Hydro Québec

In Harmony with People and Nature

Environmental Performance
and Social Role – 2001

Table of Contents

Yellow boxes refer to highlights for 2001

Units of Measure

$M	:	millions of dollars
kV	:	kilovolt
kt CO_2 eq.	:	kilotonne CO_2 equivalent
kW	:	kilowatt
kWh	:	kilowatthour
MW	:	megawatt (one million watts)
MWh	:	megawatthour (one million watthours)
GW	:	gigawatt (one million kilowatts)
GWh	:	gigawatthour (one million kilowatthours)
TWh	:	terawatthour (one billion kilowatthours)
BTU	:	British thermal unit
MBTU	:	million BTUs
m	:	metre
km^2	:	square kilometre
ha	:	hectare
mg	:	milligram
L	:	litre
t	:	tonne

This icon means that more information on the topic is available at our Web site: www.hydroquebec.com/environment/social/complement. Other topics are also covered.

Message from the Chairman of the Board and the President and Chief Executive Officer

Jacques Laurent
Chairman of the Board

André Caillé
President and Chief Executive Officer

Today more than ever, corporate growth must be reconciled with environmental protection and sustainable development. It is in this spirit that we present the following report, Environmental Performance and Social Role – 2001.

Hydropower, a clean, renewable and safe form of energy, accounts for over 93% of Hydro-Québec's installed capacity. As a result, Hydro-Québec contributes to the reduction of greenhouse gases and improvement of air quality in North America. In accordance with its Strategic Plan 2002–2006, *the company therefore intends to continue developing its generating capability, with particular emphasis on the development of Québec's hydroelectric potential, through profitable projects that are environmentally acceptable and favorably received by local communities. It also plans to diversify its generating assets and ensure a reliable power supply for Quebecers by combining the high performance of hydroelectric facilities with the flexibility of thermal generation. The company's first gas-fired generating station, the Suroît combined-cycle plant, could be up and running by the end of 2006. This facility will use the best available technology for reduction of polluting emissions.*

Hydro-Québec is also the largest buyer of wind power in Canada. It is committed to supporting the development of Québec's wind potential through a targeted purchase program that could add 50 to 75 MW a year to its current purchases starting in 2004. In addition, a three-year Energy Efficiency Plan will be filed with the Régie de l'énergie in 2002.

The company began implementing environmental management systems consistent with the ISO 14001 standard in 1997. This process was 60% complete at the end of 2001; the standard should be fully implemented by 2003.

In 2001, Hydro-Québec published its Summary of Knowledge Acquired in Northern Environments from 1970 to 2000. *This publication provides an overview of what the company has learned in the past 30 years from environmental studies conducted in aquatic, terrestrial and social environments in Northern Québec. The knowledge obtained yielded conclusions and lessons based on facts which, in view of their scientific value, will streamline the analysis and assessment of future projects.*

A highlight on the social front was the creation of the Fondation Hydro-Québec pour l'environnement, which works in partnership with local organizations to support concrete, lasting environmental efforts. The company also provided over $14.7 million for university research chairs, various humanitarian causes and numerous events.

Hydro-Québec has facilities throughout Québec, and consequently plays a major role in land-use planning and economic development. The company seeks the participation of local and Aboriginal communities in all of its projects. In 2001, these collaborative relations led to the signing of nearly 40 agreements. The tripartite agreement with the Union des municipalités du Québec and the Fédération québécoise des municipalités, for example, is designed to improve relations between Hydro-Québec and the municipalities with respect to property valuation.

In the area of sustainable development, Hydro-Québec constantly endeavors to make the best possible choices. The current publication, while in line with the company's environmental performance reports of previous years, is therefore based on the guidelines established in the Global Reporting Initiative. This approach will enable Hydro-Québec to increase awareness and understanding of the way it carries out its projects and activities, and of how it intends to continue its undertakings in harmony with people and nature.

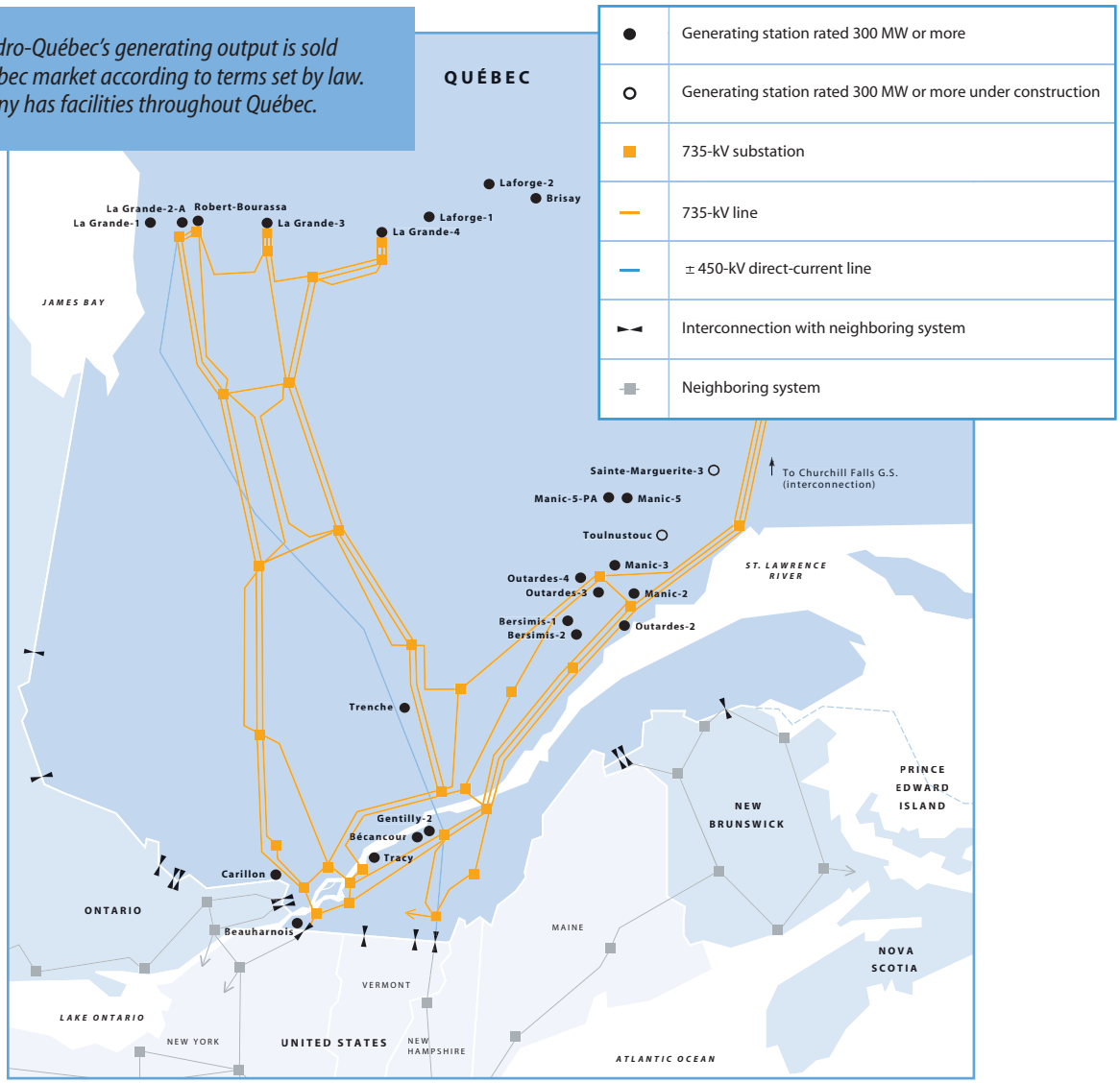
Jacques Laurent
Chairman of the Board

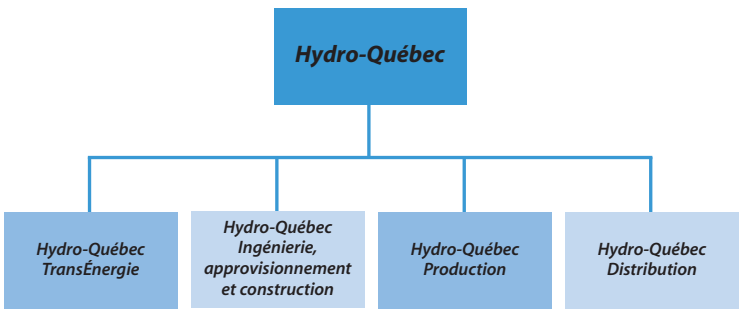
André Caillé
President and Chief Executive Officer

