

Towards sustainable development

ONTARIO HYDRO 1998 PROGRESS REPORT



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A Message from President and CEO Ron Osborne

1998 WAS A YEAR OF SIGNIFICANT ACCOMPLISHMENT AND CHANGE FOR ONTARIO HYDRO. IT MARKED THE FIRST FULL YEAR OF OUR NUCLEAR RECOVERY PROGRAM, AND ALSO THE FINAL FULL YEAR OF OPERATION AS ONTARIO'S PROVINCIAL ELECTRICITY COMPANY.



At the beginning of the year we completed the lay-up of our older nuclear units at the Pickering A and Bruce A stations so that we could concentrate human and financial resources on restoring our 12 newer nuclear units to performance excellence. The recovery of these 12 units is on track, actually exceeding the performance target set for the year. However, the unavailability of our nuclear plants meant that we had to rely more heavily on our fossil stations and

as a result our air emissions increased in 1998. Nevertheless, we still met our regulatory requirements.

As we bring our nuclear units back into service, emissions will once again decline. This underlines the importance of our nuclear program in helping us to manage our air emissions.

We remain committed to reducing the air emissions from our fossil plants. Over the past decade, we have spent more than a billion dollars to minimize acid gas emissions from these facilities. We purchase low sulphur coal and have installed scrubbers on two units of Lambton to remove sulphur dioxide. During 1998, we continued our program of installing low NO_x burners on our coal-fired plants to reduce smog. By the end of 1999, we expect to complete this program. In 1998, we also converted two oil-fired units to burn gas or oil at our Lennox Generating Station, again helping to lower air emissions.

RESTRUCTURING ONTARIO'S ENERGY MARKET

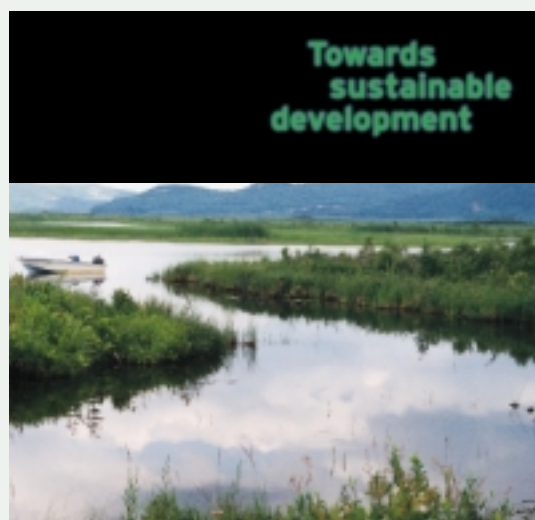
1998 also saw the passage of Bill 35, the Energy Competition Act, which launched

the restructuring of the electricity market in Ontario. This Bill not only lays the groundwork for the opening of the retail electricity market in the year 2000, but also creates two large, commercial, successor companies out of Ontario Hydro. On April 1, 1999 the successor companies, Ontario Power Generation, Inc. and the Ontario Hydro Services Company were established and Ontario Hydro ceased operations.

We believe that the link between competitiveness and environmental performance is clear. Balancing our financial resources with improving environmental performance, and meeting the expectation of the communities in which we operate, are our objectives as we prepare ourselves for the competitive marketplace. Meeting these objectives, we believe, will help differentiate us from our competitors.

IMPROVING ENVIRONMENTAL PERFORMANCE

In preparation for competition, we are embedding environmental responsibility into the way in which we conduct our business. Our environmental management systems and our focus on continual improvement in environmental performance will help us do just that. In 1998, our corporate environmental management system was deemed to be ISO 14001 consistent by an ISO Registrar. The Thunder Bay Generating Station was registered against the ISO 14001 standard and another fossil plant, Atikokan, is expected to be registered in early 1999. Darlington Nuclear Generating Station retained its ISO Registration in 1998, successfully completing its maintenance audit by a Registrar. Plans are in place to register all generating stations by mid-2000. We have also reinforced our



environmental policy framework in 1998 and set some ambitious targets. This EMS framework will form the starting point for both successor companies.

And, while we believe that we have the basic governance architecture in place to manage our environmental risks, we are aware that some of our environmental performance needs further effort. Areas for improvement are detailed in this report. Performance in certain areas, such as spills and compliance with environmental regulation is not where it should be. Improved performance in these areas will be challenges for the new successor companies, as will be the challenge of managing air emissions and wastes.

Although Ontario Hydro ceased operations on April 1, 1999, its environmental commitment will live on in the new successor companies. We believe that reporting on our environmental performance is important to our customers and we will continue, in the successor companies, the tradition of annual environmental reporting which was begun in Ontario Hydro in 1989.

Performance Highlights

IN 1998, ONTARIO HYDRO CONTINUED ITS COMMITMENT TO SUSTAINABLE ENERGY DEVELOPMENT AND ENVIRONMENTAL RESPONSIBILITY. IN MANY AREAS, OUR EFFORTS PROVED VERY SUCCESSFUL; IN OTHERS, THERE IS MORE WE CAN DO. THESE HIGHLIGHTS BEST REPRESENT OUR 1998 PERFORMANCE RECORD.

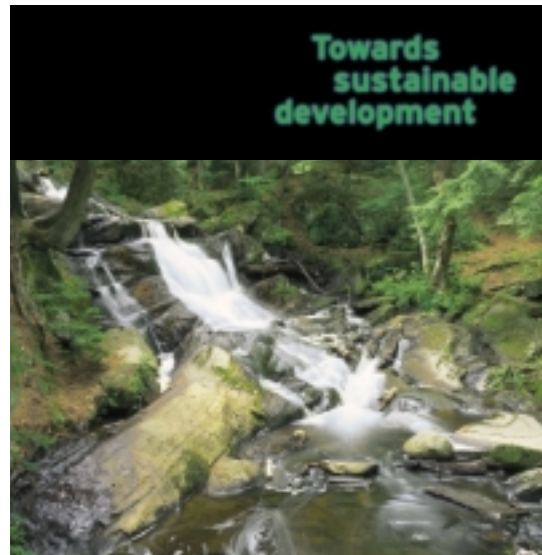
ENVIRONMENTAL MANAGEMENT SYSTEMS

Ontario Hydro is committed to implement its Sustainable Energy Development Policy through an environmental management system (EMS) that is consistent with the International Organization for Standardization (ISO) 14001 Environmental Management System Specification. Our goal is to have environmental management systems in place across the organization.

The Corporate EMS was issued in December 1997 and underwent an external assessment audit in late August 1998 by the consulting firm, Quality Management Institute (QMI), an ISO Registrar. A Letter of Attestation confirmed that the Corporate EMS fulfilled the requirement of the ISO 14001-96 standard. The businesses are well underway with the development and implementation of their own EMSs. Other highlights included Darlington GS retaining its ISO registration following an independent audit in January 1998, and Thunder Bay GS obtaining its ISO 14001 registration.

ENVIRONMENTAL POLICIES

In line with our Environment Management System, Ontario Hydro instituted new policies



in 1998 in several key areas. These included revised policies for PCB (polychlorinated biphenyls) Management, Spills Management, Biodiversity and a new policy for Land Assessment and Remediation. These policies specify accountabilities and provide objectives and targets to monitor their implementation.

EMISSIONS REDUCTION TRADING

Since 1996, Ontario Hydro, other industries,

Ontario Hydro instituted new policies in several key areas: PCB Management, Spills Management, Biodiversity, and Land Assessment and Remediation.

and government and non-governmental organizations have been operating the Pilot Emissions Reduction Trading (PERT) Project. The project goal is to provide market incentives to improve environmental performance. By voluntarily investing in equipment and practices that reduce emissions, member companies of PERT earn credits for each tonne of emissions reduced. These credits can be bought or sold. This year, we purchased credits from Beaver Fuels, enabling them to sell cleaner gas without raising prices at the pump; and sold NO_x credits to the Hartford Steam Boiler Company in Connecticut. Ontario Hydro's participation in this innovative program is making a contribution to the reduction of nitrogen oxides emissions in eastern North America.

PCB MANAGEMENT

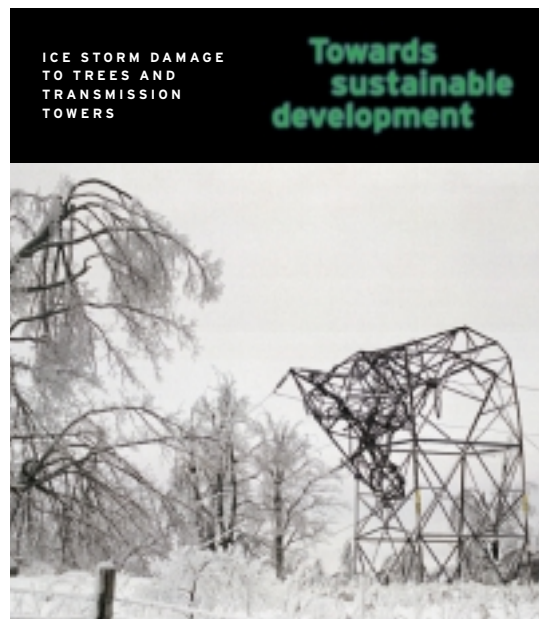
Ontario Hydro continued to place a high priority on reducing its inventory of in-service PCBs and PCB wastes. In 1998, we shipped for destruction 2,610 tonnes of waste. This reduced our overall 1998 inventory of in-service PCBs and PCB wastes by 45%. Of particular note, Services Company, with MOE approval, emptied 57 of its 114 PCB storage sites, eliminating not only the material, but the associated storage risk, and maintenance, inspection and reporting costs. A few of these sites will remain open in order to store contaminated equipment and clean-up material.

SPILLS

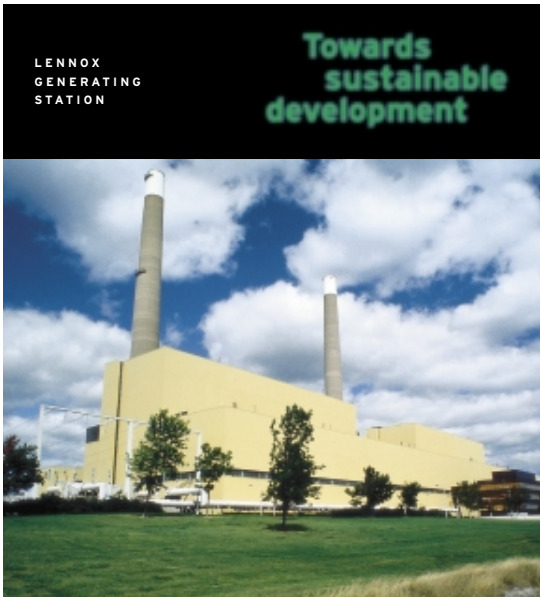
During 1998 Ontario Hydro experienced three preventable major spills and 14 moderate spills, exceeding targets in both categories. We have management programs in place and we are committed to improving our performance in this area.

ICE STORM

The January ice storm of 1998 was an event of duration and ferocity unprecedented in the history of the electric power industry in Ontario. Over 1,200,000 people were affected by the storm and there was extensive damage to Hydro transmission and distribution facilities. Ontario Hydro's Forestry Services staff worked under very difficult circumstances to co-ordinate the clean-up of transformer oil spilled (16,300 litres lost) during the ice storm as over nine hundred pole-top transformers were toppled. The storm also caused great devastation to the region's woodlands. Ontario Hydro participated in numerous community events focused on repairing the damage from last year's devastating ice storm. We sponsored tree-planting efforts throughout Ontario, purchasing some 50,000 seedlings for planting by local Hydro volunteers, Beaver, Cub and Scout organizations, and school children.



**In partnership with communities and organizations,
Ontario Hydro continued to protect and restore
wildlife habitats and support educational programs.**



AIR EMISSIONS

In 1998, Fossil station acid gas emissions were 198,800 tonnes, comprising 143,000 tonnes of sulfur dioxide and 55,800 tonnes of nitrogen oxides. We were once again below the regulatory limit of 215,000 tonnes, yet the Fossil plants produced 40% more electricity than in 1997. Purchases of increased amounts of low sulphur coals and the reliable operation of the Lambton flue gas desulphurization process and the Nanticoke fuel blending facilities contributed to this success. Initiatives like the low NO_x burners, natural gas igniters at Nanticoke GS and the conversion of Lennox GS to enable it to burn natural gas, will help us continue to meet our targets as we proceed with the nuclear recovery plan.

BIODIVERSITY

In partnership with communities and organizations throughout the province, Ontario Hydro continued to protect and restore wildlife habitats

and support educational programs. Examples include wetland protection and restoration at Bruce, Darlington, Pickering and Lennox Stations; the Madawaska River Water Management Plan; and the Bald Eagle Recovery Program.

INDEPENDENT EXTERNAL REVIEW

For the first time in 1998, Ontario Hydro engaged Ernst and Young, LLP to conduct an independent review of the 1998 Progress Report Towards Sustainable Development. The objective was to form an independent view on the information reported, and the processes by which the data included in the report were collected and collated. This type of review is more common in Europe and the process for conducting them is evolving in North America. The review was undertaken to raise the standard for Hydro's environmental reporting. The letter from Ernst & Young, LLP is provided at the end of the report.



Introduction

THIS 1998 PROGRESS REPORT TOWARDS SUSTAINABLE DEVELOPMENT MARKS TEN YEARS OF ENVIRONMENT/SUSTAINABLE DEVELOPMENT REPORTING WITHIN ONTARIO HYDRO. IN 1998, LEGISLATION INTRODUCING COMPETITION IN THE ELECTRICITY SECTOR IN ONTARIO WAS PASSED. AS A RESULT, THIS WILL BE ONTARIO HYDRO'S LAST PROGRESS REPORT AS ITS SUCCESSOR COMPANIES TAKE ON THEIR NEW ROLES IN THE ELECTRICITY MARKETPLACE IN 1999.

In 1998, Ontario Hydro comprised three business units: the Generation Company that is responsible for Fossil and Hydroelectric electricity generation, Ontario Hydro Nuclear that manages nuclear generation and the Services Company that is responsible for the transmission and distribution of electricity to customers.

Many factors have been significant in shaping Hydro's progress towards sustainable development in 1998. Key among these is the restructuring of the electricity sector mentioned above. The government is developing measures to ensure that competition does not threaten environmental protection in the province. In 1998, Ontario Hydro and other stakeholders participated in consultation processes to consider new tools to protect the environment in a new electricity market including: reform of the Environmental Assessment Act; regulations to limit atmospheric emissions; pollution disclosure requirements; and the rules for "green energy" marketing.

As Hydro prepared for the formation of its successor companies, its business units focused on building upon sustainable development opportunities and addressing environmental risks so that they can enter the competitive market on a sound footing. A strong policy framework has been established under the

umbrella of the Sustainable Energy Development Policy and Principles approved last year. Hydro has also continued to implement environmental management system (EMS) improvements, many of which arose from lessons learned from the release of copper and zinc emissions to the Great Lakes in 1997. Progress in these areas is provided in Section 4.

Another important influence on Hydro's environmental performance has been Ontario Hydro's nuclear recovery program. Initiated in 1997, this program has resulted in reduced nuclear capacity while 12 of 20 nuclear units are restored to performance excellence. During this period, Ontario Hydro is relying on additional fossil generation, which has resulted in increased air emissions. Despite this increase in fossil generation, Ontario Hydro remains committed to meeting all regulatory emission limits and voluntary environmental commitments.

Hydro's environmental achievements in managing air emissions and all other environmental aspects of its operations are detailed in Section 5 of the report.

Ontario Hydro recognizes that sustainable development means more than just improving environmental performance. Section 6 describes Hydro's many activities to address its social and community responsibilities.

