transformers, but are considered much more environmentally friendly.

The Customer Service Environmental Team reviewed the technical specifications of Envirotemp FR3, an environmentally-friendly fluid composed of vegetable oils and food grade additives for use as a coolant in transformers. The fluid is naturally non-toxic and biodegradable, easing environmental concerns associated with mineral oil-based coolants. It has been shown to enhance the life and performance of transformers potentially meaning fewer equipment purchases and lower maintenance costs.

This past year, there were 86 oil spills reported. Fifty-four spills involved less than nine litres, while 22 involved less than 50 litres. Two spills involved PCB contaminated oil; one was less than 1 litre while another was less than 4 litres. A hydraulic spill management program has been introduced to reduce the number of spills caused by ruptured hydraulic hoses. It involves replacing hoses on vehicles, improving maintenance programs, conducting inspections and training staff.

## Environmental Management System

In late 2002, the five Customer Service regions implemented an Environmental Management System (EMS) consistent with the ISO 14001 standard. During the year, a compliance audit was conducted while crews and contractors worked on distribution lines. The audit results were positive though it was noted that a contractor was not maintaining a required vehicle log book. Subsequently, action plans were implemented to address the issue raised by the auditors.



## Green Energy

Wind power is an environmentally friendly and renewable energy resource that NB Power has been exploring as part of possible alternative energy development. Work has focused on wind generation assessments, seeking financial assistance from the federal government, developing a green power option for customers, and developing project proposals that would invite the private sector to develop a wind project. In partnership with local developers, NB Power is assessing the potential for wind development at several sites around the province.

NB Power has a memorandum of understanding with the Federal Government on terms and conditions for the purchase of renewable energy. If the Federal Government agrees to purchase renewable energy, surplus green energy will be offered to customers through a voluntary green pricing option. Profits from this program will be directed to the further development of renewable energy sources.

## In the Community

Customer Service participated in cleanup and restoration activities following Ice Storm 2003 which was actually two ice storms hitting eastern New Brunswick beginning February 2, 2002. The cleanup activities included selective trimming of trees and branches near power lines, as well as a continuation of preventive trimming activities.

Through its team of province-wide energy advisors, NB Power provides free, expert information to customers on how to use their energy as efficiently as possible. Energy advisors are trained to discuss heating options, heating system size and provide advice to assist in minimizing energy consumption. In line with promoting greater energy efficiency, NB Power has been a long-time supporter of the New Brunswick Homebuilders Association, sponsoring the association's "Homebuilder of the Year" Award.



# 2002 MILESTONES

<b>JAN</b>	As a member of the recovery team, NB Power assisted in the recovery of the Furbish Lousewort, an endangered plant species.
<b>FEB</b>	NB Power conducted a site visit to a PCB disposal facility.
<b>MAR</b>	Aquatic Thermal Plume Monitoring Study was conducted at Belledune.
<b>APR</b>	NB Power's Environmental Commitment and Responsibility Report was submitted to the Canadian Electricity Association.
<b>MAY</b>	A Watercourse Alteration Permit to proceed with vegetation management along transmission lines was issued by the Department of Environment and Local Government under the <i>Clean Water Act</i> .
<b>JUN</b>	The Nuclear Waste Management Organization was formed to meet the <i>Fuel Waste Act</i> requirements.
<b>JUL</b>	Staff at Point Lepreau began exploring energy conservation strategies to reduce energy consumption. Public Meetings were held in Saint John and Lorneville on the Environmental Impact Assessment for the Coleson Cove Refurbishment Project.
<b>AUG</b>	An ISO 14001 Maintenance Audit was conducted at Point Lepreau to assess the station's ability to maintain the EMS in accordance with procedures, programs and standards.
<b>SEP</b>	The comment period on the Comprehensive Study Report for the International Power Line Project began.
<b>OCT</b>	The Department of Environment and Local Government issued an environmental approval for the Coleson Cove Refurbishment Project. A wind energy information seminar was held in Shippagan.
<b>NOV</b>	Both Millbank and Ste.-Rose received five-year air and water quality approvals under the New Brunswick Department of Environment and Local Government's <i>Clean Air Act</i> and <i>Clean Environment Act</i> .
<b>DEC</b>	The Environmental Assessment Report for the proposed modifications to the Point Lepreau Solid Radioactive Waste Management Facility was submitted to the Canadian Nuclear Safety Commission and the Provincial Department of Environment and Local Government.