Hydro-Québec

…is one of the largest electric companies in North America / 3.5 million customers / more than 21,000 permanent and temporary employees / sales of 152 TWh in Québec and 43 TWh outside Québec, including 10.2 TWh generated within the province / revenue of more than $12 billion / generating capacity of 31,174 MW, 93% of which is produced by water power / a transmission system comprising 32,273 km of lines / a distribution system totaling 107,139 km.

Most of Hydro-Québec's generating output is sold on the Québec market according to terms set by law. The company has facilities throughout Québec.





Our mission: To supply power and pursue endeavors in energy-related research and promotion, energy conversion and conservation, and any field connected with power or energy.

For more information, go to www.hydroquebec.com/environment/social/complement

A Sustainable-Development Approach

Hydro-Québec has followed the principle of sustainable development since 1989. It emphasizes environmental protection and enhancement as well as cooperation with local communities in carrying out its projects and activities. As a responsible corporate citizen, the company is concerned with making a significant contribution to the economic, social and cultural development of Québec.

The sustainable-development principles and strategies adopted by Hydro-Québec are set out in its policies, specifically in those entitled *Our Social Role* and *Our Environment*.

The Policies Our Environment *and* Our Social Role: *Principles and Strategies*

- *careful environmental management in compliance with ISO 14001*
- *technological innovation designed to ensure the long-term operability and performance of facilities*
- *efficient use of resources*
- *prevention of pollution*
- *reuse, recovery and recycling*
- *multipurpose use of sites*
- *enhancement of community resources*
- *cooperation with local communities*
- *active participation in economic, regional and social development*
- *protection and enhancement of built and technological heritage*
- *management of risks to public health and safety*

Management Tools

In the Company

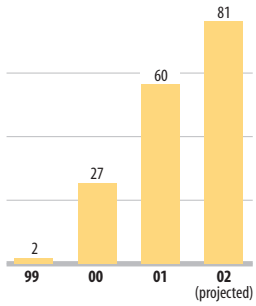
To support these principles and strategies, Hydro-Québec has a number of internal tools at its disposal. In line with more than 25 years of environmental effort, Hydro-Québec began to implement an ISO 14001 environmental management system (EMS) in 1997. Its initiatives in environmental protection and community relations are supported by a specialized staff which in 2001 numbered 254 (permanent and temporary). Various internal networks of environment and community relations managers and specialists have been created to support the company's decision-makers. In the same connection, Hydro-Québec has set up two committees: the Board Committee on the Environment and Corporate Social Responsibility (ECSRC), which supports the directors in their corporate governance functions, and a committee of outside experts who examine various issues at the request of the ECSRC.

The generating facilities operations group achieves ISO 14001 registration

ISO 14001 EMS

In 2001, the environmental management systems of six more administrative units (in generation, engineering, projects and construction, procurement and R&D) earned ISO 14001 registration. The addition of these six units to the three others registered since 1999 brings the proportion of employees whose activities have significant environmental aspects and are covered by an EMS to 60%.

Employees whose activities are covered by an ISO 14001–compliant EMS (%)



Outside the Company

Hydro-Québec takes part in the main forums organized by the energy industry and the scientific community in order to keep pace with the best environmental and sustainable development practices. It plays an active role in government initiatives, particularly those related to the environment and land-use planning. It consults municipalities, local groups and project host communities, and sets up partnerships with them as needed, to ensure that they are involved in decisions that affect them.

Key Issues

Choosing the Best Power Generation Option

Hydropower accounts for over 93% of Hydro-Québec's installed capacity. The following graphs provide a comparison of generation options based on life-cycle analyses:

Main Atmospheric Emissions

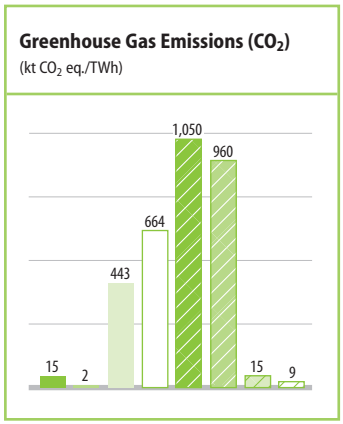
- *CO_2 (carbon dioxide): the predominant greenhouse gas created by human activity*
- *SO_2 (sulphur dioxide): a key precursor of acid deposition and fine particulates*
- *NO_x (nitrogen oxides):* a key precursor of ground-level ozone (a component of urban smog) and acid deposition*

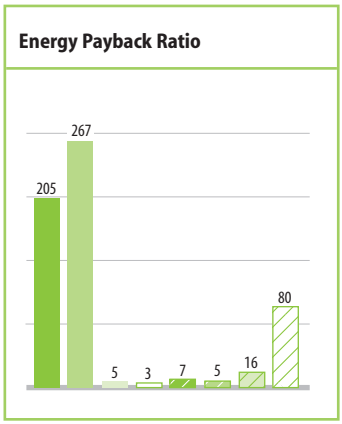
Energy Payback Ratio

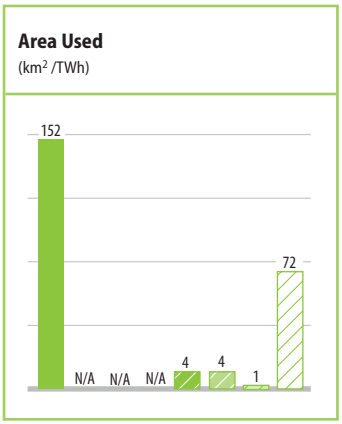
The energy payback ratio is the quantity of electricity produced by a facility during its normal service life divided by the energy required to build, maintain and fuel it. The higher the ratio, the better the payback.

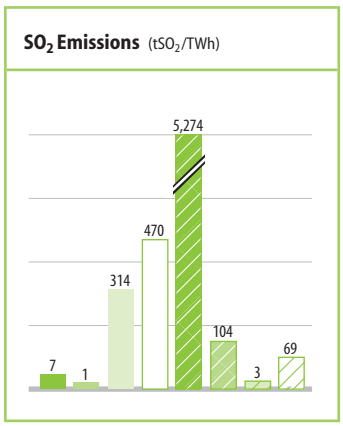
Area Used

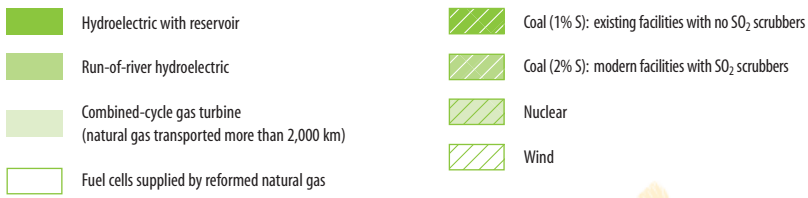
Renewable energies use large surface areas. However, the data on coal do not include regions affected by acid precipitation, which diminishes ecosystem productivity. If the affected areas of northeastern North America are factored in, coal-burning plants have an impact on 10 times more space per kWh than existing hydropower facilities.