Improving our Environmental Governance

ONTARIO HYDRO CONTINUES TO SET HIGH STANDARDS FOR ITS ENVIRONMENTAL PERFORMANCE. EFFECTIVE ENVIRONMENTAL GOVERNANCE REQUIRES CLEAR OBJECTIVES, TARGETS, DETAILED PLANS, SPECIFIC REPORTING MEASURES AND CLEAR ACCOUNTABILITIES - ALL OF WHICH ARE REFLECTED IN THE POLICIES AND ENVIRONMENTAL MANAGEMENT SYSTEMS WE HAVE ADOPTED TO GOVERN OUR PERFORMANCE.

Ontario Hydro's Sustainable Energy Development (SED) Policy and Principles provides the overarching policy governing the environmental performance of the organization. The SED Policy states that:

"Ontario Hydro will apply the principles of sustainable development throughout its business. We will increase our competitiveness and promote a more sustainable energy future by: (a) achieving continual, measurable progress in pollution prevention; (b) making efficient use of resources; (c) maintaining, and where possible, improving the integrity of the ecosystems in which we operate; and (d) developing energy products and services consistent with the principles of sustainable development. Our objective is to move beyond compliance and we will, at minimum, comply with all legislative requirements.

We will implement this policy through an environmental management system, consistent with the International Organization for Standardization (ISO) 14001 Environmental Management System Specification."

The strength and success of an organization's environmental policy, is largely determined by

how effectively it can be managed and implemented. The ISO 14001 EMS provides just the tool, or process, for addressing that need. It provides both the process, and assurance, to ensure that our policy is driving improvement in the environmental performance of the company, while also demonstrating Management's due diligence with respect to its environmental impacts.

ISO 14001 describes a system based on continual improvement in the following five key areas: environmental policy; planning; implementation and operation; checking and corrective actions; and management review. By adopting this approach, Hydro obliges its Business Units to evaluate, in a consistent manner, the quality of processes used to manage the environmental impacts of their facilities' operations.

ENVIRONMENTAL MANAGEMENT SYSTEM (EMS) UPDATE

External Audit of Corporate EMS

A Corporate Environmental Management System (EMS), consistent with the requirements of ISO 14001, was issued on December 1, 1997.

**Hydro obliges its Business Units to evaluate
the quality of processes used to manage the
environmental impacts of their facilities' operations.**

An external assessment audit of the Corporate EMS was conducted in late August by the consulting firm, Quality Management Institute (QMI), an ISO Registrar.

The purpose of the audit was to evaluate the adequacy and implementation of Ontario Hydro's Corporate EMS against the requirements of the ISO 14001 standard. Although Hydro does not intend to register the corporate EMS at this time, the intent of the audit was to determine whether the corporate EMS is truly consistent with ISO requirements as specified in the SED Policy and Principles.

QMI's audit findings indicated that the Corporate EMS fulfilled the requirement of the ISO 14001-96 standard and a Letter of Attestation indicating this was provided to Ontario Hydro from the ISO Registration Auditor of QMI. Minor EMS deficiencies found in the audit were addressed to the satisfaction of the QMI auditor.

Business Unit EMS Updates

In accordance with the corporate guidelines, our Business Units achieved several milestones in 1998, establishing EMSs within their businesses consistent with the ISO 14001 specification.

Ontario Hydro Nuclear (OHN)

OHN developed, approved and communicated to all employees its new Environmental Management Policy.

To ensure a thorough understanding of environmental principles, OHN also developed a computer-based Environmental Awareness Training Program, accessible through the Intranet. To date, over 2000 employees have completed the course, a requirement for all 10,000 employees by the end of 1999.



Six Site Environmental Management System (EMS) Manuals were developed and documented for Darlington, Bruce, Pickering, Nuclear Waste Management, Training, Support and Services, and Nuclear Headquarters to provide all employees with the environmental guidelines specific to their site. Third party attestations confirmed that all EMS manuals are consistent with the ISO 14001 Standard.

Darlington GS retained its ISO 14001 registration following an independent audit in January 1998.

Generation Company (Genco)

Genco's Environmental Policy was approved in 1998. A schedule for EMS documentation/registration has been developed, to ensure all Fossil and Hydroelectric Plant Group stations are registered with ISO 14001 by mid-2000.

Fossil has a full-time ISO 14001 Project Manager to ensure that every plant is registered to

ISO 14001 by the end of 1999. Thunder Bay GS, the first Genco plant to be registered, successfully completed its registration audit in November.

Hydroelectric developed its Environmental Management System Manual, which was reviewed by QMI, the ISO Registrar, for consistency with the ISO 14001 Standard. The four plant groups within Hydroelectric (Ottawa-St. Lawrence, Northeast, Northwest, and Niagara) initiated a major EMS program to obtain ISO 14001 registration.

Services Company (Servco)

Servco's environmental policy was approved in 1998. A revised Servco EMS, to address organizational changes, was initiated in 1998, with complete implementation planned for 2000. Like all of the corporation's EMSs, it is designed to be consistent with ISO 14001.

Work was started to harmonize EMS documents into a common framework and increase awareness of the EMS. Major achievements were made in three areas:

- the establishment of an Servco EMS intranet site;
- development of an EMS awareness CD ROM; and
- EMS training for Network Services management teams.

Approved Environmental Policies

In 1998, with the participation of all our Business Units, we developed and put in place four policies to complement our Sustainable Development (SED) Policy. As we proceed towards a competitive business market, we believe these policies will help to ensure our continued progress towards sustainability.

PCB Management Policy

There is no regulatory requirement to phase out polychlorinated biphenyls (PCB) equipment or eliminate PCBs, but because of their nature, these substances still represent a liability for the organization. The revised PCB Management Policy provides Ontario Hydro with a framework for managing and ultimately destroying PCBs in a safe, environmentally-conscious, and cost-effective manner. It represents a voluntary commitment on behalf of Ontario Hydro to eliminate PCBs. The policy targets the phaseout and destruction of 80% of the Corporation's in-storage PCB waste and high-level in-service PCBs by 2005, and the remainder by 2015.

Spills Management Policy

In 1998 we introduced a revised Spills Management Policy aimed at maximizing spill prevention and minimizing the potential adverse effects of spills that do occur. The policy includes targets and objectives covering the number and severity of spills, which are also included as a Corporate Performance Measure. Specifically, business unit performance targets for preventable spills are:

- zero Category "A" (major) spills;
- 50% reduction in the number of Category "B" (moderate) spills in 1998, relative to 1997;
- continual reduction in the number of Category "B" (moderate) spills in 1999 and beyond; and
- continual reduction in the number of Category "C" (minor) spills.

Land Assessment and Remediation Policy

Ontario Hydro's Land Assessment and Remediation Policy provides a corporate framework for the management of land contamination issues and commits Ontario Hydro to manage its lands in such a way that the environment,

Ontario Hydro's Biodiversity Policy is an integral component of our efforts to maintain, and where possible, improve the integrity of the ecosystems in which we operate.

corporate image and asset value are protected. Specifically, businesses are required to:

- consider land contamination issues explicitly when buying, leasing, using and selling land; and
- implement an assessment, and if required, a remedial action program, for sites which may have been contaminated through past operations.

Biodiversity Policy

Ontario Hydro's Biodiversity Policy is an integral component of our efforts to maintain, and where possible, improve the integrity of the ecosystems in which we operate.

The objective of the policy is to ensure that the businesses plan and manage their activities in a manner that encourages, within a regional context, the continued existence of native species, and the ecosystems upon which they depend. Specifically, the policy requires the businesses to:

- identify and prioritize all significant natural areas and species, which may be adversely affected by the life cycle of their facilities; and
- develop management plans to address the biodiversity needs and enhancement opportunities for all of the high priority significant natural areas and species identified.

CORPORATE PERFORMANCE MEASURES

Senior management and members of the Environment and Public Policy Committee, a committee of the Board of Directors, track performance against these key environmental performance measures.

Spills Severity and Volume

The spill severity rating, introduced in 1998, provides an indication of the environmental impact of a spill, based on the type of substance involved (PCBs, oils, fuels, chemicals), the size of the release, and the on-site and off-site impacts.

The categories are A (major environmental impact), B (moderate impact), and C (minor impact). A preventable spill is one that could reasonably have been foreseen and could have been prevented.

During 1998, we experienced three preventable Category A spills, 14 Category B spills, and 108 Category C spills, exceeding our targets in all categories. In spills volume, we lost 652,020 litres to the environment in 1998, including one large Category B (500,000 litres) and two large Category C (total 105,000 litres) spills. The large Category B spill related to a dilute (400 ppm) hydrazine solution, 200 ppm in excess of the permitted level, used to flush a Pickering boiler and feedwater system. Even allowing for the impact of the ice storm, the



volume of minor and moderate spills is up considerably from past years. We have spills management programs in place and are committed to improving our performance in this area.

Internal Energy Efficiency

Internal energy savings include savings in electricity energy uses and losses, as well as thermal and conversion efficiency improvements at generating stations. This indicator measures how effectively Ontario Hydro is producing, delivering and consuming energy within its facilities.

In 1998, we achieved new savings of 171 GWh, slightly exceeding our corporate target of 170 GWh. Total cumulative savings from 1994 to 1998 are 1,760 GWh, equivalent to about \$70 million in annual savings.

One example of significant energy savings was brought about by a voltage optimization

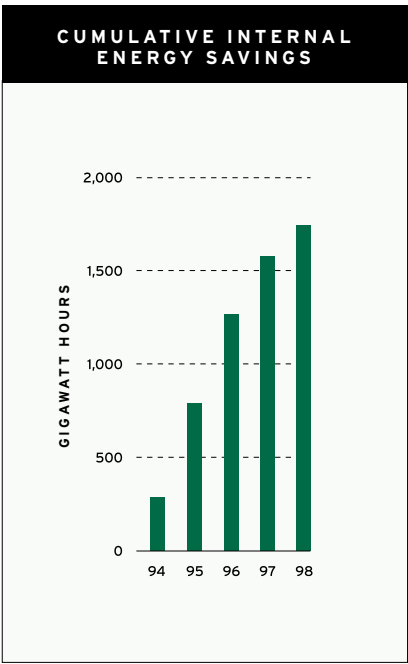
initiative at Leaside Transformer Station. By changing the output voltage of the Leaside transformers, Servco was able to save 4380 MWh per year. The 3% increase in voltage resulted in a 1 MW reduction in losses at peak demand periods and lower during off-peak periods.

In another project now underway, Central Maintenance Services, Servco, is testing a new utility cost management system, expected to reduce its monthly electricity bill by 20%. EnVision, owned and operated by Ontario Hydro Technologies, is conducting a metering study at the building to identify ways to reduce electricity usage. In the future, EnVision may also be used to monitor and optimize gas and water consumption at the facility.

Environmental Regulatory Compliance

This measure focuses on compliance with environmental statutory requirements, and is measured as a percentage of potential violations for which corrective action was taken.

In 1998, there were 571 events resulting in non-compliance with regulatory requirements. Two hundred and sixty-eight were self-reported opacity events (visible emissions from stacks) at fossil generating stations. Other significant contributions to the total were events related to MISA water pollution monitoring requirements (e.g., missed samples, exceedances of toxicity limits, failure of dataloggers); failure to meet requirements associated with Certificates of Approval (e.g. operating systems without a Certificate of Approval, not complying with conditions on Certificates of approval); and MOE reportable spills. Other miscellaneous events included failure to meet regulations relating to PCB waste, hazardous waste manifests, and air emissions monitoring.



The new Environment, Health and Safety Audit group was set up to provide independent assurance that major environmental, health and safety risks have been mitigated through effective management systems.



Ontario Hydro has corrective action plans in place for 100% of these events, fully meeting its performance target. Improving our compliance record is a top priority for the corporation.

ENVIRONMENT, HEALTH AND SAFETY AUDIT PROGRAM

Environment, Health and Safety audit is an important element of corporate governance and due diligence for Ontario Hydro. In 1998, Ontario Hydro established a new risk-based Corporate Environment Health and Safety Audit function. Hydro has had audit programs in the environment area since the late 1980s and in occupational health and safety since the mid-1990s, but these programs were focused on compliance with regulations and internal policies.

In 1998, the new Environment, Health and Safety Audit group was set up as a part of Corporate Audit to provide independent assurance

to the CEO and Board of Directors that major environmental, health and safety risks have been mitigated through effective management systems. All audit reports are summarized for the Audit & Finance Committee and the Environment & Public Policy Committee of the Board of Directors. The Environment, Health and Safety Audit group also tracks the status of management's corrective actions and performs follow-up work to ensure that the actions are effective.

Ten Environment, Health and Safety audits were completed in 1998, addressing a range of environment and safety risks across the company. Both the Ontario Hydro Services Company and Ontario Power Generation, Ontario Hydro's successor companies, will continue to have Corporate Environment, Health and Safety audit groups, providing similar assurance to their respective CEOs and Boards of Directors.

Environmental Achievements

THROUGHOUT 1998, ONTARIO HYDRO CONTINUED ITS EFFORTS TO IMPROVE ENVIRONMENTAL PERFORMANCE, ONE OF THE THREE SUSTAINABLE DEVELOPMENT 'BOTTOM LINES' THAT INCLUDE ENVIRONMENT, FINANCIAL AND SOCIAL.

We reduced harmful emissions, focusing on pollution prevention where possible, improved our eco-efficiency through programs such as our internal energy efficiency program, and diversified our energy sources to include contributions from renewable sources such as hydroelectric, solar power and wind turbines.

We sought to maintain and, where possible, improve the integrity of the ecosystems in which we operate through efforts to conserve biodiversity. Ontario Hydro partnered with governments, non-government organizations and the communities we serve, in a wide variety of initiatives to protect, maintain and restore the natural environment.

As we move to a competitive business environment, our performance in these key areas, as in all aspects of sustainable energy development, will continue to lay the foundation for the success of our successor companies.

AIR EMISSIONS MANAGEMENT

A comprehensive air management program has been developed and implemented to reduce and monitor emissions from Ontario Hydro facilities.

Emissions from Fossil Generation

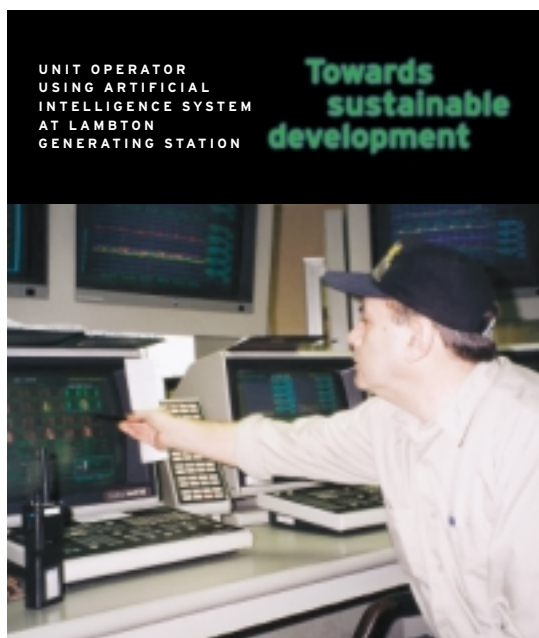
The burning of fossil fuels gives rise to a number of air emissions, principally sulphur dioxide (SO₂), oxides of nitrogen (NO_x), carbon dioxide (CO₂) and particulate matter.

Increased fossil generation as a result of the nuclear recovery program has resulted in an increase in total air emissions from fossil generation over recent years. To meet environmental objectives, Ontario Hydro has implemented a number of measures to improve the emissions performance of its fossil facilities. As a result of these initiatives, the rate of emissions from Ontario Hydro's fossil fueled generating stations has decreased significantly allowing them to produce 40% more electricity than in 1997 while remaining within regulatory limits. Examples of these initiatives include:

Fossil Fuel Strategy

Procurement of increased amounts of lower sulfur coal allowed us to achieve SO₂ limits and meet generation requirements. This fueling strategy also contributed to reduced NO_x emissions.

