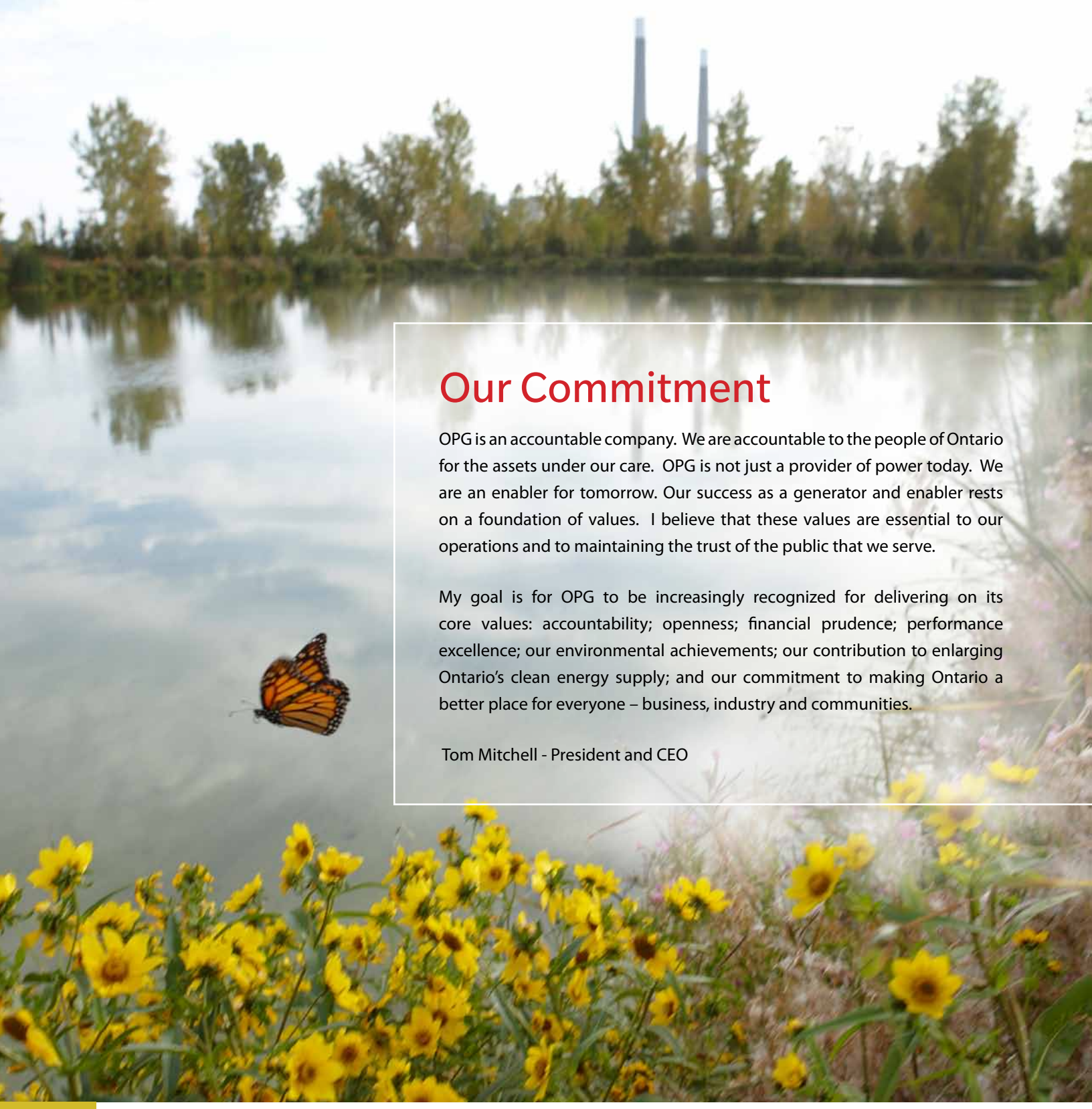
honesty,
transparency, and
accountability

2009 Sustainable Development Report

ONTARIO POWER GENERATION



Our Commitment

OPG is an accountable company. We are accountable to the people of Ontario for the assets under our care. OPG is not just a provider of power today. We are an enabler for tomorrow. Our success as a generator and enabler rests on a foundation of values. I believe that these values are essential to our operations and to maintaining the trust of the public that we serve.

My goal is for OPG to be increasingly recognized for delivering on its core values: accountability; openness; financial prudence; performance excellence; our environmental achievements; our contribution to enlarging Ontario's clean energy supply; and our commitment to making Ontario a better place for everyone – business, industry and communities.