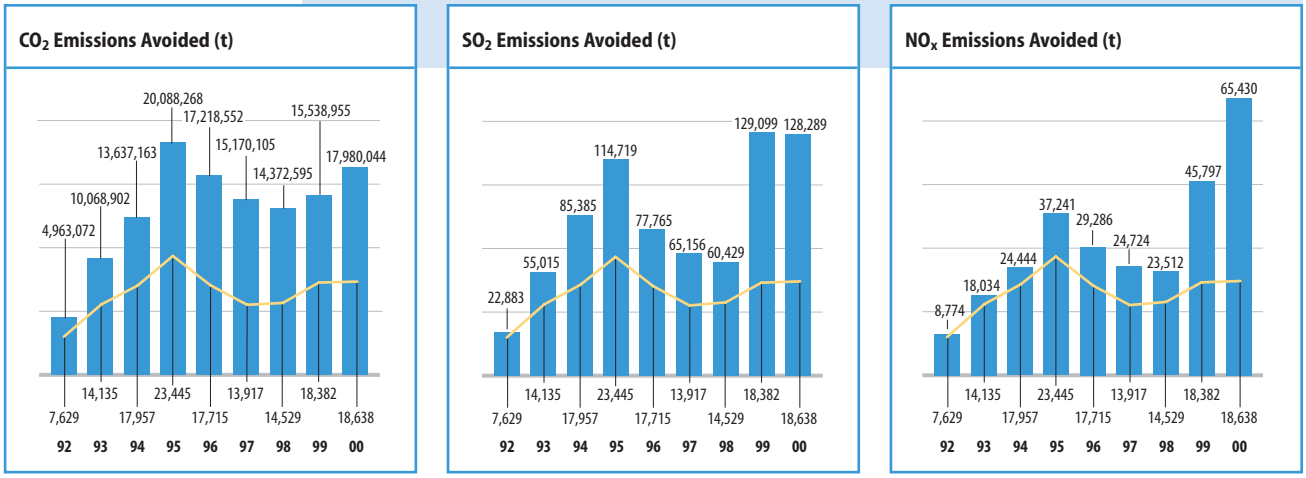


** NO_x emissions are not shown on these graphs since the analysis results are highly variable, due to differences between combustion techniques and, to a lesser extent, the type of fuel used.*

For more information, go to www.hydroquebec.com/environment/social/complement

Greenhouse Gas Emissions Avoided

Hydro-Québec exports much more electricity than it imports. This ultimately results in avoided emissions, because customers outside Québec can avoid operating their oil- and coal-burning facilities when they purchase electricity from Hydro-Québec.



Renewable Energy

Hydro-Québec mainly generates hydroelectricity, but it also purchases electricity from independent power producers. These generally use energy sources involving low levels of pollution.

Hydropower Recognized as Renewable Energy

"The Government of Canada recognizes that hydroelectricity is a form of renewable energy that has significant potential to assist in reducing greenhouse gas and other air pollutants."

December 21, 2001, letter from David Anderson, Canada's Minister of the Environment, to the Canadian Hydropower Association.

Electricity Generated and Purchased (in GWh)

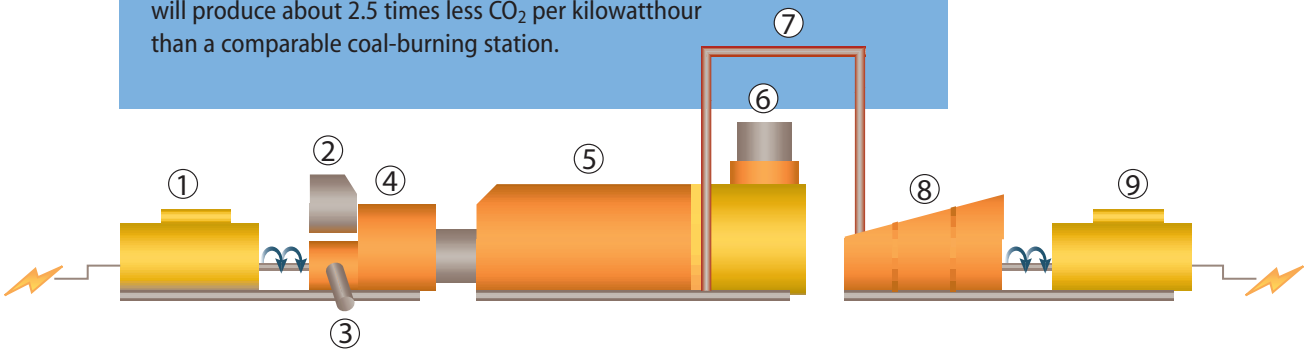
	1999	2000	2001
Hydropower generated	137,833	147,870	139,594
Hydropower purchased	29,802	31,728	29,623
Small hydropower, biomass and waste reclamation	2,634	2,214	2,587
Wind power purchased	115	181	158
Subtotal – Renewables	**170,384**	**181,993**	**171,962**
Total electricity generated	143,129	153,529	144,679
Total electricity purchased	45,787	34,123	37,473
Total electricity generated and purchased	**188,916**	**187,652**	**182,152**
Renewables/total electricity generated and purchased	90.2%	97.0%	94.4%

Suroît Gas-Fired Generating Station

Although hydropower development remains the top priority, Hydro-Québec wishes to diversify its generating assets and ensure a reliable power supply for Quebecers by combining the flexibility of thermal generation with the high performance of hydroelectric facilities.

It therefore plans to build a combined-cycle gas-fired generating station in the Beauharnois area by the end of 2006. The Suroît project is the subject of an agreement with the regional county municipality (RCM) of Beauharnois-Salaberry and the municipality of Melocheville. This agreement provides for considerable economic spinoffs for the region.

SO_2 and NO_x emissions from a facility like the Suroît plant are very low. The plant will use the most efficient technology available for reducing such emissions. In terms of greenhouse gas emissions, the plant will produce about 2.5 times less CO_2 per kilowatthour than a comparable coal-burning station.



① Alternator
② Air intake
③ Gas feed
④ Gas turbine
⑤ Heat recovery boiler
⑥ Smokestack
⑦ High-pressure steam
⑧ Steam turbine
⑨ Alternator

What About Wind Power?

Wind power offers many environmental benefits: it is renewable, socially acceptable and has low rates of atmospheric emissions. Because of its intermittent nature, wind power must be coupled with hydroelectric systems in order to offer an attractive combination in terms of sustainable development. Hydro-Québec is the largest buyer of wind power in Canada. It intends to support the development of wind potential through a targeted purchase program that could add 50 to 75 MW a year to its current purchases starting in 2004.

Creation of the OURANOS Consortium on Climate Change

Hydro-Québec is one of the founding members of the OURANOS consortium on regional climatology and climate change adaptation. Created in fall 2001 in partnership with a number of government departments and universities, OURANOS will have an initial budget of approximately $28 million for 2001 to 2004. The consortium will collect key physical and socioeconomic data for decision making and climate change adaptation.

www For more information, go to www.hydroquebec.com/environment/social/complement

Projects That Are Environmentally Acceptable and Favorably Received

Before Hydro-Québec proceeds with a development, it strives to make the project environmentally acceptable and to obtain the support of the host community. It sets up information and discussion panels, organizes public consultations and holds meetings with external environmental analysts, in an effort to better understand community expectations and integrate its facilities into the local environment.