**To meet environmental objectives, Ontario Hydro
has implemented a number of measures to improve
the emissions performance of its fossil facilities.**



Artificial Intelligence Control Systems

At Lambton GS, an Artificial Intelligence (AI) system was tested as a means of reducing NO_x emissions and improving energy efficiency. NO_x emissions were reduced by more than 20 percent and energy efficiency also improved. Energy efficiency improvements result in reductions in all air emissions for each unit of energy produced.

Natural Gas Conversion at Lennox

The conversion of two units at Lennox GS in October 1998 to burn oil or natural gas now allows the flexibility to reduce NO_x, CO₂, SO₂ and particulate matter emissions.

Nanticoke Restoration

Nanticoke GS units are being converted to allow the use of natural gas as the principle ignition and support fuel for the plant's 320 fuel oil ignition guns. By the end of 1999,

natural gas air heaters will also be installed in the plant's ducts, allowing the plant to burn lower cost, low-sulfur coal.

Nanticoke Fuel Blending

The reliable operation of the Nanticoke fuel blending facility permitted the use of very low sulphur coals which could not be efficiently used unless blended with other coals. As a result, Nanticoke GS was able to provide approximately 50 percent of the total Fossil electricity production.

Low NO_x Burners

Installation of modern low NO_x burners on the eight units at Nanticoke GS continued in 1998. Installations were complete on five units by the end of 1998 and all units will be completed in 1999. This initiative will yield significant reductions in NO_x emissions in the future.

Internal Energy Efficiency

The Internal Energy Efficiency program has improved the efficiency of electricity generation and transmission. The cumulative energy savings from this program are 1,760 GWh per year since 1994, equivalent to an annual CO₂ emission reduction of 1.4 million tonnes/yr. Twenty per cent of the cumulative energy savings came from Hydroelectric turbine runner replacement projects. Projects such as the Nanticoke restoration and Lennox gas conversion will continue to improve our efficiency in this area.

In addition to the measure discussed above, Ontario Hydro has pioneered several emission reduction credit trades within North America to promote trading as an emissions management tool.

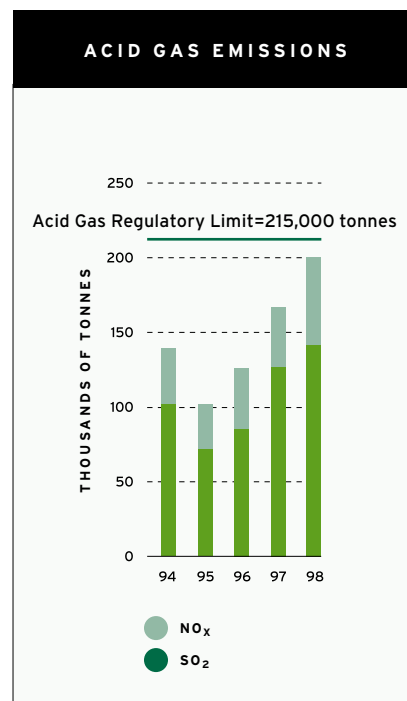
Pilot Emissions Reduction Trading Project
 Since 1996, Ontario Hydro, other industries, and government and non-governmental organizations have been operating the Pilot Emissions Reduction Trading (PERT) Project. The goal of the project is to provide market incentives to improve environmental performance.

Ontario Hydro’s participation in this innovative ‘trading’ program is making a contribution to the reduction of atmospheric emissions – and improving our financial bottom-line. By voluntarily investing in equipment and practices that reduce emissions below a predetermined and fixed baseline, member companies of PERT create credits for each tonne of emission reduced – credits which can be bought or sold. Our own ‘bank’ of earned credits now totals 8,510 tonnes of NO_x and 1.8 million tonnes of CO₂, thanks to the many improvements made to our facilities. Through PERT, Ontario Hydro has developed GHG credit creation and verification procedures, and standards for independent assessment.

An excellent example of PERT benefits is Ontario Hydro’s purchase of 31.8 tonnes of NO_x emission reduction credits from Beaver Fuels, who earned the credits for using an emission-reducing additive in their gas. The trade enabled Beaver to sell the cleaner gas without raising prices at the pump - a win-win situation for everyone.

In May, Ontario Hydro completed its first sale of NO_x reduction credits, 319 tonnes of NO_x to the Hartford Steam Boiler Company in Connecticut. The NO_x credits were generated from the early installation of low NO_x burners and other combustion process modifications to the Lambton and Nanticoke stations in 1995 and 1996.

A new partnership project with the Regional



Municipality of Waterloo and Toromont Energy will help turn a local landfill site into a source of ‘green energy’. The project will earn a total of 0.46 million tonnes CO₂ equivalent in emission reduction credits in the initial phase, which will be purchased by Ontario Hydro, also making the project economic. The planned 3.5-MW power plant will enable the Region to burn the landfill site’s methane gas and sell the electric power to Ontario Hydro, instead of simply burning off the gas.

Acid Gas Emissions

Ontario Hydro’s acid gas emissions (SO₂ and NO_x) are limited under provincial regulation. Emissions increased in 1998 over recent years as a result of increased fossil generation necessitated by our nuclear recovery program.

In 1998, Fossil station acid gas emissions

Ontario Hydro is investing approximately \$50 million in low NO_x burners, artificial intelligence control systems, gas conversions and improved conversion efficiencies.

totaled 198,800 tonnes, comprising 143,000 tonnes of SO₂ and 55,800 tonnes of NO_x. The Fossil plants produced 34,200 GWh (net) of electricity, a 40% increase over 1997 production, and, in addition to staying below the regulated acid gas emissions cap, acid gas emission rates (tonnes/GWh) are steadily improving. The reliable operation of the Lambton flue gas desulphurization (FGD) equipment or “scrubbers” and the Nanticoke fuel blending facilities were instrumental in achieving and exceeding both acid gas and energy production targets. The two “scrubbed” units at Lambton GS produced 18% of the total Fossil electricity production.

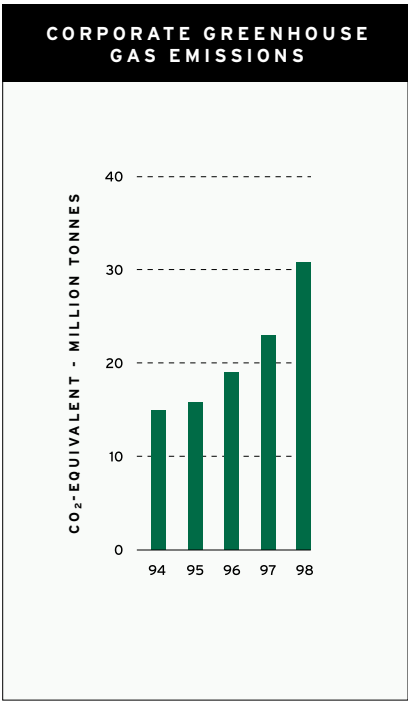
Smog-Forming Emissions

Nitrogen oxide (NO_x) emissions contribute to the formation of urban smog.

Ontario Hydro’s NO_x emissions in 1998 were 55,800 tonnes, an increase from the emission of 43,000 tonnes in 1997. This increase in emissions is, again, a result of the increased use of the fossil system during the implementation of the nuclear recovery plan.

As a signatory to the Ontario Smog Plan, Ontario Hydro supports provincial efforts to reduce nitrogen oxide emissions by 45% from 1990 levels by the year 2015. Ontario Hydro has established a voluntary limit for net NO_x emissions at 38,000 tonnes for the year 2000 (net emissions are equal to gross emissions less any emission reduction credits applied).

To meet this emission limit, Ontario Hydro is investing approximately \$50 million in low NO_x burners, artificial intelligence control systems, gas conversions, improved conversion efficiencies, and emission reduction credits, as detailed above.



Greenhouse Gases

In April of 1998, Canada signed the Kyoto Protocol, joining many other industrialized countries in a commitment to reduce their collective greenhouse gas (GHG) emissions by the period 2008-2012. Individual commitments vary from 8% below to 10% above 1990 levels. For Canada, the target is 6% below 1990 levels. Ontario Hydro’s greenhouse gas targets, to reduce emissions to 1990 levels by the year 2000 and further reduce emissions by 10% by 2005, go beyond Canada’s commitments under the Kyoto Protocol.

Ontario Hydro’s 1998 actions to address greenhouse gas emissions reflected many of the changes to Ontario Hydro’s program priorities as the Corporation prepares for the restructuring of the electricity industry in Ontario. The nuclear recovery plan has caused an increase in the use

**Promoting the wise use of energy
remains a key consideration in
providing value to our customers.**

of the fossil generation system, resulting in an increase in greenhouse gas emissions. In 1998, total gross greenhouse gas emissions were 31 million tonnes CO₂, considerably higher than emissions in 1997. Ontario Hydro remains committed to meeting its voluntary net emissions targets.

Promoting the wise use of energy remains a key consideration in providing value to our customers. To help to offset the planned shut-down of a number of nuclear units, we issued a request for proposals for energy efficiency projects focused on reducing customer electric energy usage during the years 1998, 1999, and possibly 2000. In 1998, the savings from the Energy Efficiency RFP are estimated to be 16 GWh, equivalent to approximately 14,000 tonnes CO₂. Additional energy efficiency results reported in 1998 for end-use customers are estimated to be 49 GWh, equivalent to approximately 44,000 tonnes CO₂.

Ontario Hydro continues to help promote voluntary and market-based tools for GHG emissions management. In addition to its membership in the PERT Project, Ontario Hydro is an active member of:

- the Canadian Greenhouse Gas Emissions Reduction Trading (GERT) Pilot;
- the Greenhouse Emissions Management Consortium (GEMCo); and
- the U.S. Northeast States for Co-ordinated Air Use Management (NESCAUM) GHG Emissions Trading Demonstration Project.

**RESEARCH TO UNDERSTAND
THE EFFECTS OF OUR EMISSIONS**

Consistent with the Corporation's SED policy, business units engaged in research to better understand the impact of environmental emissions.

The following major scientific initiatives were launched in 1998:

Industrial Research Chair - Trent University

In co-operation with Trent University and the Natural Science and Engineering Research Council (NSERC), Ontario Hydro sponsored the establishment of an Industrial Research Chair in watershed bio-geochemistry to study the effects of acid gas emissions on sensitive ecosystems.

Metals in the Environment (MITE)

Ontario Hydro continued its involvement in the Canadian Network of Toxicology Centres MITE program, by lending its support to the new MITE Research Network. MITE's aim is to understand the sources of metals in the environment, how they move and transform and how they can affect ecosystems and human health.

The Network brings together partners from government, industry and universities, who will share the results of their research. The corporation is also providing \$200,000 in financial support for 1998 and 1999, with the potential for continued support in the future.

**The Fate of Mercury in the
Lake Superior Basin**

In co-operation with Environment Canada and the Ontario Ministry of the Environment, Ontario Hydro is participating in a study of the fate of mercury in the Lake Superior Basin. It is hoped that the US Environmental Protection Agency and US utilities will also participate in the study's ongoing work.

Aerosol Modeling

In partnership with the Ontario Ministry of the

Environment and Environment Canada, Ontario Hydro is participating in a project to improve computer models use to predict aerosol formation in the atmosphere.

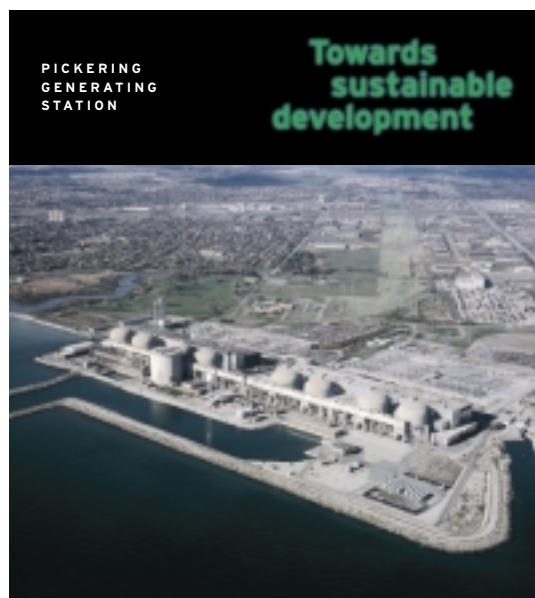
OZONE-DEPLETING SUBSTANCES

Ontario Hydro continues its efforts to reduce the use and release of ozone-depleting substances (ODS). In 1998, we completed many of the requirements of our ODS policy, revised in 1997.

- Removal of portable Halon 1211 systems by June 30, 1998, and the development of plans to phase out Halon 1301 flood systems. All portable Halon 1211 fire extinguishers were removed from service and replaced with suitable alternatives.
- Achieving near-zero emissions of chlorofluorocarbons (CFCs) from the in-service chillers and then phasing out the CFCs by 2015. The modification of all CFC-11 chillers to minimize emissions from this equipment was completed in September, with the installation of high efficiency purge units and pressure relief valves on the Darlington Nuclear chiller units.
- Retrofitting heavy-vehicle air-conditioning systems to use non-CFC refrigerants by December 31, 1999.
- Eliminating all but one of the halon flood systems from remote diesel generating stations

RADIOACTIVE EMISSIONS

All operating licenses issued to Ontario Hydro nuclear stations by the Atomic Energy Control Board (AECB) stipulate limits on the rates at which various radionuclides in airborne and waterborne waste streams may be emitted to the environment. These limits, known as the Approved Derived Emission Limits (DELs)¹, are



site specific and approved by the AECB. DELs are based on the radiation doses that could result from the transfer of emitted radionuclides into environmental pathways which would lead to exposures to “critical groups” of the public. “Critical public groups” are those groups of persons which, due to a variety of assumptions, will likely receive the greatest dose.

In the early 1970’s, Ontario Hydro Nuclear (OHN) adopted facility emission targets to ensure radiological air emissions and water effluents are at a level of less than one percent of DEL, on an annual average basis, for each radionuclide.

Radioactive Emissions for 1998

The average actual emission performance in 1998 was better than the facility emission target (1% DEL) for all sites.

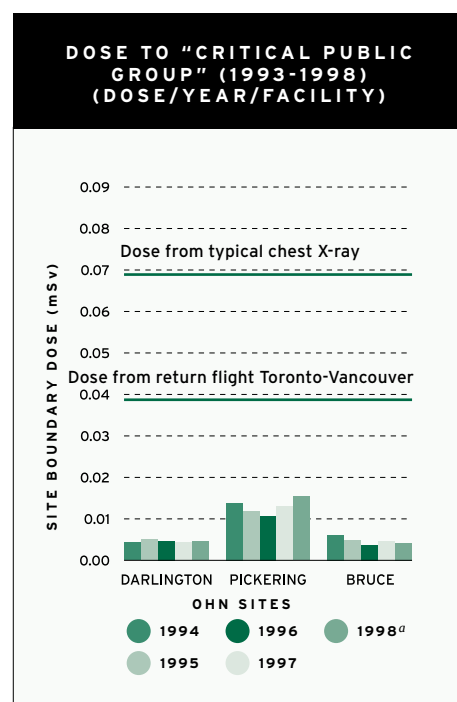
As a license condition, OHN maintains radiological environmental monitoring programs at all OHN generating facilities to estimate the

¹ (DEL) is the calculated emission of a radionuclide which would result in an exposure of the most affected members of the public at the AECB public dose limit.

radiation exposure to the public living near each site. These programs monitor radioactivity near the facilities in the air and in substances that people eat, drink, and contact. Substances that are monitored include: milk, honey, fruit, vegetables, well water, lake water, drinking water from water supply plant, sediment, air, wet and dry particulate matter and fish. In addition, monitoring programs are carried out at other locations in Ontario to determine natural background levels of radiation away from the influence of generating facilities. This monitoring allows OHN to determine its contribution to overall radiation exposure to the public.