Tom Mitchell - President and CEO

▲ Lennox GS site

Contents

1 Message to Our Stakeholders from the President and the Vice President of Sustainable Development

4 About This Report

6 2009 SD Highlights, Challenges

8 Company Profile

9 Environmental Performance

27 Social Commitment

40 Economic Contribution

46 Appendices

◀ Main cover photo: Healey Falls G.S.

Message to our Stakeholders

from the President of OPG and the Vice President of Sustainable Development

Tom Mitchell - President & CEO

Cara Clairman - Vice President - Sustainable Development

This is OPG's 11th Sustainable Development (SD) Report documenting and assessing the company's environmental, social and economic contribution to Ontario. As a publicly owned power company accountable to its owners, the people of Ontario, OPG is committed to minimizing its environmental footprint while contributing to a better Ontario through corporate citizenship, community commitment and the safe and efficient generation of electricity to help meet Ontario's energy needs. Measured against these standards, OPG had a good sustainability story to tell for 2009 and is committed to continually improving this performance going forward.

OPG's Commitment to Sustainable Development

OPG defines sustainable development as "embracing business strategies and activities that meet the needs of the enterprise and it's stakeholders today, while protecting and enhancing the human and natural resources that will be needed in the future".

Sustainable development is now a business imperative for any responsible company. For a publicly-owned company like OPG, it is an ethical and social imperative as well. One of our purposes as an organization is to contribute to building a better Ontario for everyone. Our commitment to sustainable development gives us the impetus to achieve this goal.

Environmental Performance

Our environmental performance continued to exceed target in a number of key areas – including energy efficiency, critical group radiation dose and low and intermediate level radioactive waste. While not every target was met, our environmental performance was strong overall, contributing to our goal of continual improvement.

In addition to performing well in our key areas, OPG air emissions continued to improve. Nearly 90 per cent of the electricity we produced in 2009 came from nuclear and hydroelectric sources which produce virtually no emissions contributing to smog or global warming. In addition, we continue

to explore the possibility of converting some of our coal-fired units to burn biomass and other cleaner fuels. In accordance with the Ontario government's directive, we will phase out the burning of coal at all our coal-fired stations by the end of 2014. Reflecting this new direction, we changed the name of our former "Fossil" operations to "Thermal". More than a symbolic action, it is one more indication of our commitment to fundamentally transform our generation mix to become one of the cleanest portfolios in North America.

OPG also continued to build on and expand its many biodiversity activities. These included our extensive tree planting program, our water management initiatives, and our habitat management efforts in the areas surrounding our generating facilities. During the past year, OPG increased the total number of native trees and shrubs it has planted in Ontario since 2000 to approximately four million. We completed a major eel-ladder extension to the Saunders hydroelectric plant on the St. Lawrence River. To help raise awareness of our many biodiversity initiatives, we also added a special biodiversity section to our corporate website, **www.opg.com**. Our leadership in biodiversity was recognized in 2009 by awards from environmental organizations -- most notably by the U.S. based Wildlife Habitat Council which honoured OPG with its prestigious Conservation, Education and Outreach Award.

Social Performance

OPG focuses not only on improving environmental performance but also on social performance. This includes areas such as employee health and safety, corporate citizenship, and our performance as a responsible employer.

Safety will always be a fundamental value for the company. In 2009, OPG's workplace safety performance as measured by Accident Severity Rate was the best in the company's history and well within the industry's top quartile threshold. However, our All Injury Rate was not quite as good as in 2008, and we are focussing on improving our performance going forward.

OPG's commitment to safety was recognized in 2009 by the Electrical and Utility Safety Association which presented OPG with its ZeroQuest Gold award for the fourth consecutive year. OPG is the only company in the ZeroQuest program to achieve this impressive milestone.

OPG's commitment to safety extends beyond our employees to include contractors, young workers and the public. OPG is a leader in contractor safety performance, partners with young worker safety advocates to discuss workplace safety with students and strives to make our operations safer for the public - an example being our focus on water safety.

In the area of corporate citizenship, OPG helped support over 1,100 not-for-profit community, education, and environment organizations in the regions where we operate. In addition, our employees and pensioners contributed over $2 million to OPG's Charity Campaign to help support hundreds of worthy causes. This does not include the thousands of hours many of our employees devote every year to volunteer and pro-bono work within their communities and neighbourhoods.