Federal and Provincial Authorization for the Toulnustouc River Hydroelectric Project

Following environmental studies and agreements reached with the host communities, Hydro-Québec was granted government authorization to commence the Toulnustouc hydroelectric project. Construction got under way in November 2001.

Research on Electric and Magnetic Fields

The Électrium, an EMF interpretation centre

Two internationally respected scientific agencies have issued conclusions based on research designed to reduce scientific uncertainty about the link between cancer and EMFs (electrical and magnetic fields). The National Radiological Protection Board determined that epidemiological studies and laboratory experiments provide little evidence that EMFs can cause cancer, whereas the International Agency for Research on Cancer (IARC) found that magnetic fields created by extremely low alternating-current frequencies may be possible carcinogens. However, the IARC considers that no scientific explanation has been given for the statistical association between an increased risk of leukemia and greater exposure to domestic magnetic fields, while not ruling out the possibility of confounding factors and methodological bias.

The findings of a study sponsored by Hydro-Québec were published this year. The results show that, contrary to some laboratory research indicating significant changes in the secretion of melatonin (a hormone involved in a number of physiological functions) in laboratory animals, no such changes occur in humans exposed to EMFs from 735-kV transmission lines.

Managing the Distribution System in Consultation with the Community

The footprint and visual impact of the overhead distribution system create a number of concerns. In 2001, municipalities submitted 91 requests—including 84 under the Québec government program for undergrounding in heritage, cultural and tourist sites—to bury a total of 80 km of lines. Talks were initiated with the Union des municipalités du Québec, among other organizations, to promote the undergrounding of lines in new residential developments.

Trees can damage overhead distribution systems during bad weather if they are too close to power lines. However, they also constitute a valuable heritage for municipalities and their residents. As a result, Hydro-Québec, in collaboration with several municipalities, has published guidelines on vegetation management in urban distribution line rights-of-way.

Using Energy Efficiently

The Hydro-Québec stand at the Home Show

Sustainable development means optimizing electricity use. That is why Hydro-Québec has played an active role in energy efficiency since the early 1960s. Its programs have helped to change the energy consumption habits of many customers and to spread energy consumption more evenly throughout the day. For example, for the period from 1990 to 2000, the Energy Efficiency Project enabled us to achieve energy savings of some 2,500 GWh, which is equal to the annual consumption of about 100,000 residential customers.

Results of the 1990–2000 Energy Efficiency Project – Energy Savings

	1990–2000 Energy Impact (GWh)
Residential market	536
Commercial and institutional markets	835
Industrial market	1,085
Total	**2,456**

In cooperation with Québec's Agence de l'efficacité énergétique, Hydro-Québec undertook a careful assessment of the province's residual energy savings potential, and will be proposing a three-year Energy Efficiency Plan that will be submitted to the Régie de l'énergie by the end of 2002.

For more information, go to www.hydroquebec.com/environment/social/complement

In Harmony with People

Québec Society

Social Involvement

Through its donations and sponsorships, Hydro-Québec supports numerous causes. Its donations are devoted mainly to the areas of humanitarian aid, education and health. Sponsorships are granted in the following fields: science and culture, the social and economic sector, the environment and sustainable development, and amateur sport.

Apart from annual investments of over $100 million in research and development, Hydro-Québec supports 18 research chairs in different Québec universities, in the technology, social, health and environment fields, among others. It has also offered internships to university students for several years. In 2001, 430 young people were able to add to their job experience by working alongside company employees.

Hydro-Québec encourages its employees to do volunteer work. Some 160 employees took advantage of the company's program that provides a financial contribution of up to $1,000 to the community organization for which they volunteer. In 2001, these contributions totaled nearly $140,000.

	1999	2000	2001
Donations (in $ millions)	4.3	4.9	5.4
Sponsorships (in $ millions)	5.6	6.5	7.4
University chairs (in $ millions)	1.2	1.4	1.5
Foundation (in $ millions)	N/A	N/A	0.4

Fondation Hydro-Québec pour l'environnement

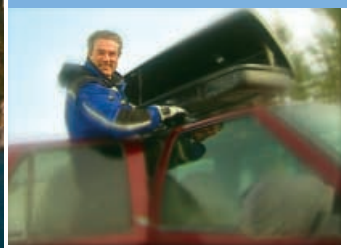
Launched in March 2001, the Fondation Hydro-Québec pour l'environnement is intended to support concrete, lasting efforts to improve natural habitats and the environment in Québec. A total of $370,000 funded 14 projects carried out in 8 regions of Québec. The Foundation's work has contributed to protecting seven threatened species and two species of special concern.

Launching of the Foundation

Some 94% of Quebecers say they have a very or quite favorable opinion of Hydro-Québec, a rating that places the company ahead of all comparable organizations in Québec.

Employees at the Québec Games

Some 30 active and retired Hydro-Québec employees worked as volunteers at the Québec games, held in Rimouski in March 2001; about 10 of these volunteers appeared in a television commercial about the games broadcast in the Lower St. Lawrence and Gaspé regions.



For more information, go to www.hydroquebec.com/environment/social/complement

Public Safety

In 2001, there were 14 incidents involving members of the public—including one fatal accident—which occurred primarily during tree-pruning operations or as a result of accidental contact between metal structures and live conductors. None of the incidents took place in Hydro-Québec facilities. Seven incidents involving contractors were also reported, caused mainly by contact with conductors or pruning activities.

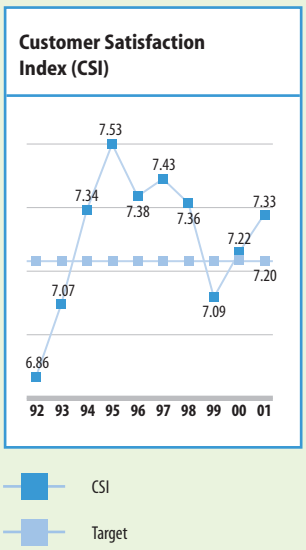
The improved safety results achieved in recent years are due in large part to the efforts made to heighten the awareness of the general public and specialized workers. In addition, safety inspections and checks are performed every year. In 2001, 136 facilities were inspected with a view to taking corrective action as needed.

Customers

Customer Care

The company listens to its customers. It surveys and follows up on their expectations through consumer discussion groups and studies. These expectations chiefly concern rates, quality and reliability of service, accuracy of billing and safety of facilities. The level of customer satisfaction, which has been systematically monitored, rose in 2001 in comparison with the two preceding years.

Customer Satisfaction Index (CSI)



Special Needs

Hydro-Québec continues to improve service quality in line with the priority expectations of its customers, including those with payment problems or in low-income groups. A number of services and initiatives are targeted directly or indirectly at such customers, for example:

- In winter (December 1 to March 31), Hydro-Québec does not disconnect residential customers who depend on electricity for heating, and it reconnects those whose service was cut off for failure to pay
- Promotion of the Equalized Payments Plan
- Payment terms and specific products making it easier for customers to pay off their overdue accounts, and special payment arrangements with flexible terms for all such customers
- The "Before You Rent" info line, where customers can find out the electricity costs at an apartment before signing the lease
- Ongoing relations with consumer associations and agencies working with low-income groups, including the Ministère de l'Emploi et de la Solidarité sociale, the Agence de l'efficacité énergétique, immigrant assistance organizations, and tenants' associations

Hydro-Québec offers newcomers who are members of cultural communities, particularly in the Montréal area, information sessions on the safe use of electricity and on billing. It also takes the specific characteristics of cultural communities into consideration when applying its spring disconnection program.