The radiation exposure or “dose” is calculated for the “critical public group”. The dose is calculated using conservative assumptions and assumes that the critical group drinks local water and milk, and eats local fish and produce. This dose estimate is calculated mostly from data collected from station environmental monitoring sites. In reality, people living in the vicinity of a nuclear generating station would receive a smaller dose because they have different eating habits or live farther away from the station.

In 1991, OHN adopted a public dose target of 0.05 millisieverts (mSv) dose/year/facility to a critical public group calculated from emission data. This target was 1% of the public dose regulatory limit set by the AECB. This target has been lowered since its introduction and in 1998 was 0.01 mSv dose/year/facility for Pickering 1-4, Pickering 5-8, Bruce 5-8, and Darlington and 0.05 mSv dose/year for Bruce 1-4. These targets were achieved at all sites in 1998 as shown in the accompanying chart.



a. Preliminary results to be finalized in May 1999.

WATER EMISSIONS MANAGEMENT

Metal Emissions to the Great Lakes

In 1997, Ontario Hydro undertook a major study on copper, zinc and other metals released into the Great Lakes from Admiralty Brass tubing used in condenser cooling water systems at a number of its nuclear and fossil generating stations in southern Ontario. Approximately 1813 tonnes of these metals have been released to the Great Lakes from these sources over the last 25 years.

To address the problem of copper and zinc emissions, Ontario Hydro retained Dr. Peter Victor, Dean of Environmental Studies at York University, and Dr. Leonard Ritter, the Executive Director of the Canadian Network of Toxicology Centres, to perform an independent review of our progress towards

Ontario Hydro sponsored the establishment of an industrial Research Chair in watershed bio-geochemistry to study the effects of acid gas emissions on sensitive ecosystems.

implementing the recommendations arising from the study.

Their third report, in August 1998, states that we have made very good progress, and it compliments Ontario Hydro for “a strong record of achievement that goes a long way towards full implementation of the recommendations.”

Municipal-Industrial Strategy for Abatement (MISA)

New MISA regulations came into effect in April, 1998, to monitor and control liquid effluents from generating stations on the Great Lakes. The nuclear stations encountered problems that kept them from full compliance with the regulation. The radioactive liquid waste management systems at all stations, and many building effluent sumps, contained effluents toxic to rainbow trout and water fleas. The stations are working to render these effluents non-toxic.

Each nuclear station requested and received a Ministry of the Environment Program Approval in July 1998 to provide additional time to carry out projects to render these effluents non-toxic. In December, Pickering and Darlington requested new program approvals to October 1999, to finalize their projects. The extension was requested to enable the stations to develop and implement the treatment systems needed to comply with the MISA regulations.

Ontario Hydro also responded to a field order issued to one fossil station, Lakeview GS, with respect to toxic effluent.

MATERIAL AND WASTE MANAGEMENT

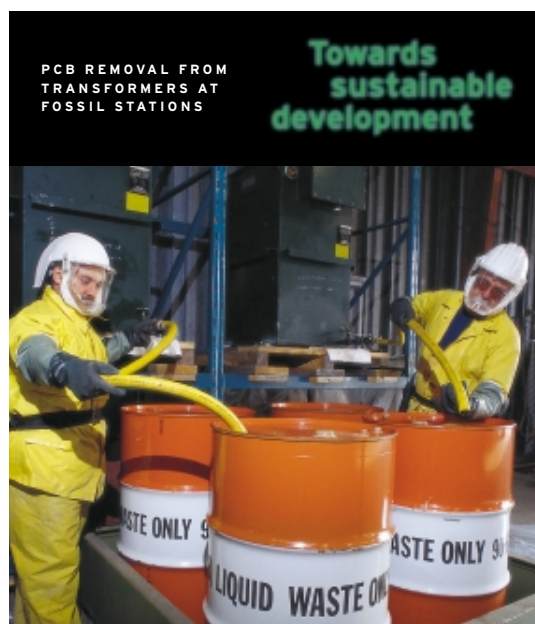
PCB Management (Polychlorinated Biphenyls)

Until 1995, Ontario laws prohibited the shipment

and/or destruction of PCB contaminated materials. Ontario Hydro either decontaminated low-level PCB oil and stored contaminated equipment and materials (transformers, capacitors, PCB contaminated soil and gravel from spill cleanup activities).

Starting in 1995, when shipments to destruction facilities were authorized, Ontario Hydro began reducing the inventory of material in our storage sites, shipping a total of 685 tonnes from 1995 to 1997.

In 1998, we raised the priority on disposing of PCB contaminated materials in storage and shipped for destruction 2610 tonnes of accumulated wastes, reducing our overall 1998 inventory of in-service PCBs and PCB wastes by 45%, rendering many sites PCB-free. Servco shipped 66% of this waste thereby clearing half (57 of 114) of its storage sites, eliminating not only the material, but the associated storage risk, and maintenance, inspection and reporting



costs. Fossil shipped 626 tonnes of PCB waste, which represents 25% of Ontario Hydro's PCBs shipped for destruction in 1998. Over 150 shipments of PCB materials were transported to the decontamination/destruction facilities, all without incident.

By-Product Management (Fossil)

In 1998, Fossil diverted 632,000 tonnes of coal ash and gypsum from landfill, or 45% of the total produced.

Ontario Hydro's Fossil Business has developed a number of uses for ash, a non-hazardous by-product of generating electricity from coal and oil. Ash sales either earn revenue for the business unit or reduce costs and greatly reduce

the need for disposal of ash in landfill.

Approximately 0.2 to 0.3 million tonnes CO₂ has been offset by these coal ash initiatives:

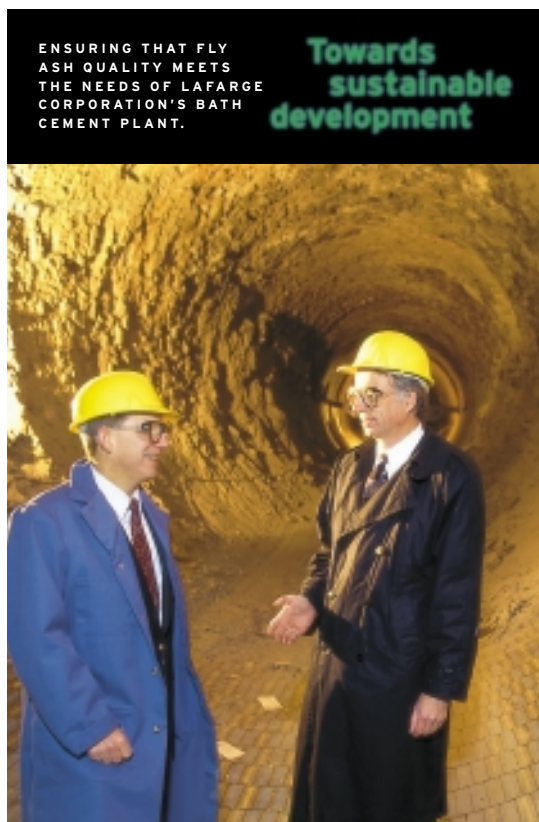
- a contract with Great Lakes Fly Ash and the Lafarge Corporation to supply ash from Nanticoke GS to Lafarge's cement plant in Alpena, Michigan. Ash replaces shale in cement production, thereby reducing CO₂ emissions.
- coal ash from Thunder Bay and Atikokan GS replaces cement in mine backfill and offsets CO₂ on a tonne per tonne basis.
- shipping coal ash from Atikokan to southern Ontario for use in concrete.

Other current markets for ash include use in the manufacturing of concrete and plastics products, and in mine backfill and liquid waste stabilization. Research and development initiatives are also underway into potential new applications, such as use in structural fills, flowable fills, waste treatment, plastic resin mixes, and a new generation of concrete products.

Gypsum, a by-product of flue gas desulfurization at Lambton GS, is used to manufacture wallboard. In 1998, 91% of the gypsum was sold for use in manufacturing and a market is being sought for the remaining 9% in 1999.

Nuclear Waste Management

In March 1998, the Nuclear Fuel Waste Management and Disposal Concept Environmental Assessment Panel made its recommendations to the federal government. The government's response, issued in December, included the requirement for owners and producers of nuclear fuel waste to establish a separate waste



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management organization, to manage and co-ordinate all activities related to the long-term management of nuclear fuel waste.

Ontario Hydro has appointed a steering committee to assess and make recommendations for meeting the government's expectations.

Recycling (Office, Construction and Demolition)

In 1998, Ontario Hydro diverted almost 90% of its waste from office facilities in downtown Toronto (head office and the Kipling complex) from disposal, recycling over 6,200 tonnes. Recycled materials include construction and demolition waste, paper and paper products, glass, aluminum, and polystyrene.

EXTERNAL REPORTING OF ENVIRONMENTAL PERFORMANCE

In addition to this annual Progress Report and the Corporate Annual Report, Ontario Hydro submits environmental performance data to federal environmental programs such as the National Pollutant Release Inventory and the Accelerated Reduction/Elimination of Toxics. Ontario Hydro also reports regulated acid gas emissions to the provincial government.

National Pollutant Release Inventory 1997 Results

Environment Canada collects and publishes emissions results for a number of substances from a variety of companies across Canada. Ontario Hydro is obligated, under NPRI, to provide results for emissions to air, water and landfill for a number of substances. The 1997 results for substances which we are required to report are provided above right.

SUBSTANCE	1997 EMISSIONS (TONNES)
Ammonia	44.7
Arsenic	14.6
Chromium	66.2
Cobalt	17.0
Copper	92.7
Hydrazine	2.9
Hydrochloric Acid	4,430.5
Hydrogen Fluoride	224.7
Lead	15.2
Manganese	138.6
Nickel	46.0
Sulphuric Acid	707.1
Zinc	67.5

Accelerated Reduction/Elimination of Toxics

Hydro's total emissions in 1997 were approximately 50% lower than the 1993 baseline. Year 2000 results are projected to be 83% lower than the 1993 baseline. Hydro's releases to water from nuclear and fossil stations are provided below.

SUBSTANCE/ YEAR	EMISSIONS (TONNES)				
	1997	1996	1995	1993 (BASE- LINE)	2000 TARGET
Arsenic	0.049	0.098	0.013	0.013	0.037
Copper	27.9	42.8	46.0	56.5	8.3
Hydrazine	2.9	2.4	1.6	3.7	2.0
Zinc	10.8	17.1	18.3	22.4	3.3

Canada's Climate Change Voluntary Challenge and Registry

Ontario Hydro's submitted its 1998 Action Plan to Manage Greenhouse Gas (GHG) Emissions to Canada's Climate Change Voluntary Challenge and Registry. This progress report

**We worked in partnership with our employees
and the communities to increase awareness
about the need to protect our environment.**

outlines activities underway or planned to achieve the targets set out in Ontario Hydro's Strategy to Manage Greenhouse Gas Emissions (1995). This is the third annual update of the Action Plan first submitted in September 1995, and reflects many of the changes to Ontario Hydro's program priorities as the Corporation prepares for the restructuring of the electricity industry in Ontario.

**Canadian Electricity Association (CEA)
Environmental Commitment and
Responsibility (ECR) Program**

Ontario Hydro provided its first report to the Canadian Electricity Association (CEA) Environmental Commitment and Responsibility (ECR) Program in 1998. Of the 27 CEA utility members, 24 were in a position to collect, prepare and report upon the information required for the 1997 Industry Annual Report. The remaining members have committed to submitting reports for the 1998 calendar year.

The report provides an opportunity for Ontario Hydro to compare its 1997 performance against that of the industry as a whole. For example, based on the reporting protocols for the ECR program:

- The industry reported that approximately 98% of the total volume of insulating oil removed from equipment in 1997 was recycled, reused or used as a fuel; at Ontario Hydro, 100% was recycled, reused or used as fuel.
- The industry reported that 18% of the solid combustion by-products produced in 1997 were redirected from disposal to productive use; at Ontario Hydro, 55.8% were redirected.
- The weighted industry average CO₂ emission rate was 0.20 tonnes/MWh; Ontario Hydro's emission rate was 0.18 tonnes/MWh. (Note:

The basis for reporting CO₂ emission rate to the ECR Program is different than that used by Ontario Hydro for its reporting in the 1997 Progress Report Towards Sustainable Development.)

- The weighted industry average sulfur dioxide emission rate was 0.93 tonnes/GWh; Ontario Hydro's emission rate was 0.96 tonnes/GWh.
- The weighted industry average nitrogen oxides emission rate was 0.43 tonnes/GWh; Ontario Hydro's emission rate was 0.33 tonnes/GWh.
- Ontario Hydro was among the 60% of utilities that produced a public report on environmental performance. Across the industry, 50% of the 1997 reports included environmental and sustainable development indicators and 30% of the reports included environmental and sustainable development objectives and targets. Ontario Hydro's report included both indicators and objectives and targets.

LAND ASSESSMENT AND REMEDIATION

Ontario Hydro's industrial activities have the potential to cause land contamination. A crucial component of our Sustainable Development Policy is preventing those effects where possible, and taking steps to repair such damage where it is unavoidable.

The Corporation adopted the Land Assessment and Remediation program and policy in 1998. As part of the program, a database of all sites was assembled and a model to rank sites on the basis of potential risk to the environment was developed. Sites were then ranked and assessment activities were begun or continued at priority sites. Some of the assessment work was submitted for approval to MOE in response to a Director's Order, the rest was carried out as a parallel and equivalent voluntary program.

In 1998, work to identify the extent of contamination of 25 power generating facilities (i.e., nuclear, fossil, hydroelectric and remote diesel generating stations) covered by the Order was started. A smaller number of other power generating facilities are being assessed under the voluntary program. The information being generated will be used to estimate the risk to health and ecosystems, and whether remedial actions are required.

In 1998 the Services Company worked on assessing the environmental condition of more than 1,000 non-power generating facilities, including transmission stations, distribution stations and operations centres. Site screening assessments were carried out on several hundred transmission and distribution stations and 61 Phase II environmental site assessments were commissioned on surplus operations and service centre sites.

The land assessment and remediation program for these facilities involves three phases:

- checking records and plans for each site to assess the likelihood of environmental problems (100 completed in 1998);
- testing physical samples (soil, water, plants) for contamination and associated health risks both on-site and off-site; and where necessary, assessments to determine remediation needs (800 tests and 10 assessments in 1998); and
- assessment of real or potential off-site contamination; remediation options, plans and implementation.

The target dates for the program are:

- 2001 – remediation of all sites currently identified as high priority;
- 2002 – completion of assessments for all remaining sites; and

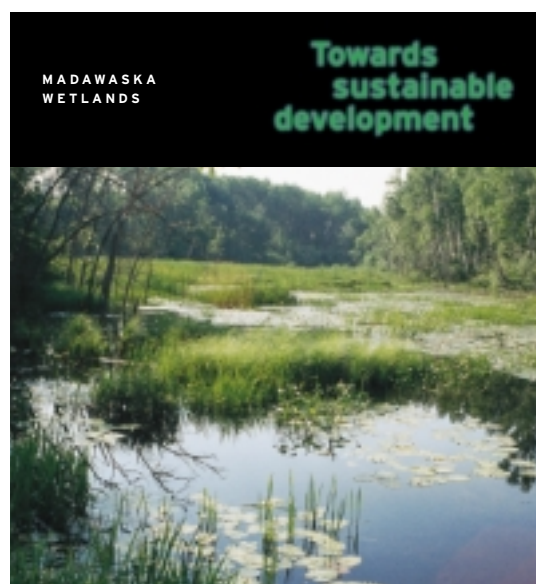
- 2003 – remediation of any additional sites identified.

BIODIVERSITY

Our efforts in biodiversity management contribute directly to improving our environmental performance.