OPG was also proud that its contribution as an employer was recognized in 2009, as the company was again named one of Canada's top 100 employers and one of the top employers in the Greater Toronto Area. As an employer in 2009, we hired nearly 565 new employees, including 360 engineers and technicians. Over 400 students were also hired into co-op, internship and summer student positions across the company.

Economic Contribution

OPG's economic contribution to Ontario is significant. In 2009, OPG earned a net income of $623 million, compared to a net income of $88 million in 2008. As an Ontario-based, Ontario-committed company, every penny of net income that we earn stays in Ontario in the form of reinvestments in our business, in our employees and in dividends to our Shareholder. This is in addition to the economic contribution OPG makes due to the lower rates it receives, compared to those paid to other Ontario generators, for the bulk of its power. These lower prices act as a moderating influence on the cost of Ontario's electricity.

Our economic contribution is further reflected in the equity partnerships we continue to establish with a number of Ontario First Nations communities. These partnerships provide

▲ Decew GS

▲ Biomass storage silos - Nanticoke GS

First Nations with an opportunity for a commercial stake in new hydroelectric projects being developed for Ontarians by OPG. These projects contribute to employment and economic growth in the regions and communities where they are based.

As this report makes clear, we are an Ontario-focused company committed to improving – through our significant economic contribution -- the quality of life for all Ontarians, their families and communities. Equally important, our commitment to produce low cost and reliable supplies of electricity contributes to Ontario's economy, attracts and retains industry and helps keep much needed jobs within the province.

Despite our progress, we recognize that our SD performance is far from perfect. While this Report records our successes, it also identifies the gaps in our performance and the steps we are taking to close them.

OPG is accountable to the people of Ontario for the management of our assets and the impact of our operations. We have designed this report to be an open and honest accounting of our SD performance. We encourage you, as one our key stakeholders, to take the time to review its contents and form your own opinion.

We also invite and welcome your feedback. Contact information is available on our website and on the back of this report.

Respectfully,

Tom Mitchell
President and CEO

Cara Clairman
Vice President
Sustainable Development

About This Report

Ontario Power Generation remains committed to the principles of Sustainable Development. These principles are woven into the fabric of our daily lives. OPG's commitment can be found in our policies and Code of Business Conduct. Policies and decisions ranging from our daily operations to building 'New Nuclear', to refurbishment of existing units, to community engagement, to energy audits and greening our supply chain are all influenced by our commitment to SD principles. During 2009, OPG's improvement journey continued. In this our 11th Report, we document our progress and commitment in the areas of environmental performance, social commitment and economic contribution. We are proud of our accomplishments.

OPG's commitment to sustainable development will help make Ontario a better place to live for everyone. We recognize that despite our progress, there remain opportunities to improve.

Report Objective

OPG's objective in publishing this report is to convey our commitment to sustainable development, to communicate our environmental, social and economic performance, and to demonstrate our commitment to communicate to our stakeholders in an open, honest and transparent fashion.

Accountability and Governance

OPG's website **www.opg.com** /about/governance provides information related to the composition of our Board of Directors, and Executive team, as well as access to key governing documents such as Policy Statements related to Code of Business Conduct, Environment, Nuclear Safety, Health and Safety, Aboriginal Relations, Dam Safety, and Disclosure.

OPG's President is accountable to the Board of Directors for making certain the company manages the environmental, social and economic aspects of its business in a manner consistent with applicable internal policies and Code of Business Conduct.

While the President and CEO has overall accountability for performance, specific responsibility for performance rests with the most Senior Managers in their functional areas. For example, the SVP of Human Resources has a portfolio that includes the Ombuds office, human rights, safety and wellness, outreach, recruitment and diversity. The SVP and Chief Financial Officer is accountable for financial aspects of the business. Groups such as Finance, Enterprise Risk, Human Resources and Sustainable Development report to various committees of the Board on a quarterly basis. Typical content includes performance, trends, the identification and tracking of emerging issues and compliance risk. In addition to specific environmental responsibilities, the VP of Sustainable Development exercises a comprehensive albeit indirect Sustainable Development oversight, coordination, and reporting role to senior management including the President and Board of Directors.

Policy commitments are implemented by programs and governance in which specific accountabilities are identified. Examples of governance that supports our commitment include; Environmental Policy; Aboriginal Relations Policy; Biodiversity Policy; Policy for Management of PCBs; Policy for Use of Ozone Depleting Substances; Land Assessment and Remediation Policy; Spills Management Policy; Disclosure Policy; Health and Safety Policy; Compensation and Benefits Policy; Employee and Labour Relations Policy; Diversity and Human Rights Policy; Code of Business Conduct Policy (and associated Code); Talent Management Policy; Dam Safety Policy.