Municipalities and Local Communities

Lorrainville substation

Community Relations

Hydro-Québec works with the Union des municipalités du Québec, the Fédération québécoise des municipalités and the Union des producteurs agricoles, through standing liaison committees, to improve some of its practices affecting areas organized into municipalities. In 2001, the company held discussions with the two municipal organizations on improving emergency communications and managing vegetation near electrical equipment. It also held discussions with the Union des producteurs agricoles on managing emergency situations and on crop cultivation in new line rights-of-way.

Hydro-Québec maintains direct, ongoing relations with municipalities, socio-economic agencies, citizens' groups and Aboriginal communities in all regions of Québec. Through regular discussions within a large number of committees and task forces, the company forges the partnerships that are necessary for the harmonious deployment of its operations and projects.

These cooperative relations resulted in the signing of some 40 agreements in 2001, with terms ranging from a few months to several years. The agreements include partnering arrangements, agreements for the leasing of properties for community purposes, and agreements under the company's Integrated Enhancement Program.

Tripartite Agreement on Property Valuation

In April 2001, Hydro-Québec entered into an agreement with the Union des municipalités du Québec and the Fédération québécoise des municipalités, aimed at improving relations between Hydro-Québec and the municipalities with respect to property valuation. The agreement provides for a reference document, to be drawn up in collaboration with all partners concerned, which will establish the rules, methods and procedures for assessing Hydro-Québec properties for tax purposes.

The administrative centre in Rouyn-Noranda

Integration of Projects into Host Environments

In 2001, regional information and discussion forums were held with representatives of municipalities and regional organizations on the North Shore concerning the 315-kV Toulnustouc-Micoua line project, as well as in the Saguenay–Lac-Saint-Jean region regarding the Péribonka power station project and the proposed partial diversion of the Manouane River.

Discussions with local authorities on the latter project led to a partnering arrangement with the Innu community of Mashteuiatsh and the creation of a limited partnership with the RCMs of Fjord-du-Saguenay, Maria-Chapdelaine, Haute-Côte-Nord and Manicouagan. In connection with the Romaine River hydroelectric project, Hydro-Québec signed an agreement with the municipality of Havre-Saint-Pierre for collaboration on environmental studies and other aspects, and also signed an MOU with the local employment centre.

For more information, go to www.hydroquebec.com/environment/social/complement

An Integrated Enhancement initiative

To follow up on its commitments, Hydro-Québec forms various joint committees made up of company managers and community representatives. The mandate of these bodies is to implement the measures provided for in agreements, optimize the economic spinoffs for the community and monitor the progress of the work. The bodies active in 2001 included a committee to implement the Pesamit agreement with the Betsiamites Innu community, committees to optimize the economic spinoffs of the Toulnustouc and Sainte-Marguerite-3 projects on the North Shore, and an advisory committee on regional spending for construction projects on the Saint-Maurice River.

Through the Integrated Enhancement Program, Hydro-Québec contributes financially to initiatives that enhance the biophysical and social environment of municipalities affected by major projects. For example, as part of the Aqueduc–Atwater–Viger line project, it provided the city of Verdun with support for developing a riverside park and a bicycle bridge, and assisted the city of LaSalle in developing a footpath along the St. Lawrence River.

Integrated Enhancement Program Funding

	Number	Hydro-Québec Funding (in $ millions)	Counterpart Funding (in $ millions)	Total Cost (in $ millions)
Initiatives in 2001	43	1.9	2.5	4.5
Initiatives since 1985	864	77.6	124.1	201.7

Joint Management of Land and Resources

Hydro-Québec has facilities in every region of Québec, and consequently plays a major role in land-use planning. The company collaborates in the preparation of development plans by RCMs and other urban communities in Québec. It also participates, with other users, in the joint management of many rivers, including the Ottawa and Richelieu rivers, and in the activities of various resource management and development committees.

To avoid conflict situations, Hydro-Québec promotes awareness by distributing various publications: *L'aménagement du territoire, il faut s'en parler* is circulated to municipal and regional groups, and the brochure *The Right Tree in the Right Place* goes out to customers requesting new residential service loops. It also takes any necessary measures to resolve issues, together with local authorities or on its own, such as purchasing land around the thermal power stations on Îles-de-la-Madeleine and Québec's North Shore in order to reduce noise annoyance.

Joint reservoir management practices enable Hydro-Québec to share reservoirs with other users. In 2001, for example, it signed an agreement in principle on the multipurpose use of its Rapides-des-Quinze facilities for recreation and tourism in the region.

Hydro-Québec encourages access to its properties for secondary uses that do not jeopardize personal safety or interfere with operating requirements. Examples of projects completed in partnership with local communities include:

- a hiking trail on the company's properties along the Sainte-Anne River
- a boat ramp on Sainte-Marguerite 3 reservoir
- a Canada goose marsh in Chisasibi
- a bicycle path in Chambly along a 120-kV line right-of-way

The company also continued its efforts to safeguard and enhance Québec's built, technological and archaeological heritage.

Archaeological Discovery in Old Montréal

During distribution system undergrounding carried out by the city's Commission des services électriques at Hydro-Québec's request on Saint-Éloi Street in Old Montréal, workers discovered two hearths, some 20 stone tool flakes and a faunal assemblage (18 species, 415 bones). A radiocarbon-dated charcoal sample indicates that people lived on this site between 4,160 and 3,850 years ago. This is the oldest settlement found in Montréal.

Agreement for Management of Taureau Reservoir with the Municipality of Saint-Michel-des-Saints, the Matawinie RCM and the Société de la faune et des parcs du Québec

This agreement reconciles the needs of users and the protection of wildlife habitats with the operation of the reservoir for hydroelectric generation. It is a good example of Hydro-Québec's ability to work together with the community by emphasizing integrated watershed management and promoting the multipurpose use of its reservoirs.

11th Montréal Architectural Heritage Event

Hydro-Québec's administrative building at 201 Jarry Street West in Montréal garnered the Scotiabank first prize in the industry and office building category at the 11th Montréal architectural heritage event. In addition to praising the design of the building, the jury underscored the company's efforts to preserve the architectural integrity of this construction, which dates back to 1951.

For more information, go to www.hydroquebec.com/environment/social/complement

Support for Local and Regional Development

Hydro-Québec makes a substantial contribution to the entire Québec economy, through the dividends it pays its shareholder, its purchases of goods and services, the jobs it creates, and the municipal and school taxes it pays.

To optimize the regional economic impacts of its day-to-day operations, Hydro-Québec sets up various joint committees with community representatives and takes steps to make local suppliers aware of potential contracts for goods and services, just as it does when planning a construction project.

Year	Purchases of Goods and Services ($M)	Direct Jobs (person-years)	Municipal and School Taxes ($M)	Tours of Facilities (number of visitors)
2000	1,475	10,393	38	223,567
2001	1,446	10,893	37	238,097

Cité de l'Énergie in Shawinigan

By welcoming visitors to 12 of its facilities, Hydro-Québec contributes to regional development of recreation and tourism. It supports organizations that coordinate guided tours of its properties, such as the Cité de l'Énergie. In 2001, Hydro-Québec renewed an agreement with the Rouyn-Noranda RCM community development centre regarding management of tours of the System Control Centre. It also signed a partnership agreement with the municipality of Saint-André-d'Argenteuil on the revitalization and development of Carillon park. A good number of the park's visitors are attracted by the power plant tours.

Hydro-Québec supports the work of community planning and economic development organizations, either through its representatives on their boards of directors or by providing technical expertise and resources. For example, the company is represented on the board of directors of the Québec centre for aluminum research and development. In 2001, the company also participated in Abitibi-Témiscamingue's *Chantier Défi-Emploi*, an employment initiative intended to revitalize the regional economy and exploit its development potential.