The revised biodiversity policy states that the businesses of Ontario Hydro will plan and manage their activities in a manner that encourages, within a regional context, the continued existence of native species and the ecosystems upon which they depend. To achieve this conservation goal, the businesses are identifying significant natural areas and species that may occur on their sites or may be affected by their operations. Inventories of significant natural areas can help to identify priority species and communities that are in need of protection and management.

Throughout 1998, we worked in partnership with our employees and the communities



**A new water management plan will be developed in 1999,
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model for water management review in Ontario.**

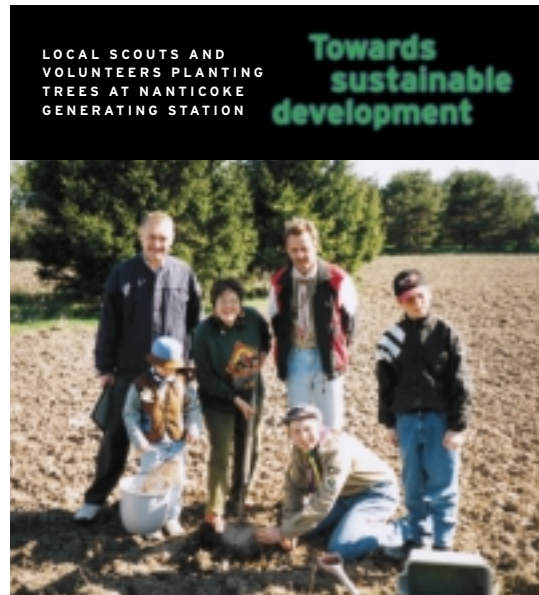
to protect native species and ecosystems, restore natural habitats, and increase awareness about the need to protect our environment.

Madawaska River Water Management Plan

Since 1997, Hydroelectric, in partnership with the Ontario Ministry of Natural Resources (OMNR) and many other stakeholders, has been conducting a review of its operations at five hydroelectric generating stations and two upstream reservoirs on the Madawaska River. The objective is to develop a management regime on the river which will result in the best possible balance among a range of natural heritage, social and economic values and uses for the benefit of present and future generations. A new water management plan will be developed in 1999, and it is hoped that the process may become a model for water management review in Ontario.

In 1998, extensive meetings continued with a local Public Advisory Committee (PAC). A focus group meeting and open houses were held in the watershed, leading to the preparation of a draft Issues/Concerns/Solutions document and an Information Needs document. These will be presented to the public for further discussion in early 1999.

Local residents expressed considerable interest in protecting and enhancing the ecology and biodiversity of this beautiful river. Consequently, studies continued for a third year on the effects of flows and water levels on walleye spawning at the stations and dams. A report was published on a 1997 overview survey of wetlands in the river system and surveys were conducted of the biology of selected wetlands within the zone of influence of Centennial Lake. The PAC also made recommendations to study



water management effects on loons, waterfowl and aquatic mammals in the reservoirs.

Site Biodiversity Surveys

At Darlington GS, surveys monitored amphibians, stream fish and site vegetation, using the Ontario Ministry of Natural Resources (OMNR) Ecological Land Classification System. The annual deer survey was completed, and the annual OMNR survey for exotic species included monitoring of the intake structure for zebra mussels. Bruce GS conducted a spawning survey of the smallmouth bass population, and at the Pickering site, the biodiversity site plan was completed. These surveys represent an important first step in identifying priorities for site biodiversity management plans.

**Wetland Protection and Restoration at
Lennox, Bruce and Darlington**

Lennox GS completed a detailed biological inventory of natural areas and designated a 57

hectare wetland as protected in their site operations manual. The Canadian Wildlife Service (CWS) also recognizes this wetland as one of the largest known breeding sites in eastern Ontario for the Black Tern, a rare colonial waterbird. Ontario Hydro and the CWS issued a report on the breeding biology of Black Terns at the Lennox wetland.

Bruce GS removed exotic invasive plants (purple loosestrife) to protect the provincially significant Baie du Dore wetland. Darlington GS restored and expanded a woodland swamp and pond, requiring changes to the site drainage system and revegetation of disturbed areas.

Nanticoke GS Habitat Enhancement

At Nanticoke GS, our program of habitat enhancement continued with the help of more than 300 scouts and volunteers, who planted 7,000 trees to help naturalize a landscaped parkland on the station property. Volunteers were treated to a BBQ on the front lawn of the administration building and each scout was rewarded with a special commemorative badge from Nanticoke GS. We plan to continue this event in 1999.

Nanticoke also completed construction of a one-hectare engineered treatment wetland to polish wastewater from its onsite sewage lagoons. This technology uses no chemicals and provides ecological benefits by providing habitat for waterfowl.

Wesleyville Rehabilitation

A biodiversity management plan was prepared to identify, protect and restore several notable natural heritage features on the site, including a significant forested ravine system which contains old growth forest and headwaters for a

high-quality brook trout stream. The ravines have been identified as an Area of Natural and Scientific Interest by the Province. Plans are under development to protect these areas and to enhance habitat linkages across the site.

Niagara Greening and Regeneration Strategy

An integrated greening strategy for the Niagara region was completed. This provided a framework for site regeneration and improvement of Hydroelectric properties. The strategy includes a systematic assessment and prioritization of the environmental conditions of Hydroelectric properties and facilities, and proactively responds to the social, recreational and environmental needs of adjacent communities. A landscape plan to regenerate the pumped storage reservoir area was developed and implementation of this plan will be complete in 1999.

Bald Eagle Recovery Program

Services Company foresters continue to share their climbing skills with the Ontario Ministry



We plan to develop a range of green energy products and services that will allow Ontario Hydro's successor companies to successfully compete in the evolving green energy market.

of Natural Resources (OMNR) program to help expand the bald eagle population on the north shore of Lake Erie. Their contribution was recognized this year by the presentation of an Environment Canada/OMNR commemorative plaque.

Pollution, hunting and depletion of suitable nest sites (tall 'super-canopy' trees that tower over woodlots) almost wiped out the bald eagle population in the 1970's.

Ontario Hydro joined the program in 1985, helping to build artificial nesting platforms, trimming branches to allow clear flight paths, and generally making the environment more suitable as nesting habitat. From just three mating pairs, the bald eagle population has now grown to 18 pairs, producing an average of 24 young each year.

Tall Grass Prairie Establishment

Research continued at the University of Waterloo, funded through Services Company, to determine effective approaches for establishing tall grass prairies on transmission corridors. Pilot studies for establishing tall grass prairie were also implemented on a transmission corridor in Sarnia, as well as on a two-hectare site on fallow land at Lambton GS.

Tall grass prairie is composed of native species and is entirely compatible with overhead conductors. Tall grass prairie is an endangered habitat on this continent, occupying less than one per cent of its former range.

Services Company - Habitat Management Initiatives

Habitat management initiatives included :

- planting of 19,200 shrubs and 4,000 trees in partnership with the Niagara South Board of Education, Friends of Short Hills Provincial Park,

and Parks Ontario at Short Hill Provincial Park;

- planting 10,000 shrubs and trees in partnership with the Middlesex Stewardship Council, City of London and Upper Thames Conservation Authority;

- developing an Ecological Framework for habitat retention in the Niagara Peninsula, in partnership with Land Care Niagara; and
- initiating a partnership with Ontario Parks for land reclamation in Bronte Provincial Park.

Education

Educational programs and Earth Day activities involved thousands of children in biodiversity activities throughout the year.

- Darlington staff provided more than 20 program days of environmental education events to local school groups. They also issued a "Natural Priorities" brochure for the four-kilometer Waterfront Trail which runs through the site.
- During Earth Week, Bruce and Darlington invited more than 200 Grade 5 and 6 students to help weed, prune and plant thousands of trees and shrubs.
- Hydroelectric staff, in cooperation with the St. Lawrence River Institute of Environmental Science, involved 500 children in the remediation of spawning habitat on the St. Lawrence and conducted a nature walk on Cooper's Marsh. The staff were also involved with children from the Niagara Peninsula Children's Centre in planting and cleaning up the centre's grounds.
- Students from Napanee District Secondary School planted over 3,500 trees along the edge of a creek draining Lennox wetland. This event was co-ordinated between Lennox GS and the Lennox-Addington Community Stewardship Association.
- Presentation by Lakeview GS staff to local

schools on concepts of Ecological Footprint and energy and the environment.

RENEWABLE ENERGY

Ontario Hydro's renewable energy initiatives are being undertaken to promote and develop opportunities for the use of renewable energy technologies in areas where their application provides competitive advantage and meets market demand. While the 1998 program was modest relative to that of previous years, there were several achievements during the year, including:

Green Power

In July 1998, we introduced Green Choice, Services Company's brand of green power. Green Choice offers business customers the option for all or part of their electricity to be supplied from new, certified, renewable sources for a premium of about 3-4 cents/kWh.

During the year, we sold over 600 MWh of green energy, and the sale of a further 500 to 600 MWh to several customers was being negotiated at the end of the year. The resulting reduction in emissions in 1998 is estimated to be 1.5 tonnes of NO_x, 3 tonnes of SO₂ and 1,500 tonnes of CO₂.

Ontario Power Generation Inc. (OPG), the Ontario Hydro generation successor company, plans to offer green power to its wholesale customers from a diverse, cost-effective and reliable pool of options, such as wind, small hydroelectric, solar and sustainable biomass (landfill gas, woodwaste). In September 1998, we entered a partnership with Toromont Energy to provide OPG with the right to buy emission reduction credits and green energy from a 3.5 MW landfill gas plant in Waterloo as part of its efforts to assemble a green energy pool.

We plan to develop a range of green energy products and services that will allow OPG and Ontario Hydro Services Company (OHSC), the wires and retail sales successor company of Ontario Hydro, to successfully compete in the evolving green energy market.

Small Hydroelectric Division (SHD)

Ontario Hydro has created a Small Hydroelectric Division (SHD). The Division operates and maintains 26 small (<20 MW) run-of-the-river hydroelectric plants (about 115 MW capacity) throughout southern Ontario, and operates the 600-kW wind turbine near Bruce NGS. Twenty-five small hydroelectric stations have been certified with the EcoLogo under the Environmental Choice Program.



TACKE WIND
TURBINE AT
BRUCE GS

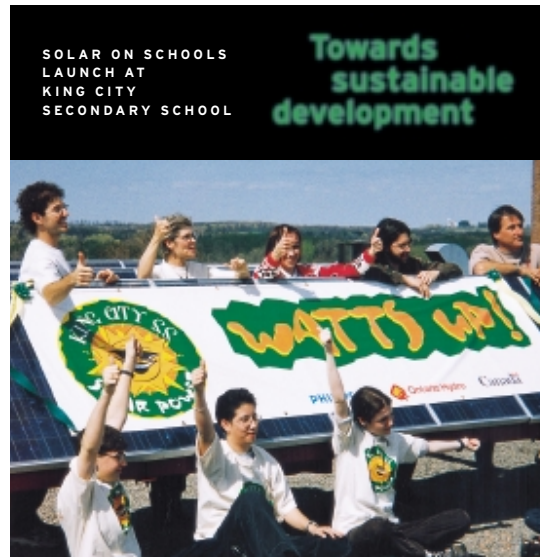
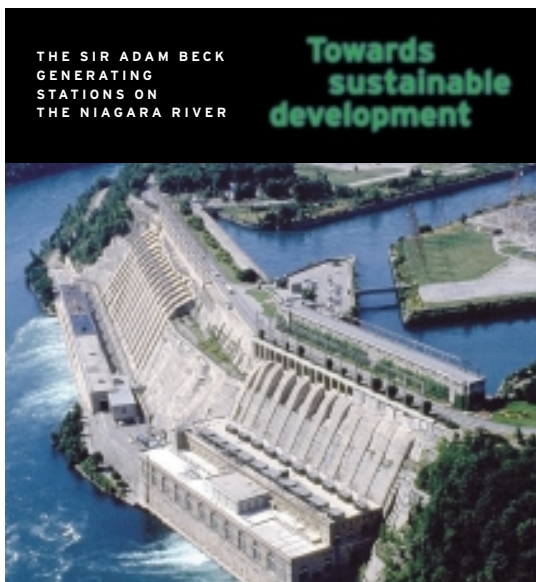
Towards
sustainable
development

Deer Lake

A 500-kW hydro facility was installed at Deer Lake, an isolated First Nations community in northwestern Ontario. This facility will reduce diesel use by about 470,000 litres/year and offset about 1,100 tonnes CO₂. The success of this installation has led to discussions with the Federal government about developing additional, similar facilities in northern Ontario and inter-connecting them in a form of mini-grid.

Bruce Wind Turbine

The 600-kW Tacke wind turbine at Bruce GS, now in its third year of operation, has produced 3,304 MWh of electricity, an average annual output of 1,100 MWh. The electricity produced by this turbine offsets about 900 tonnes CO₂ each year. The turbine also set a record in December 1998 by producing 175 MWh of electricity. This puts the performance over its life so far in the top 10% for wind turbines of its size worldwide.



Niagara River Additional Diversion Tunnel

The Niagara River Hydroelectric Development Environmental Assessment was approved by the Province of Ontario in October 1998. The first phase of the proposed development would involve the construction of a new diversion tunnel to the existing Sir Adam Beck Generating Stations. If constructed, the new tunnel would increase the production of renewable hydroelectric power from the existing complex by about 12%.

Solar on Schools (SOS)

Ontario Hydro and partners, Natural Resources Canada and Philips Lighting, are helping to light up Vaughan Township's King City Secondary School – with solar energy. This pilot project, launched during Earth Week in April 1998, was designed to promote awareness of renewable energy and to test community support for installation of solar energy PV (photo-voltaic) systems on public buildings.

The school's 1,200 students will benefit not

A pilot program allows our retail customers to install small wind, solar or hydroelectric generators and connect them to the grid.

only from environmentally-friendly energy, but the opportunity to study the science of generating electricity from sunlight.

Students participated throughout the project by helping to develop a science and environment curriculum, and a permanent information display in the school. Students also played a role in promoting community awareness. They designed a logo and banner for the project; met with media representatives; and helped organize the launch, fundraising activities and several other community events.

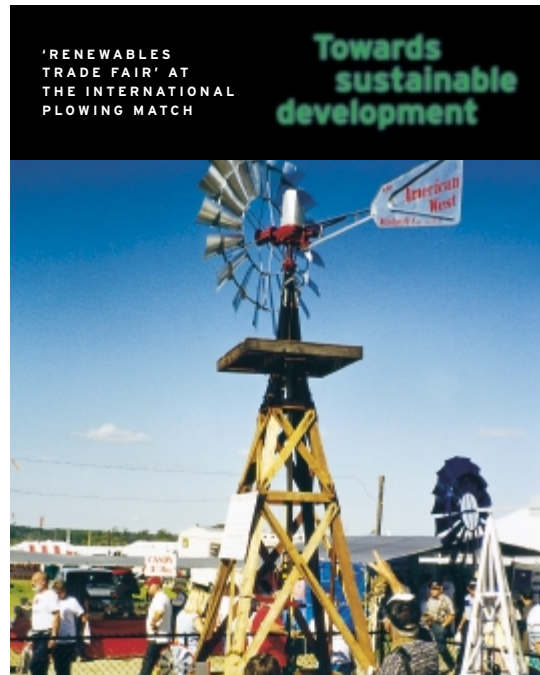
Net Billing

We are facilitating the increased use of renewable energy by a pilot program allowing our retail customers to install small (<50 kW) wind, solar or hydroelectric generators and connect them to the distribution grid. A net billing arrangement allows them to lower their electricity bill. The program, launched in 1997, has attracted more than 50 requests for contract information and in 1998, six customers finalized their grid connection.

One project completed in early 1998 is an 80-kW wind turbine (being operated at 50 kW) located at the site of a new marina and community centre in Shedden Township on the North Channel. Heating and cooling for the new facilities will be provided by a ground source heat pump powered by the wind turbine, adding to the energy efficiency and sustainability of the development.