# GOVERNANCE

NB Power's Board of Directors is responsible for directing the affairs of the Corporation consistent with the *Electric Power Act*. The Environment Committee of the Board is one of three committees that meet regularly, reviewing activities in specific areas. These reviews encompass environmental policies and protection programs. This assists all Board members in effectively carrying out their governance responsibilities related to the environmental performance of the Corporation.

The mandate of the Environment Committee is:

- To examine the suitability of NB Power's Environmental Policy Statement
- Evaluate the effectiveness of corporate environmental programs
- Review environmental operating activities and results of environmental audits

During 2002, the members of the Environment Committee of the Board were: Phillippe DesRosiers (Chair), Roger Clinch, Jean-Marc Violette, Leon Furlong and Dan Skaling.

Five areas the committee focused its attention on were:

- Environment management systems implementation
- Environmental compliance audits
- Provincial environmental issues, facility re-licensing and environmental events
- Changes to environmental legislation and emerging development issues
- Environmental aspects of capital projects

**Phillippe  
DesRosiers**  
Chair



**Roger  
Clinch**



**Jean-Marc  
Violette**



**Leon  
Furlong**



**Dan  
Skaling**



# System MAP



Station	Capacity	Units	First Service	Fuel	Environmental Protection
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## ● THERMAL

Belledune	458	1	1993	Coal	Scrubber, electrostatic precipitators, wastewater treatment, emissions monitoring, low NO <sub>x</sub> burners, gypsum recycling
Dalhousie	300	2	1994	Orimulsion®	Scrubber, electrostatic precipitators, wastewater treatment, emissions monitoring, gypsum recycling, ash recycling
Coleson Cove	998	3	1976	Oil	Electrostatic precipitators, wastewater treatment, emissions monitoring, ash recycling
Grand Lake	57	1	1963	Coal	Electrostatic precipitators, wastewater treatment, air quality monitoring
Courtenay Bay	110	3	1961-1967	Oil	Wastewater treatment, emissions monitoring, ash recycling

## ■ COMBUSTION TURBINES

Millbank	199	2	1991	Diesel	Wastewater control, NO <sub>x</sub> control
Ste.-Rose	100	1	1991	Diesel	Wastewater control, NO <sub>x</sub> control
Grand Manan	28	1	1989	Diesel	Noise control

## ◆ HYDRO

Mactaquac	672	6	1968-1980	Water	NB Power operates six hydro dams on the St. John, Tobique, and St. Croix Rivers. Each station operates its reservoir with consideration for recreational users. Mactaquac, Beechwood, Tobique and Milltown have fish passage facilities.
Beechwood	113	3	1957-1962	Water	
Grand Falls	66	4	1928-1931	Water	
Tobique Narrows	20	2	1953	Water	
Sisson	9	1	1965	Water	
Milltown	4	7	1928-1969	Water	

## ▼ NUCLEAR

Point Lepreau	635	1	1983	Uranium	Point Lepreau operates with approval from the Canadian Nuclear Safety Commission, the federal regulator of nuclear facilities, and the New Brunswick Department of Environment and Local Government under the <i>Clean Environment Act</i> and <i>Clean Air Act</i> . Point Lepreau monitors all radioactive liquid effluent and gaseous effluent. Station activities are managed, regulated and monitored from the transportation of the fuel to the site, through station operation, to the storage of used fuel.
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