Carillon park and generating station

Aboriginal Communities

Québec is home to 11 Aboriginal nations: some 77,800 people in 55 communities. A number of generating facilities are located on land inhabited and used by Aboriginal people. Hydro-Québec consequently maintains close ties with these communities.

Several agreements were signed in 2001, including a pact between the Québec government and representatives of the Crees of Québec that has been described as a "peace among braves." This agreement will put their political, economic and social relations on a solid footing based on cooperation, partnership and mutual respect.

Hydro-Québec, the Québec government and the Crees also renewed the *Mercury Agreement (2001)*, originally signed in 1986.

As well, contracts worth a total of more than $74 million were awarded to Aboriginal organizations, contractors and self-employed workers.

Every year since 1996, Hydro-Québec has presented awards to Aboriginal college and university students for outstanding scholastic performance. This year, 6 students were selected out of the 19 applicants from 8 of the 11 Aboriginal nations in Québec.

Hydro-Québec provides awareness training for its employees to give them a more accurate perception of Aboriginal reality and help them understand the legal and political framework in which these communities operate. In 2001, 207 employees took part.

For more information, go to www.hydroquebec.com/environment/social/complement

In Harmony with Nature

Education and Research

Chairs in Environmental Research

Hydro-Québec funds three university environmental research chairs. The main results and research objectives in 2001 are shown below.

École Polytechnique de Montréal – NSERC Industrial Chair in Site Bioremediation*

- *Continuation of development of a bacterial consortium for bioactivation treatment of contaminated soil.*
- *Ongoing research to find a natural way to reduce hydrocarbons and chromated copper arsenate (CCA) in soil.*
- *Modeling of bioremediation options for contaminated sites.*

Université de Montréal Landscape and Environment Chair

- *Research on the concept of landscape and its place in project planning and execution, in partnership with Québec's Ministère de la Culture et des Communications.*
- *Arguments to support Hydro-Québec programs to deploy underground distribution systems.*
- *Facility siting and visual-integration guidelines.*
- *Transmission equipment design.*

Hydro-Québec – NSERC* – UQÀM** Environmental Research Chair

Mercury: results indicate that intensive fishing changes the relative abundance of zooplankton and could help reduce mercury levels in fish.

Greenhouse gases: reservoirs do not emit any more GHGs than natural lakes, several years after impoundment. The reservoirs are also carbon sinks, like the control lakes tested.

Floating chambers for measuring GHGs

* *Natural Sciences and Engineering Research Council of Canada*
** *Université du Québec à Montréal*

For more information, go to www.hydroquebec.com/environment/social/complement

Pole damaged by woodpeckers

Main Results

Hydro-Québec invests millions of dollars every year in technological research and knowledge acquisition to improve management of the environmental impacts of its projects and activities.

Technological Research

The company has developed various technologies to improve management of certain environmental problems. At Manic-5-PA generating station, for example, testing by Hydro-Québec has produced conclusive results on the use of a new type of skimmer that solves the problem of oil accumulation on the surface of the drainage shaft. At Bryson generating station, the oil boilers for de-icing spillway stoplogs were replaced with electrical boilers, thus eliminating pollutant emissions and the risk of spills.

Terrestrial Resources and Habitats

Studies have shown that the land around reservoirs is home to more species and denser populations of wildlife, such as Canada goose, compared with the areas next to control lakes.

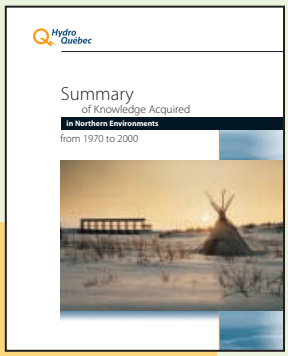
Woodpeckers cause a great deal of damage to poles and other wooden structures. Techniques were tested at two sites to reduce the damage without disturbing the wildlife.

Aquatic Resources and Habitats

After a fish pass was built on the Loup Marin River, significant reproductive activity was observed. This should add to landlocked-salmon recruitment in Outardes 2 reservoir, which was stocked by Hydro-Québec in the early 1980s.

Electric Fields

A laboratory study was conducted to shed light on the biophysical interaction between cell mechanisms and electric fields. Preliminary results show that cells in culture tend to change their orientation when exposed to electric fields. This could possibly improve the scarring process, among other things. The study is to continue in 2002.



Summary of Knowledge Acquired in Northern Environments from 1970 to 2000

This publication provides an overview of the information gleaned from 30 years of studying northern environments. It deals with such varied topics as physical, chemical and biological changes in reservoirs, rivers or sections of rivers where the flow has been modified, coastal zones and estuaries, and mercury levels. The knowledge obtained makes it possible to draw conclusions and lessons based on facts which, given their scientific value, can guide future hydroelectric development projects in comparable environments.

Joint Management of Bodies of Water

To promote joint management of bodies of water, Hydro-Québec conducted various studies, including one on the use of the Rivière des Prairies as part of the Montréal Bleu parks program (runoff, land use, community image and economic aspect), and another on the recent use of the Saint-Maurice valley by the Attikameks of the Wemotaci community.

Rivière-des-Prairies generating station

Distribution system undergrounding

Research on the Underground Distribution System

To determine the most efficient strategies for implementing undergrounding programs, Hydro-Québec studied urban and land-use planning tools, the expectations and perceptions of the people concerned, and the impact of undergrounding on property values.

Forest Resources

The company produced 39 information sheets on the forest environment to gain a better understanding of current issues and adapt its woodlands operations accordingly.

Mercury

In 2001, Hydro-Québec continued its research program with a view to managing risks related to increased mercury concentrations in fish in new hydroelectric reservoirs. The mercury in reservoir fish reverts to natural levels 20 to 30 years after impoundment.

Main achievements in 2001:

- Publication of guidelines for fish consumption in the James Bay region
- Cost/benefit study on fish consumption in the area of the La Grande hydroelectric complex
- Risk assessment of mercury exposure of fish-eating birds
- Development of a method for evaluating the level of human exposure to mercury from sport fishing

WWW For more information, go to www.hydroquebec.com/environment/social/complement

Environmental Follow-Up: Understanding Project Impacts

Sainte-Marguerite-3 Generating Station

- Increase, as expected, of mercury concentration in fish since impoundment.
- Improved understanding of the economic and social impacts, as well as of land use.

La Grande Hydroelectric Complex

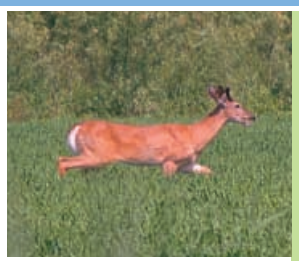
- Improved understanding of changes in the banks of the lower Grande Rivière.
- Mitigative and site-development measures proved to be effective in attracting wildlife and are much appreciated by the Crees.
- Follow-up with trappers and other groups on social and economic impacts of projects.

Lac-Robertson Generating Station

- Six years after impoundment, mercury levels ceased to increase for brook trout and landlocked salmon, but they are still four times higher than under natural conditions.
- The average levels continue to increase for rainbow smelt and dwarf Arctic char.

Distribution System

- The 25-kV underwater link between the North Shore of the St. Lawrence and Île-aux-Coudres did not change the fish habitat.
- Mitigative measures are effective and internal environmental impact assessment tools were improved.
- Some variances in implementation of vegetation management procedures were detected.
- Irregularities in the recovery of residual hazardous materials were remedied.



Transmission System Des Cantons–Saint-Césaire Section, in Montérégie

- The browse rate of white-tailed deer is 15% in the right-of-way, which is close to the standards in the Québec guidelines on deer yard management.
- High-voltage lines have no impact on precision-farming practices or on the information transmitted by the Canadian Coast Guard's Differential Global Positioning System.