Green Energy Promotion

For the past two years, Ontario Hydro has promoted awareness of the benefits of renewable energy by co-ordinating a 'renewables trade fair' at the annual International Plowing Match



in September. This year more than 20 exhibitors featured environmentally-friendly products and programs to an audience of more than 100,000 visitors. Highlights included a partially-constructed house demonstrating the latest in renewable and efficiency technologies, several working windmills and a robotic solar lawnmower.

To help promote the benefits of green energy, we also:

- co-funded a solar shingle display building and supplied the photo-voltaic (PV) portion of the Living Machine building at Kortright Conservation Centre, north of Toronto;
- developed the PV pumping system for the Elevated Wetlands sculptures on Toronto's Don Valley Parkway; and
- worked with Conservall Engineering and the Metro Toronto School Board to develop a PV portable design to help alleviate air quality/mould problems in portable classrooms.

Addressing our Social and Community Responsibility

ONTARIO HYDRO'S COMMITMENT TO SUSTAINABLE ENERGY DEVELOPMENT EXTENDS FAR BEYOND OPERATING GUIDELINES AND PERFORMANCE STANDARDS. WE ARE COMMITTED TO WORKING WITH OUR EMPLOYEES AND THE COMMUNITIES WE SERVE TO PROTECT TODAY'S ENVIRONMENT - AND PRESERVE TOMORROW'S.

As we move closer to a competitive business environment, meeting the expectations of the communities in which we operate takes on increasing importance.

These are just a few of the programs, activities and events that Ontario Hydro initiated or sponsored in 1998, to raise awareness, encourage

participation, and demonstrate our commitment to that responsibility.

EMPLOYEE FOCUS

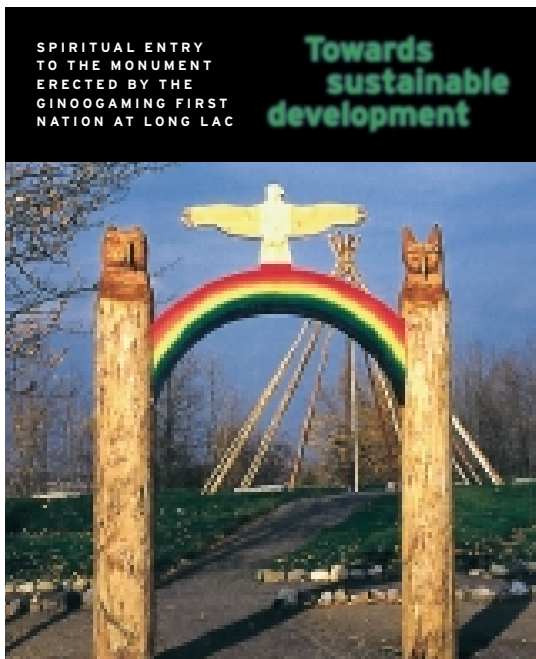
Code of Business Conduct/ Principal Ethics Officer

Ontario Hydro's commitment to the environment is nowhere more evident than in our new Code of Business Conduct, updated in 1998 to help employees continue to make the right decisions in a competitive marketplace. Our commitment is to continually improve our environmental performance, to move beyond compliance with the laws, and to manage the impact of our activities on the environment.

Also new is the appointment of a Principal Ethics Officer, whose dual role is to offer guidance in specific situations and to oversee corporate ethical performance in all areas, including the environment.

Health & Safety Performance

Employee safety is always a key priority at Ontario Hydro. While accident frequency continued its downward trend this year, accident severity increased, with 82 days lost per



Darlington Generating Station won recognition as the first Canadian site to earn Wildlife Habitat Council Certification for the development of a biodiversity management plan.

million hours worked, 39 days worse than target. We will continue our efforts to focus on improving performance in this area.

Some teams, however, achieved significant safety milestones in 1998. The President's Award for Safety was awarded to the Hydro-electric team which achieved a 79% improvement in safety performance since 1994 through a wide range of innovative programs. This award highlights Ontario Hydro's commitment to the corporate goal of "healthy employees working safely in an accident-free workplace".

Representative of the high standards of performance was the achievement of the Services Company Alliston Operations Crew, who this year received recognition and an award for their personal-best record of five years without a lost-time accident.

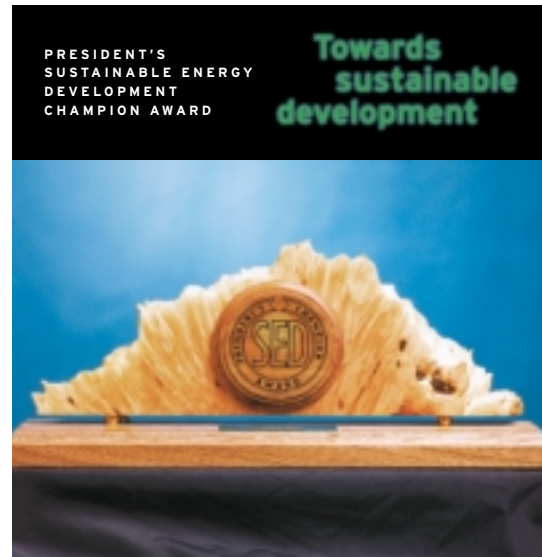
Pickering Nuclear Generating Station's 3,000 employees also achieved a new safety record by working some 2.6 million hours from June to December, 1998, without a lost time injury. The milestone exceeds by more than 1 million hours the previous record set at the station in the mid-1980s.

President's Sustainable Energy Development (SED) Champion Award

The President's SED Award was introduced in 1995 to recognize outstanding achievements which make Ontario Hydro more competitive and promote a more sustainable energy future.

Again this year, three awards were presented to employees whose ideas and efforts are clearly remarkable.

Larry Onisto believes that planning energy futures goes hand in hand with planning the future. Working with international researchers, he introduced and promoted a practical



education and accounting tool to help companies, and countries, accomplish just that. The 'Ecological Footprint' identifies the demands of people on the environment and the ability of the environment to supply those demands. Through his continuing efforts, Larry has helped Ontario Hydro gain international recognition as an advocate of sustainable development.

Darlington Generating Station has won recognition as the first Canadian site to earn Wildlife Habitat Council (WHC) Certification for the development of a biodiversity management plan and associated educational and community liaison programs. Perhaps most notably, they won the WHC Rookie of the Year Award against 50 entrants worldwide. Their habitat management plans entail a multi-year effort to enhance wildlife habitats, while providing environmental education for staff and site visitors. In recognition of their accomplishment, the team of Salim Khalid, Ray Kissel, Penny Waghorne and Don Wismer were granted the President's SED Champion Award.

Services Company gained recognition worldwide for its right-of-way vegetation management of more than 83,000 hectares. The International Transmission Operations and Maintenance Study compared Ontario Hydro to utilities from around the world and rated this team's performance as outstanding. One key accomplishment was reducing the use of herbicides to 60% lower than the three-year average ending in 1992. Accordingly, the Transmission Right-of-Way and Environment team of John Bowen, Dave Ethier, John Hawkins, Gerard Koopman, Kent Lewis, Al Mouck, Don Robertson, Tom Sager and Albert Zwart was granted the President's SED Champion Award.

Air Quality Advisory

When it comes to air quality and its employees, Ontario Hydro has a two-fold responsibility: to protect employees from the effects, and to encourage them to help improve the situation.

Ontario Hydro employees now receive an e-mail message whenever the Ontario Ministry of the Environment issues an Air Quality Advisory for the following day. The message also includes 'clean air' tips, such as using public transit, keeping the car well-tuned and avoiding aerosol sprays.

COMMUNITY FOCUS

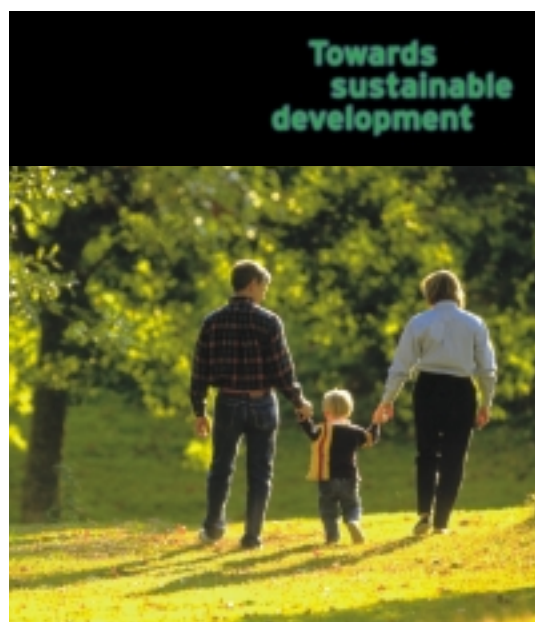
As a responsible corporate citizen, Ontario Hydro plays a key role in protecting and preserving the environment in the communities we serve and around the world. Our activities range from membership in national and international business/environmental associations to partnering with local community groups. These are just a few of our 1998 initiatives.

Participation on Climate Change Issue Tables

Ontario Hydro is represented on three Issue Tables as part of the national process to develop a strategy to meet Canada's Kyoto commitments: the Electricity Sector Table, the International Flexibility Mechanisms Table, and the Credit for Early Action (CEA) Table. Ontario Hydro is also participating in a number of sub-groups that cover issues such as international emissions trading and the Clean Development Mechanism.

Ontario Hydro, through its participation in the CEA, contributed to the development of a number of studies and programs in support of action on climate change:

- studies to assess the ability of the electricity sector to stabilize GHG emissions;
- an assessment of the impact of capital stock turnover on Canadian GHG emissions; and
- Canada's Climate Change Voluntary Challenge and Registry Inc. (VCR).



Ontario Hydro continues to be a member of the World Business Council for Sustainable Development, the leading business advocate on environmental and sustainable development issues.

World Business Council for Sustainable Development

Ontario Hydro continues to be a member of the World Business Council for Sustainable Development (WBCSD), an invitation-only association of over 120 leading companies around the world with commitments to environment and sustainable development. WBCSD is increasingly being recognized as the leading business advocate on environmental and sustainable development issues.

In 1998, Ontario Hydro was an active member of the Energy Scenario Working Group which initiated a project to define plausible energy futures in 2050. Both energy producers and energy users comprised the working group. Ontario Hydro also monitored the progress of the Working Groups on Climate Change and Social Responsibility.

Excellence in Corporate Environmental Leadership

Excellence in Corporate Environmental Leadership (EXCEL) is a unique learning partnership of major Canadian corporations who are committed to environmental leadership and continuous improvement of environmental performance. The EXCEL Partnership is focused on helping companies develop better strategies that accelerate integration of environmental priorities into core corporate objectives such as shareholder value, new market development, productivity, and customer satisfaction.

Ontario Hydro joins Abitibi Consolidated, Alcan, Enbridge/Consumers Gas, Nexfor, Nova Chemicals, Placer Dome, Transalta, and West-coast Energy in this organization. Topics for discussion in 1998 included: value of voluntary programs and commitments, product

stewardship, and priorities for climate change in Canada.

E7

Ontario Hydro is a member of E7, an international collaborative of eight of the world's leading electricity companies, committed to promoting sustainable energy development. This year's key E7 activities included:

- continuation of three multilateral greenhouse gas offset projects:
 - Jordan - a project with the National Electric Power Corporation, led by Ontario Hydro, to improve the energy efficiency of three oil-fired units;
 - Indonesia - implementing renewable energy systems in rural communities;
 - Zimbabwe - installing a mini-hydroelectric facility on an existing dam to promote environmental and economic development;
 - development of a proposal for international guidelines to promote sustainable development in the global electricity industry;
- establishment of the "E7 Fund for Sustainable Energy Development" to facilitate SED projects;
- participation of the E7 Climate Change working group (co-chaired by Ontario Hydro) in the United Nations Framework Convention on Climate Change (FCCC) Conference of the Parties, including the drafting of "E7 Recommendations for the Design of Kyoto Protocol Flexibility Mechanisms to Manage Greenhouse Gas Emissions".

Local Community Generating Station (GS) Activities

Generating stations throughout the province hosted their local communities at a variety of events this year, from anniversary celebrations

Ontario Hydro sponsored tree-planting efforts throughout Eastern Ontario, purchasing seedlings for planting by local Hydro volunteers, Beaver, Cub and Scout organizations, and school children.

to educational tours of our many protected natural habitats.

Atikokan GS Constructs New Weir and Spawning Bed

Atikokan Generating Station completed construction of a new weir and spawning bed downstream of the plant to improve walleye spawning conditions and, hopefully, increase the population of young fish in Lower Marmion Lake. The plant also partnered with the Atikokan Sportsmen's Conservation Club and the Ministry of Natural Resources in a stocking program to introduce 12 million walleye fry to the lake over a three-year period.

Nanticoke GS - Work with local Stewardship Council and Nanticoke Environmental Committee

Nanticoke Generating Station continued its active involvement with the Haldimand-Norfolk Stewardship Council and its partnership with neighbouring industries and government in the Nanticoke Environmental Committee, which monitors and reports on air quality in the surrounding industrial area. Through the Corporate Citizenship Program, the plant provided financial support to the Port Dover Lions Silver Lake project, which is reclaiming an abandoned industrial site for use as a recreational area and Carolinian arboretum, as well as to the Ducks Unlimited Dedrick's Creek wetland project.

Hydroelectric Plant Group Support of Restoration and Recreation Activities

The Ottawa-St. Lawrence Plant Group provided financial support to the Calabogie Fish and Game Club for a walleye restocking project. The Niagara Plant Group worked with the

Friends of Twelve Mile Creek in a program to restore the creek, and supported both the Niagara River Restoration Council for restoration of Baden Powell Park, and Canadians for a Clean Environment. DeCew GS flows were adjusted for two major rowing competitions: the Canadian Secondary School Championship and the Henley Regatta.

Darlington Hosts Ontario Hiking Day

More than 400 hikers took advantage of the opportunity to walk the four-kilometer Waterfront Trail through the Darlington Generating Station grounds. The meadows and wetlands are home to more than 50 species of birds, plus deer, fox and other wildlife. On hand to give tours and answer questions were representatives of the Central Lake Ontario Conservation Authority, Nature Trails Unlimited, Friends of the Second Marsh, and Darlington employees.

Discover Energized Environmental Resources (DEER)

Bruce Nuclear Information Centre, in co-operation with the Saugeen Valley Conservation Authority, offers students from Grade 4 through high school the opportunity to use its natural habitats as an outdoor classroom. More than 40 teaching modules emphasize the interconnectedness of different ecosystems and their inhabitants. Highlights include: bird identification, orienteering skills, threatened species, and survival skills.

Pickering Marsh Conservation

The Pickering community celebrated Hydro Marsh Conservation Day by planting 600 shrubs and trees, building 30 bird and owl boxes and erecting 35 black tern nest platforms.

Also in Pickering, the Duffin's Creek Marsh Project continued and a new partnership with the Frenchman's Bay Watershed Rehabilitation Project was initiated.

ICE STORM / TREE PLANTING

The effects of 1998's devastating ice storm are still only too evident, particularly in the widespread damage and destruction of trees.

Ontario Hydro sponsored tree-planting efforts throughout Eastern Ontario, purchasing some 50,000 seedlings for planting by local Hydro volunteers, Beaver, Cub and Scout organizations, and school children. Trees were also planted at many Hydro-sponsored Earth Day events, including Lambton and Darlington Generating Stations, and at Toronto's First Nations School.

ONTARIO HYDRO NUCLEAR ENVIRONMENTAL ADVISORY GROUP

An advisory group set up by Ontario Hydro

Nuclear (OHN) in the Fall of 1998 is helping the company in its efforts to be more responsive to community environmental concerns. This group of 14 appointed individuals represents First Nations, local government, education, industry, medical and environmental sectors of the community. Also represented are the Atomic Energy Control Board and the provincial Ministry of the Environment.