Training and Awareness

Since the implementation of ISO 14001 began, over 8,000 employees, including more than 3,300 in 2001, have taken part in training and awareness sessions on the environmental management system.

The company has also introduced programs designed to transmit the necessary competencies to employees whose activities have significant environmental impacts. A total of 7,276 employees participated in various environmental training programs during the year.

The environmental internship program continued for the fourth consecutive year. In 2001, Hydro-Québec granted internships to 29 university students. This program is helping to prepare future graduates for the job market.

"My internship enabled me to expand my network of contacts and find a job as soon as my assignment was completed".

Julie Maheu, University Intern,
Master of Environmental Sciences, UQÀM

Environmental Performance

Energy Efficiency of Equipment and Buildings

The energy performance of 85 of the company's administrative buildings was 320 kWh/m^2, an improvement of about 25% over 1991, the reference year. This performance has remained stable for the past four years. In 2001, Hydro-Québec organized energy efficiency awareness activities for its employees in buildings on the Island of Montréal. The company also completed the modification or installation of automated energy control systems in several buildings—for example, space heaters that automatically shut off while garage doors are open.

At Tracy thermal power station, replacement of the oil reheaters reduced energy consumption by 4,280 MBTU over one year, for savings of nearly $272,000.

Hydro-Québec is currently replacing incandescent mercury light fixtures in its substations with a new type of lighting that will reduce energy consumption as well as the visual impact on the surrounding area.

For more information, go to www.hydroquebec.com/environment/social/complement

Equipment and Materials Used

Poles

Insofar as possible, the company recovers and reuses treated wood poles that have been removed from the system. However, a good number of them cannot be reused because they no longer meet quality and safety standards. Consequently, a large quantity of new poles has to be purchased every year. Poles that cannot be reused in the system are sold for recycling or for energy recovery.

Poles Purchased in 2001

	PCP-Treated Wood Poles*	CCA-Treated Wood Poles**	Steel Poles	Total
Distribution system	31,231	2,385	260	33,876
Transmission system	654	0	N/A	654

Wood Poles Recovered and Reused in the System During 2001

	Poles Removed from the System	Poles Recovered	Poles Reused in the System
Distribution system	10,744	10,182	392
		95%	3.8%
Transmission system	148	90	0
		61%	0%

* *PCP – pentachlorophenol*

** *CCA – chromated copper arsenate*

Replacement Chemicals

A multidisciplinary task force began a process for evaluating all new chemicals used at Hydro-Québec and assessing their environmental, health and safety impacts. The use of some new chemicals may eventually be prohibited as a result of this review process.

Paper

The amount of paper used for printing and copying in 2001 was over 735 tonnes. All this paper contains recycled fibre. As part of the reduction effort, some 27,000 customers were registered in the online billing and payment program as at December 31, 2001. Savings of 350,000 invoices and envelopes are expected in 2002 under this program.

Hydro-Québec itself collected and recycled 520 tonnes of paper and cardboard in 2001.

Treatment of IMO

Insulating Mineral Oil

The company decontaminated and regenerated 5,400,272 litres of insulating mineral oil (IMO) for reuse in its equipment or sale to certain suppliers. This performance boosted the year's IMO reuse rate to 98.1%. Oil that cannot be regenerated to meet the requisite quality standards is burned to recover energy.

Reuse of Insulating Mineral Oil in Equipment

	1999	2000	2001
Reuse rate (%)	92.6	95.1	98.1
Quantity reused (litres)	2,416,409	3,674,883	5,400,272

Emissions, Effluent and Waste

4R-D Program

In 2001, Hydro-Québec continued its 4R-D program of recovery, reuse, recycling and reclamation of resources to minimize their disposal as a last resort. This initiative led to the recycling of many items that otherwise would have been disposed of as waste. The table below provides a few examples.

Product	Unit of Measure	Recovered	Recycled	Reused		Reclamation for Energy
				Internal	External	
Electrical equipment	Tonne	2,362.6	2,362.6			
Power-line hardware	Tonne	172.4	69.0		103.44	
Printer cartridges	Unit	5,601		484	5,117	
Ring binders	Unit	25,000		18,749	6,251	
Used oil (excluding IMO)	Litre	463,316				463,316

Hydro-Québec Recycles, and Helps Young People in Difficulty

Hydro-Québec participates in recovery programs (power-line hardware and ring binders), in cooperation with the corporate training and recovery centres in Victoriaville and Montréal. In addition to recovering and reusing resources, these initiatives help young people in difficulty return to the workforce.

Water Heater Recycling

The company has issued specifications to its water heater suppliers to ensure that these appliances are very durable. A water heater recycling program has also been initiated with specialized firms.

Saint-Hyacinthe hazardous materials recovery centre

Residual Hazardous Materials

As part of the management plan recognized in 2000 by Québec's Ministère de l'Environnement, Hydro-Québec has set up 486 recovery areas throughout its Québec facilities. Residual hazardous materials are recovered and sorted at source, on the work site. They are then segregated in transfer sites before being sent to one of the company's four recovery centres, where they are processed in accordance with 4R-D program criteria. In 2001, 8,965 tonnes of residual hazardous materials were recovered through this process.

For more information, go to www.hydroquebec.com/environment/social/complement

Spills

A total of 505 accidental spills occurred this year. In each case, the pollutants were recovered and the soil treated. The increase in the number of declared spills may be due to the introduction of environmental management systems, which led to more efficient alert structures. Hydro-Québec is now in a better position to detect all incidents, analyze the causes, and institute the appropriate remedial measures.

Some important observations:

- nearly 66% of the time, the spill involved insulating oil
- 81% of the spills involved less than 50 litres
- 60% of the spills were caused by equipment breakage
- 72% of the spills resulted from distribution operations

Soil and Site Contamination

Hydro-Québec is seeking innovative ways to prevent contamination and facilitate the characterization and restoration of contaminated soil and sites. For example, it has developed a bioventilation treatment for soil that enhances retention and decomposition of pentachlorophenol (PCP) in pole yards. It has also designed two methods of protecting the soil, groundwater and surface water in pole yards against contamination by wood preservatives.

About 10 sites belonging to the company underwent soil decontamination (treatment or disposal). The total cost of these operations to date is estimated at over $3.2 million.

Radioactive Waste

Hydro-Québec monitors the production of low- and medium-energy radioactive waste by means of an indicator that measures the average volume of radioactive waste, other than spent nuclear fuel, produced during operation of a nuclear reactor. This waste includes material contaminated by radioactive substances, such as protective clothing and used parts. Hydro-Québec operates only one nuclear power plant, Gentilly-2, which recorded a rate of production of low- and medium-energy radioactive waste of 155 m^3 in 2001.

Gentilly-2 nuclear generating station

Vegetation Management

As required by the *Pesticides Act*, Hydro-Québec reports its purchases and usage of pesticides annually. These chemicals are mostly used to control vegetation in transmission line rights-of-way, in substations, on dikes and dams and, to a lesser extent, to eliminate insects or vermin in some facilities.

The company must control woodland vegetation on over 135,000 ha of transmission line rights-of-way. Through its integrated vegetation management, Hydro-Québec endeavors to use the right method, in the right place, at the right time. This concept is also applied to vegetation control to ensure smooth distribution system operations as well as public and worker safety.

Monitoring of herbicide application by aerial spraying in transmission line rights-of-way indicates that this method is safe and avoids contamination of sensitive elements in the environment.

A survey was conducted to assess customer satisfaction with vegetation control on the distribution system. The results indicate that 87% of the customers in the pilot region were satisfied with the work performed.

Hydro-Québec is continuing its recycling program for chips that are generally produced by shredding waste wood from pruning operations. In addition to reducing the amount of waste destined for landfill, this initiative provides access to a resource that is highly valued for agricultural soil amendment and other uses.

Electric vehicle

Road Transport

Hydro-Québec operates a large fleet of vehicles to maintain its systems and provide customer service. In 2001, the company adopted measures to improve the management of company vehicles and cut down on their use:

- the number of trips and the distances traveled have been reduced by optimizing the use of vehicles transporting supplies and residual materials
- employees have received a list of measures to take

In addition, Hydro-Québec has a pilot fleet of 11 electric vehicles. These vehicles are being tested mainly for customer service in the Montréal area.

For more information, go to www.hydroquebec.com/environment/social/complement

Requirements for Suppliers of Goods and Services

To ensure that its suppliers of goods and services meet the same environmental and social standards that it sets for itself, Hydro-Québec incorporates specific provisions into its supplier agreements. These clauses are based on the environmental issues involved, the legal requirements for the work and other requirements of the environmental management systems in the various units. Furthermore, suppliers must show that they hold the requisite certificates and permits and that their employees are informed of the environmental specifications. They must also be able to provide proof of compliance with these specifications.

Environment-Related Requests and Complaints

Hydro-Québec received 909 environment-related complaints in 2001. These mainly concerned property damage (61%) and pruning (10%) in distribution operations. This is the first year that the company has documented requests and comments about the environment. The results show the extent of the public's concern over contamination related primarily to the distribution of electricity. A considerable number of requests dealt with the multipurpose use of Hydro-Québec's property and facilities and water-level management.

International Projects

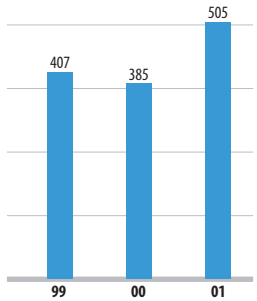
As a member of the e_7, Hydro-Québec contributed to the performance report and the guidelines for carrying out projects in South Africa, Zimbabwe, Thailand and Mexico. It also produced a study called *Technical Expertise, Construction of Dams, Pérélégou Pond, "W" National Park of Niger*. Located in the Sahel, the ponds in this park are of global importance under UNESCO's *Man and the Biosphere* program.

Hydro-Québec provided 30 hours of training on implementing an ISO 14001–compliant EMS for graduate students in the environmental management program at Senghor University in Egypt.

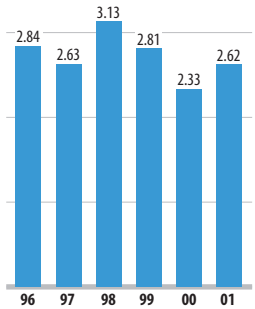
Some Indicators

Rate Comparison	
City	Residential Rate (in ¢/kWh – Canadian currency)
Winnipeg	5.89
Montréal	6.03
Ottawa	7.65
Halifax	9.40
Seattle	9.45
Edmonton	10.13
San Francisco	19.17
Boston	20.04
New York	22.70

Number of Contaminant Spills

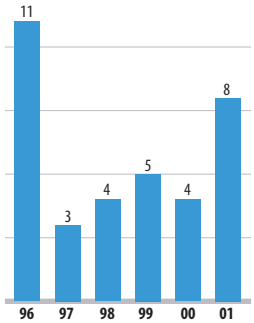


SAIDI



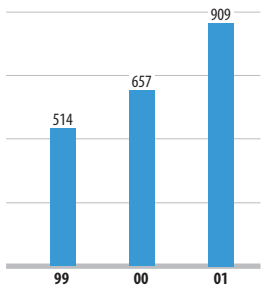
SAIDI (Service Average Interruption Duration Index) indicates the average hours of interruption per customer, adjusted to exclude exceptional weather events such as the 1998 ice storm.

Violation Notices



Eight violation notices were issued this year by Québec's Ministère de l'Environnement and Ministère des Ressources naturelles, Environment Canada, or various municipalities. The notices dealt with spills of contaminants and management of hazardous materials, residual hazardous materials, petroleum products and noise.

Environment-Related Complaints and Claims



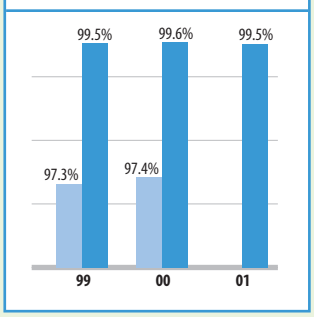
The increase in 2001 is due to implementation of ISO 14001 procedures specifying that all complaints and claims must be recorded, and to employees' heightened awareness of the importance of collecting this information.

For more information, go to www.hydroquebec.com/environment/social/complement

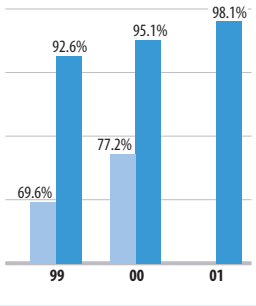
Hydro-Québec and the Canadian Electricity Industry

Under the Environmental Commitment and Responsibility Program of the Canadian Electricity Association (CEA), indicators are used to compare the performance of CEA member companies.

Energy Efficiency of Generating Facilities
(electricity sold / electricity generated and purchased)



Reuse of IMO



CEA

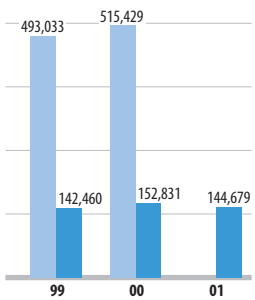
Hydro-Québec

Year 2001 data for the CEA are not available.

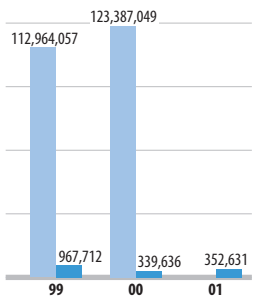
Atmospheric Emissions

Although Hydro-Québec generated 30% of all Canada's electricity in 2000, the company accounted for only 0.3% of the CO_2, 1.5% of the SO_2 and 1.8% of the NO_x emitted by Canadian electric companies.

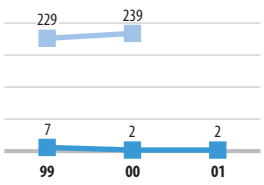
Net Electricity Generated
(GWh)



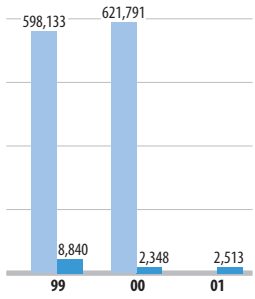
CO_2 Emissions (tonnes)



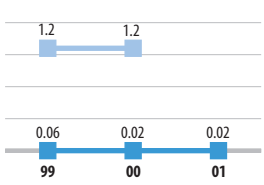
Average Emission Rates
(tonnes of CO_2/GWh)



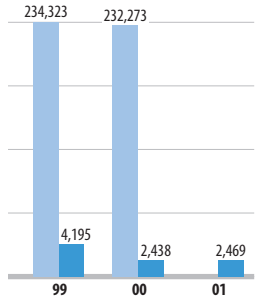
SO_2 Emissions (tonnes)



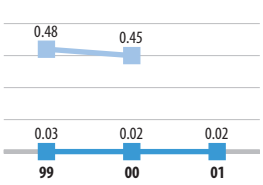
Average Emission Rates
(tonnes of SO_2/GWh)



NO_x Emissions (tonnes)



Average Emission Rates
(tonnes of NO_x /GWh)



2001G411E

Legal deposit - 2nd quarter 2002

National Library of Canada
Bibliothèque nationale du Québec
ISBN 2-550-39031-8

Ce document est également publié en français.

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