The group's role is to help increase OHN awareness and sensitivity to environmental issues important to the public; to offer recommendations about programs to address these issues; and to improve OHN effectiveness in communicating with the public about these issues.

CORPORATE CITIZENSHIP PROGRAM

In 1998, Ontario Hydro provided \$255,000 to not-for-profit organizations and community groups to undertake environmental projects. Highlights include: a study by the Canadian Nature Federation on important bird areas in the Niagara River area; sponsorship of the Research Chair in Ecotoxicology at the St. Lawrence River Institute of Environmental Science; and a variety of local habitat enhancement initiatives.

In 1998 Ontario Hydro entered into a unique partnership with The Evergreen Foundation. "Project Regeneration" provided trees to schools and community groups in Eastern Ontario that were hard-hit by January's ice storm. In all, 3,000 trees were planted, one for every employee who worked to restore power in the eastern part of the province.

The Corporate Citizenship Program includes a number of student awards programs:

- The Ontario Hydro Engineering awards are



The first 'mini-hydro' generating plant began operation at Deer Lake, bringing peace, quiet and more 'environment-friendly' power to this remote First Nation community.

granted to a second year engineering student at each of the engineering schools across Ontario. This award is managed by the engineering faculties and is awarded to a member of a designated group (women, aboriginal, visible minorities and physically challenged). The value of this award is \$2,400 per student at 11 universities (\$26,400/year in total).

- The Ontario Hydro Technology awards are granted to a second year technology student at each of the technology faculties across Ontario. This award is given to a member of a designated group and managed by the technology faculties. The value of the award is \$1,000 per student at 23 campuses (\$23,000/year in total).

- The William P. Hubbard Award is granted to one black male and one black female student in second year at an Ontario college or university, who best meet the requirements of the award. Current eligible disciplines are electrical, chemical, mechanical, environmental, or computer engineering, science (physics, chemistry, biology), business and technology. The winners are selected by The Association of Black Employees of Ontario Hydro and approved by Ontario Hydro. The award value is \$4,000 or \$2,000 depending on whether the award winner is university or college based, and comes with a guaranteed student development work term. Award winners for 1998 were Agatha Alstrom and Shakeel Adams.

- The John W. Beaver Award is granted to one native male and one native female student entering an Ontario college or university who best meets the requirements of the award. Eligible disciplines are Engineering, Technology,

Environmental Studies, Forestry, Biology, Land Use and Environmental Planning or Business.

The winners are selected by the Ontario Hydro Native Circle and approved by Ontario Hydro. The award value is \$4,000 or \$2,000 depending on whether award winner is university or college based. The award winners for 1998 were Melissa Robinson and Matthew Angeconeb.

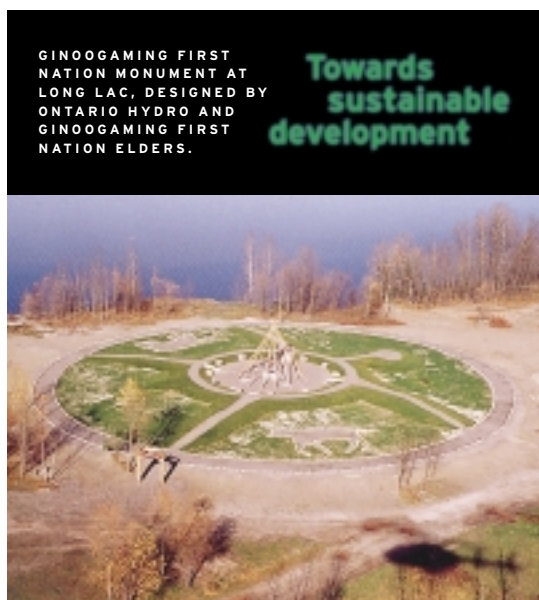
RELATIONSHIP WITH ABORIGINAL COMMUNITIES

Ontario Hydro continued its efforts this year to address First Nation grievances from the past, and to develop mutually beneficial partnerships for the future.

First Nation Agreements

In August, Ontario Hydro signed an historic agreement with the Ginoogaming First Nation to settle a 60-year grievance over damage to their environment. Ontario Hydro President and CEO Ron Osborne presented a formal





apology and a cheque to Chief Gabriel Echum, for the flooding of burial sites and lands caused by a Hydro dam built on the Kenogami River in 1938. The ensuing ceremony saw the dedication of a unique new memorial on the shores of Long Lac, a turtle-shaped landscape sculpture.

Ontario Hydro also reached an agreement in November with the Mishkeegogamang First Nation located near Lake St. Joseph. This agreement involves grievances related to the flooding of lands around Lake St. Joseph in 1934-35. The agreement includes a commitment by Ontario Hydro to guarantee minimum flows of water down the Albany River throughout the year. The agreement also calls upon Hydro to discuss water management and power generation activities with the First Nation annually, or more often if appropriate.

Deer Lake Water Power

The first 'mini-hydro' generating plant began operation at Deer Lake, bringing peace, quiet

and more 'environment-friendly' power to this remote First Nation community in northwestern Ontario. Switching from noisy diesel generators to water-power will cut the amount of required fuel almost in half, reduce the spill risk, create jobs and spur economic growth. Ontario Hydro will manage the operation until 2009, at which time ownership will be turned over to the Deer Lake First Nation.

Tree Planting on Earth Day

One of many Ontario Hydro-sponsored Earth Day events brought students from Toronto's First Nations School to the Six Nations Reserve near Brantford, where they collected seedlings for transport back to the city. The day's events included native singing and drumming, and the traditional tobacco ceremony to honour the Earth before planting.

ELECTRIC AND MAGNETIC FIELDS ISSUES MANAGEMENT

1998 was a pivotal year, setting the stage for the future strategic direction of the electric and magnetic fields (EMF) issue provincially, nationally and internationally. At the provincial level, the Multi-Stakeholder Communication Project met numerous milestones. This project was initiated to develop an integrated response to communication, education and research issues associated with EMF in relation to other public health concerns. The project has brought together government, utility and public experts, as well as other interested parties, to work together and learn from each other regarding the EMF issue.

Nationally, the EMF issue has been accepted as a core issue by the Canadian Electricity Association (CEA), where Ontario Hydro chairs

**Ontario Hydro's theme for Earth Day 1998
appealed to gardeners with spring
fever and to future forest rangers.**

the EMF Working Group to manage the issue from a national perspective.

Internationally, Ontario Hydro is on the World Health Organization's (WHO) Research Coordinators group, which has developed an agenda for future research to fill the gaps of knowledge necessary to resolve the EMF issue. Ontario Hydro had an integral role in the international WHO symposia on risk perception and communication. Ontario Hydro also worked closely with the National Institute of Environmental Health Sciences (NIEHS) throughout the year in their efforts to respond to the U.S. Congress regarding whether EMF is a true health concern.

The Ontario Hydro EMF Team continued to communicate balanced, accurate and timely information to stakeholders, employees, customers, public and private industry. Information was provided through a toll free number (800 728-9533) and a Web site <http://www.hydro.on.ca/emf>.

PUBLIC ELECTRICAL SAFETY

There were nine public electrical fatalities across Ontario, of which six were fatalities involving Services Company equipment and facilities in 1998. Two were the result of suicides; three involved electrical contact with energized lines; and one involved a collision with a pole and subsequent contact with a downed live conductor.

Several public safety initiatives were undertaken by the Services Company in 1998. These included:

- a dialogue with representatives of industrial associations (e.g. the Construction Safety Association of Ontario; the Ontario Electrical League; the Electrical Contractors Association

of Ontario; the Municipal Electrical Association; etc.) to work co-operatively and share information in an effort to prevent serious incidents;

- a public advertising campaign on safety that ran in approximately 190 newspapers across the province during the summer/fall period. Advertisements were geared towards boaters, contractors/workers, home owners and the general public;
- improved signing on perimeter fencing/enclosures at transmission and distributions stations (e.g., added pictorial danger signs in high density areas or areas where children are likely to play such as schools, parks, etc.);
- design of an electrical burn study with the Sunnybrook Hospital Burn Unit;



- the development of a public electrical safety strategy;
- electrical safety presentations to schools;
- “Bear Hug Band” presentations to schools and community groups (musical presentations on safety involving the OPP, Fire Fighters, ambulance attendants and Hydro workers); and
- distribution of the electrical safety CD entitled: “The Wonders of Electricity” to school children.

WATER SAFETY CAMPAIGN

Ontario Hydro’s expertise about water extends far beyond its 69 hydroelectric generating stations, 250 dam structures, and 27 river systems. Because many of the waterways near these facilities are attractive for water-based recreational activities, Ontario Hydro’s annual Water Safety Campaign is a key focus for many nearby schools and communities. This year’s campaign encouraged everyone to “Play it Safe!” while boating, swimming and sight-seeing. Educational tools included posters, brochures in english and french, and newspaper and magazine ads.

EARTH DAY EVENTS

Ontario Hydro’s theme for Earth Day 1998, “Get Down, Get Dirty – and Feel the Earth! It’s Planting Time!”, appealed to gardeners with spring fever and to future forest rangers. Activities throughout the province included tips on ‘green gardening’, tree-planting, and an international tree exchange: a red maple for Detroit Edison’s Belle River Power Plant and an American Beech for Lambton GS.

UNITED WAY CAMPAIGN

Bronze in ’96, Silver in ’97 and now Gold in ’98! Employees of the Northwest Hydroelectric



Plant Group received an award again this year for their ever increasing donations to the United Way. Group participation has risen from 20% in 1995 to over 75% in 1998, thanks to the team’s hard work in helping their fellow employees realize the importance of contributing to this worthwhile cause.

Independent External Review

ERNST & YOUNG REPORT

To Ron Osborne, President and Chief Executive Officer – Ontario Hydro

We have carried out a review of the *1998 Progress Report, Towards Sustainable Development* (PRTSD), the preparation of which is the sole responsibility of Ontario Hydro. Our objective was to form an independent view on the information reported, and the processes by which the data were collected and collated. This review does not constitute an audit and consequently we do not express an audit opinion on the 1998 PRTSD.

Basis of our review

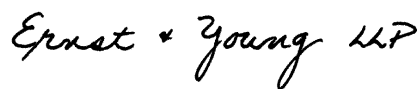
In accordance with the instructions that we received, our review comprised the following steps:

1. A review of the processes by which environmental data was collected and collated through discussion with management and staff, and a review of the report data systems at the corporate office.
2. A review of documents, including reports to the Environment and Public Policy Committee of the Board for 1998, to ensure that all significant environmental events reported in 1998 have been considered for inclusion in the PRTSD.
3. A review of documents, both internal and selected regulatory filings, to ensure that statements made in the 1998 PRTSD report are consistent with underlying information.
4. A review of environment-related reports completed for 1998 by the Corporate Auditor.
5. A review of the transcription and aggregation of operating site data reported from Ontario Hydro operations on a sample basis to determine the completeness, consistency, and comparability of the data generated by corporate office.

Conclusions

On the basis of the review described above we have formed the following views of the *1998 Progress Report Towards Sustainable Development*:

- The reported 1998 data as shown in Appendices A&B has been properly collated at the corporate office from the data provided by the business units.
- Comparative information has been properly transcribed, aggregated and consistently presented from year to year.
- The information reported in the *1998 Progress Report Towards Sustainable Development* is consistent with Appendices A&B.
- The business units employed a systematic approach in environmental data collection, however the absence of a corporate reporting guideline:
 - with respect to various waste categories, except PCB's and radioactive wastes, may result in a lack of consistency in data aggregation;
 - with respect to environment-related expenditures, the lack of detailed procedure definitions and methods of data capture may not provide the highest level of accuracy with regard to completeness.
- We have recommended to management areas for improvement in data collection and collation procedures.
- We are not aware of any significant environmental incidents that have not been included in the *1998 Progress Report Towards Sustainable Development*.



Ernst & Young LLP
Toronto, Ontario
March 31, 1999.

Appendix A

Environmental Performance Trends - 1994-1998 Summary

INDICATOR	1998	1997	1996	1995	1994
ENERGY SOURCES (GWh)					
Nuclear	59,900	70,200	77,700	86,200	91,100
Hydroelectric	31,900	36,400	37,600	35,300	35,500
Fossil	34,200	24,400	19,000	16,300	15,000
Total Internal Generation	126,000	131,000	134,300	137,800	141,600
Energy Banking	(600)	na	na	na	na
Purchases	17,000	13,800	9,300	8,400	5,900
Total Energy Supply	142,400	144,800	143,500	146,200	147,500
ENERGY SALES (GWh)					
Primary Delivered Sales	135,900	133,300	131,700	131,600	129,100
Secondary Sales	2,400	6,400	6,100	9,200	12,600
Internal Sales	100	200	300	300	400
Diversity & Losses	3,900	4,800	5,400	5,100	5,100
Total Energy Sales & Uses	142,400	144,800	143,500	146,200	147,500
RENEWABLE ENERGY					
Renewable Generation (GWh)	31,900	36,400	37,600	35,300	35,500
Renewables as % of Total Internal Generation	25%	28%	28%	26%	25%
INTERNAL EFFICIENCY: CUMULATIVE SAVINGS					
Internal Energy Savings (GWh)	1,759	1,588	1,270	803	293
Internal Energy Savings Target (GWh)	1,758	1,403	1,103	600	175
FUELS CONSUMED					
Coal (tonnes)	12,950,000	9,350,000	7,420,000	6,570,000	5,840,000
Uranium (tonnes)	1,020	1,190	1,300	1,480	1,610
Ignition and CTU Oil (kilolitres)	35,600	35,600	53,200	48,000	41,100
Residual Oil (m³)	329,000	82,900	49,800	57,800	50,700
Natural Gas (m³)	9,733,000	674,000	890,000	758,000	801,000
FUEL CONVERSION EFFICIENCY					
Coal (net efficiency %)	34.9	34.7	34.6	34.2	33.8
Uranium (MWh(e)/kg U)	58.8	59.8	60.7	58.3	56.6
Water spills (cms-d)	319,000	633,000	569,000	253,000	217,000

Note: Totals may not add due to rounding.

Appendix A

continued

INDICATOR	1998	1997	1996	1995	1994
GREENHOUSE GAS EMISSIONS (CO ₂ -equivalent)					
Fossil Business (tonnes)	30,800,000	22,700,000	18,100,000	15,500,000	14,800,000
Corporate Total (tonnes)	31,000,000^a	23,500,000 ^b	18,100,000 ^c	15,500,000 ^d	15,100,000 ^e
Emission Rate (tonnes/G Wh)*	0.28	0.21	0.15	0.13	0.13
a. Excludes 9,300,000 tonnes from purchases					
b. Excludes 6,500,000 tonnes from purchases					
c. Excludes 3,100,000 tonnes from purchases					
d. Excludes 3,300,000 tonnes from purchases					
e. Excludes 3,400,000 tonnes from purchases					
* Emission rate includes emissions from all sources that provide electricity to Ontario Hydro, including purchases from other generators (utility and non-utility).					
CFC EMISSIONS (tonnes ODS-equivalent)	1.4	1.0	1.9	2.3	31.1
ACID GAS EMISSIONS (tonnes)*					
SO ₂	143,000	124,000	84,800	72,100	95,000**
NO _x	55,800	43,000	35,300	30,500	30,000
Total	198,800	167,000	120,100	102,600	125,000**
* excludes 2,600 tonnes from Nuclear not subject to Acid Gas Regulatory Limit					
** Accounts for flue gas desulphurization at Lambton GS					
Acid Gas Emission Rate (tonnes/G Wh)***					
SO ₂	1.13	0.95	0.63	0.54	0.67
NO _x	0.44	0.33	0.26	0.21	0.21
Total	1.58	1.27	0.90	0.75	0.88
*** Average rate for all internal generation					
WASTE MANAGEMENT					
Fly ash Generated (tonnes)	1,138,000	850,000	700,000	630,000	580,000
Fly ash Diverted (tonnes)	381,000	380,000	350,000	320,000	210,000
Diversion Percentage	34%	45%	50%	51%	36%
Gypsum Generated (tonnes)	275,000	220,000	176,000	175,000	na
Gypsum Diverted (tonnes)	251,000	218,000	176,000	57,000	na
Diversion Percentage	91%	99%	100%	33%	na

Note: Totals may not add due to rounding.

Appendix A

continued

INDICATOR	1998	1997	1996	1995	1994
HAZARDOUS WASTE					
Total Manifest (<i>tonnes</i>)	4,760	5,163	1,279	3,093	3,138
HAZARDOUS WASTE BY TYPE (<i>tonnes</i>)					
Paints/pigments/coatings	25	15	4	22	47
Oil skimmings/sludges	176	141	5	88	88
Waste oils/lubricants	1,046	2,246	88	463	544
Varsol and solvents	46	2,039	nd	nd	nd
Aqueous wastes	5	nd	nd	2,298	1,616
Other liquid wastes	789	53	1	158	843
Solid hazardous wastes	62	nd	nd	nd	nd
PCB wastes (shipped for destruction)	2,610	669	1,181	63	na
HERBICIDES (<i>kg active</i>)	33,600	21,800	34,100	29,700	34,900
RADIOACTIVE WASTE MANAGEMENT					
Used Fuel - annual (<i>tonnes</i>)	1,360	1,190	1,300	1,480	1,580
Used Fuel in storage – cumulative (<i>tonnes</i>)	23,450	22,090	20,890	19,580	18,100
Low- and Intermediate-Level wastes (<i>m³</i>)	4,960	6,860	6,300	6,860	5,460
RADIOACTIVE EMISSIONS (% of License Limit)					
Air	<1%	<1%	<1%	<1%	<1%
Water	<1%	<1%	<1%	<1%	<1%
OTHER COMPLIANCE MEASURES					
Environmental Regulatory Compliance (% of non-compliance events that have action plans)	100%	na	na	na	n/a
Opacity (% time above 20% opacity limit)	0.02	0.06	2	2	0.84
No. of Orders/Charges/Convictions	0	3	1	0	0

Note: Totals may not add due to rounding.

Appendix A

continued

INDICATOR	1998	1997	1996	1995	1994
SPILLS					
SPILLS SEVERITY RATING					
Total number of preventable spills by category (A, B and C)					
Category A	3	3	nd	nd	nd
Category B	14	21	nd	nd	nd
Category C	108	377	nd	nd	nd
Target for number of preventable spills by category (A, B and C)					
Category A	0	na	na	na	na
Category B	10	na	na	na	na
Category C	96	na	na	na	na
SPILLS VOLUME					
Total Lost to the Environment (<i>litres</i>)	652,020	6,130	43,930	89,310	30,740
ENVIRONMENT RELATED EXPENDITURES (\$M)					
Capital	51	50	66	92	190
OM&A	120	69	88	95	100
Fuel	88	57	90	79	41
Total	258^a	175	244	266	331
a. Includes \$20.5M Provision Funded expenditures in Nuclear					
ENVIRONMENT RELATED EXPENDITURES BY MEDIUM (\$M)					
Air	122	66	100	89	83
Water	20	36	13	7	13
Waste	65	48	57	66	101
Land	16	11	8	10	15
Environmental Support	32	10	24	22	25
Energy Efficiency /renewable energy technologies (RETs)	2	3	42	72	94
Total	258^a	175	244	266	331
a. Includes \$20.5M Provision Funded expenditures in Nuclear					

Note: Totals may not add due to rounding.

Appendix A

continued

INDICATOR	1998	1997	1996	1995	1994
EMPLOYEE FOCUS					
Accident Severity Rate <i>(days lost per million hours worked)</i>	82	53	74	87	318
Target	43	50	80	130	na
COMMUNITY FOCUS					
Number of Public Fatalities					
Electrical Contact	9	4	8	10	3
Non-electrical contact	3	3	4	5	1
Total	12	7	12	15	4
COMMUNITY SUPPORT					
Charitable Contributions (\$M)	1.3	1.5	2.0	1.8	na
Payments in Lieu of Taxes (\$M)	91	91	88	86	85

Note: Totals may not add due to rounding.
na = *not applicable*
nd = *no data*

Appendix B

Environmental Performance by Business Unit - 1998 Summary

INDICATOR	NUCLEAR	GENERATION COMPANY			SERVICES COMPANY	TOTAL
		GENERATION SERVICES	FOSSIL	HYDRO-ELECTRIC		
ENERGY SOURCES (GWh)	59,900	0	34,200	31,900		126,000
INTERNAL EFFICIENCY						
Internal Energy Savings (GWh)	0	0	65	70	36	171
Internal Energy Savings Target (GWh)	0	0	50	71	29	170*
* Corporate target is greater than total of business unit targets.						
FUELS CONSUMED						
Coal (tonnes)			12,950,000			12,950,000
Uranium (tonnes)	1,020					1,020
Ignition and CTU Oil (kilolitres)			35,600			35,600
Residual Oil (m³)			329,000			329,000
Natural Gas (m³)			9,733,000			9,733,000
FUEL CONVERSION EFFICIENCY						
Coal (net efficiency %)			34.9			34.9
Uranium (MWh(e)/kg U)	58.8					58.8
Water spills (cms-d)				319,000		319,000
GREENHOUSE GAS EMISSIONS (tonnes CO ₂ -equivalent)	230,000		30,800,000			31,030,000
CFC EMISSIONS (tonnes ODS-equivalent)	1.36	0	0.04	0		1.39
ACID GAS EMISSIONS (tonnes)						
SO ₂	1,900		143,000			144,900*
NO _x	700		55,800			56,500*
Total	2,600		198,800			201,400*
Planned Level	na		203,000			203,000
Regulatory Limit	na		215,000			215,000
* Totals include emissions from Nuclear not included in Acid Gas Regulatory Limit						
WASTE MANAGEMENT						
Fly ash Generated (tonnes)			1,138,000			1,138,000
Fly ash Diverted (tonnes)			381,000			381,000
Diversion Percentage			34%			34%
Gypsum Generated (tonnes)			275,000			275,000
Gypsum Diverted (tonnes)			251,000			251,000
Diversion Percentage			91%			91%
Office, Construction & Demolition Waste						
Waste Generated (tonnes)		6,900				6,900
Waste Diverted (tonnes)		6,200				6,200
Diversion Percentage		90%				90%

Appendix B

continued

INDICATOR	NUCLEAR	GENERATION COMPANY			SERVICES COMPANY	TOTAL
		GENERATION SERVICES	FOSSIL	HYDRO-ELECTRIC		
HAZARDOUS WASTE						
Total Manifest (tonnes)	1048	72	778	525	2,336	4,760
HAZARDOUS WASTE BY TYPE (tonnes)						
Paints/pigments/coatings	12	1	9	3	0	25
Oil skimmings/sludges	10	0	21	145	0	176
Waste oils/lubricants	52	21	110	304	558	1,046
Varsol and solvents	16	1	12	7	11	46
Aqueous wastes	5					5
Other liquid wastes	739	2		1	47	789
Solid hazardous wastes	53				9	62
PCB wastes (shipped for destruction)	162	47	626	64	1,711	2,610
HERBICIDES (kg active)	na		0	1,200	32,400	33,600
RADIOACTIVE WASTE MANAGEMENT						
Used Fuel (1998) (tonnes)	1,360					1,360
Used Fuel in storage – cumulative (tonnes)	23,450					23,450
Low- and Intermediate-Level wastes (m ³)	4,960					4,960
RADIOACTIVE EMISSIONS						
(% of License Limit)						
Air	<1%					<1%
Water	<1%					<1%
OTHER COMPLIANCE MEASURES						
Environmental Regulatory Compliance (% of non-compliance events that have action plans)	100%	100%	100%	100%	100%	100%
Opacity (% time above 20% opacity limit)	na		0.02		na	0.02
No. of Orders/Charges/Convictions	0	0	0	0	0	0

Appendix B

continued

INDICATOR	NUCLEAR	GENERATION COMPANY			SERVICES COMPANY	TOTAL
		GENERATION SERVICES	FOSSIL	HYDRO-ELECTRIC		
SPILLS SEVERITY RATING						
Total number of preventable spills by category (A, B and C)						
Category A	0	0	0	0	3	3
Category B	5	0	3	2	4	14
Category C	53	0	28	5	22	108
Target for number of preventable spills by category (A, B and C)						
Category A	0	0**			0	0
Category B	2	0**			8	10
Category C	70	26**			na	96
** Combined spill targets for Genco = 0xA, 0xB, 26xC						
SPILLS VOLUME						
Total Lost to the Environment (litres)	621,990	0	5,500	290	24,240	652,020
ENVIRONMENT RELATED EXPENDITURES (\$M)						
Capital	15.3	0.0	31.9	2.1	1.2	50.6
OM&A	65.9	0.4	12.7	4.4	36.2	119.6
Fuel	0.0	0.0	88.0	0.0	na	88.0
Total	81.2 ^a	0.4	132.6	6.6	37.4	258.2
a. Includes \$20.5M Provision Funded expenditures in Nuclear						
ENVIRONMENT RELATED EXPENDITURES BY MEDIUM (\$M)						
Air	1.2	0.0	120.9	0.1	0.0	122.1
Water	14.9	0.0	5.0	0.4	0.0	20.3
Waste	38.2	0.1	4.9	2.1	20.2	65.4
Land	1.2	0.2	0.5	1.6	12.5	16.1
Environmental Support	25.8	0.0	0.5	2.0	3.9	32.2
Energy Efficiency /renewable energy technologies (RETs)	0.0	0.0	0.8	0.4	0.7	2.0
Total	81.2 ^a	0.4	132.6	6.6	37.4	258.2
a. Includes \$20.5M Provision Funded expenditures in Nuclear						
HEALTH & SAFETY						
Accident Severity Rate (days lost per million hours worked)	49	11	62	244	142	82
Accident Severity Rate - Target	27.5	50	60	50	72	43

Glossary

Accident Severity Rate is of the number of days lost or charged due to accidents per million hours worked. This rate includes the actual days lost due to temporary total disabilities and the charged days due to permanently disabling injuries and fatalities.

Acid Gas Emissions refers to the emissions of sulphur dioxide (SO₂) and nitrogen oxides (NO_x) from fossil generating plants.

Business Unit refers to one of three major groups within Hydro. The three business units are the Generation Company (comprising Fossil, Hydro-electric and Generation Services), the Services Company (comprising Transmission and Distribution), and Ontario Hydro Nuclear.

Carbon Dioxide - A colourless gas found in the atmosphere and forming part of nature's life cycle. Human activities, especially the combustion of fossil fuels, emit carbon dioxide into the atmosphere, and this is thought to affect the climate. Carbon dioxide is considered the substance that contributes most to the greenhouse effect.

CFC - See *chlorofluorocarbons and Freons*.

Chlorofluorocarbons (CFCs) are chemical compounds that are used as aerosol propellants, solvents and refrigerants. CFCs contribute to the depletion of the ozone layer and to the build-up of greenhouse gases. (*see Freons*)

CTU stands for Combustion Turbine Unit.

Electric and Magnetic Fields (EMF) are invisible fields surrounding an electrical wire or device. They are created whenever electricity flows through a wire, whether a power line, an appliance cord or home wiring.

Emission Trading is a market-based mechanism for emissions control whereby emission reductions achieved at one source can be purchased by another source to help the latter achieve its environmental objectives at a lower cost.

Energy Banking as used in this report relates to arrangements made with Hydro Québec (HQ) where Ontario Hydro transfers energy into HQ's storage systems and recalls the energy when needed. At the end of a calendar period the balance can be either negative or positive. A negative balance means more energy was taken than put in and a positive balance represents the reverse.

Environmental Expenditures include monies spent on both natural and social environmental initiatives, whether capitalized or charged to operations, for equipment, labour, fuel and programs to manage or reduce Hydro's impacts on the environment.

Fly Ash is the fine non-combustible particulate material resulting from fossil fuel combustion that is transported out of the boiler in the flue gas and collected in an electrostatic precipitator for disposal or reuse.

Freons - Named after a Du Pont registered trademark, freons are a group of halogenated hydrocarbons where fluorine atoms, chlorine atoms or both have replaced one or several of the molecule's hydrogen atoms. Freons, or CFCs (chlorofluorocarbons) have been used as cooling agents and as expanding agents in insulation foam. As they contribute to both the depletion of the ozone layer and to the greenhouse effect, use of them is banned or is being phased out in many countries.

Giga (G) is a prefix meaning a billion (10⁹). For example, one gigawatt equals 1,000,000,000 watts.

Greenhouse Effect - Various atmospheric gases (eg. water vapour, carbon dioxide, methane) absorb some of the infrared heat emitted to space by the Earth, keeping its surface temperature at a global average of about 15°C. Environmental scientists are concerned that increases in the atmospheric concentrations of these gases, caused by human activities such as the combustion of fossil fuels, could warm the Earth's surface and increase the potential for serious environmental consequences.

GS stands for generating station

GWh is an abbreviation for gigawatt-hours. One gigawatt-hour equals 1,000,000,000 watt-hours, or one million kilowatt-hours.

HCFC (hydrochlorofluorocarbon) - An alternative to CFCs with approximately 10% of their ozone-depleting properties and greenhouse gas potential.

Ignition Oil is a fuel oil that is used when starting up a fossil generating unit.

Industrial Ecology occurs when one industry's by-product becomes another industry's feedstock, thereby improving resource use efficiency and reducing environmental impacts.

Internal Energy Savings includes savings in electricity uses and losses, as well as thermal and conversion efficiency improvements at generating stations. To qualify, these improvements must increase the net GWh output of the stations and be sustainable. This indicator is a measure of how efficiently Hydro is producing, delivering and consuming energy within its facilities.

ISO 14000 - A series of international standards for environmental management systems, life-cycle assessment, environmental auditing of processes, environmental labelling, and environmental performance evaluation. The International Organization for Standardization (ISO) was founded in Geneva in 1946 and is concerned with standardization in a number of technical and non-technical fields.

Kilo (k) is a prefix meaning a thousand (10^3). For example, one kilogram equals 1,000 grams.

Kyoto Protocol - An agreement under which industrialized countries will reduce their collective greenhouse gas emissions. The agreement was reached in Kyoto, Japan, in December 1997 at a meeting arranged by the United Nations Environmental Program and attended by 160 countries.

Low NO_x Burners - A technology that reduces nitrogen oxide emissions generated in the combustion process.

Mega (M) is a prefix meaning a million (10^6). For example, one megawatt equals 1,000,000 watts, and one megagram equals 1,000,000 grams.

OM&A stands for operation, maintenance and administration.

PCBs (polychlorinated biphenyls) A group of biologically persistent organic compounds containing chlorine, previously used in electrical transformers and capacitors because of their insulating capacity and fire resistance. Due their toxicity, they are being phased out and destroyed.

Primary Energy Sales are energy sales by Ontario Hydro to customers in Ontario, comprising municipal utilities, retail customers and direct industrial customers. The sales include both firm and interruptible (for direct industrial customers) sales.

RETs is an acronym for renewable energy technologies and includes solar, wind, micro-hydro, biomass and methane recovery from landfill.

Secondary Energy Sales are energy sales by Ontario Hydro to neighbouring interconnected utilities.

Sievert (Sv) is a measure of body dose from radiation. 1 sievert=1 joule per kilogram.

Sustainable Development has been defined as economic development that meets the needs of the present without compromising the ability of future generations to meet their own needs (*Our Common Future*, World Commission on the Environment and Development, 1987).

Tonne (t) is a metric ton, equal to 1,000 kilograms.





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