OPG accepts responsibility for the impacts of our decisions and activities on society and the environment, through transparent and ethical behaviour that:

- is consistent with sustainable development and the welfare of society;
- takes into account the expectations of stakeholders;
- is in material compliance with applicable law and consistent with international norms of behaviour, and
- is integrated throughout the organization.

OPG is committed to ensuring that staff understand, internalize and operationalize the principles of sustainable development. New supervisors and managers are required to participate in training entitled "Sustainable Development at OPG: Our Commitment to the Environment, Society and Economy". The purpose of this ongoing training is to ensure that supervisors and managers can advise employees under their direction of the need and means to operationalize sustainable development on a daily basis. In 2009, 404 staff received sustainable development training, for total training of 4,404 employees to date.

Data Integrity

Assurance of the accuracy of data documented in this report is achieved by a variety of means. Financial data are subject to prescribed audit, and operational and performance data are validated by both line management and organizationally independent staff prior to submission. Further, data are subject to periodic audit as part of environmental management system programs (ISO 14001), OPG's ongoing audit programs, and the Canadian Electricity Association's verification program.

Stakeholders

OPG recognizes its obligations to its stakeholders and realizes that its franchise to operate rests with the establishment and maintenance of strong, mutually beneficial relationships with them.

OPG stakeholders include the communities in which we operate (including aboriginal), customers, educational institutions, employees, public, non-government organizations, suppliers, unions, the media, peer industry groups, the OPG Board of Directors and government agencies at federal, provincial and municipal levels.

OPG is committed to open dialogue with all of our stakeholders, to provide information about our activities and listen to their feedback. In the spirit of continual improvement and to support our efforts to engage our stakeholders, we welcome feedback (contact information is available on our website and on the back cover of this report). OPG routinely solicits feedback. For example, OPG engaged the Canadian Business for Social Responsibility (CBSR) to obtain feedback from a diverse group of stakeholders and to advise on the content and communication of future reports. The results were issued in May 2009 and recommendations have been reviewed from the standpoint of ensuring this report meets stakeholder needs.

Global Reporting Initiative (GRI)

In the 11 years of sustainable development reporting, OPG has revised the content and reformatted the presentation of the report based on feedback from a variety of stakeholders. A high-level conclusion by the Canadian Business for Social Responsibility was that the report is regarded as credible and well organized. For this reason, combined with the fact that OPG is principally an Ontario based utility, we choose not to adopt the GRI guidelines.

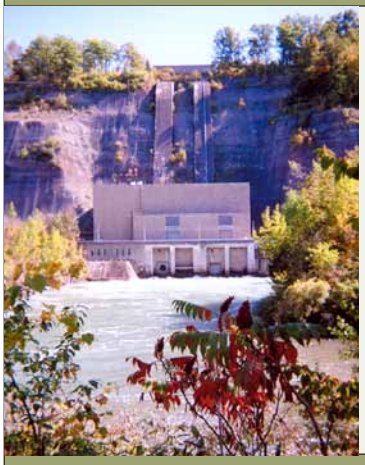
Hyperlinks

Throughout the report, hyperlinks have been embedded. These links lead to sites that provide more detailed information.

We acknowledge that our activities can have impacts that may be either beneficial or adverse. We strive to identify and characterize our impacts, to eliminate, control or minimize those that may be adverse and to maximize the beneficial aspects of our operations. This report will provide insights into our operations.

2009 Highlights

Environment



- The Wildlife Habitat Council recognized OPG with the prestigious William W. Howard award for efforts across the entire organization in conservation, education and outreach.
- OPG's Niagara Plant Group became the first electricity generation group to be accepted into the MOE's Environmental Leaders Program. This program is a special partnership between government and companies that surpass environmental regulations and as responsible corporate citizens make environmentally friendly activities part of their operations.
- Request for expressions of interest in supplying biomass to fuel re-powered coal units was issued.

Social

- For a third year in a row, OPG was recognized as a Top 100 Employer in Canada.
- OPG continues to negotiate settlements with First Nations to address past issues related to OPG operations; examples include Red Rock Indian Band, Whitesand First Nation, and Moose Cree First Nation.
- OPG's 2009 Accident Severity Rate (ASR) performance of 1.40 days per 200,000 hours worked was the best in its history.
- OPG was honoured with a Gold ZeroQuest Award from the Electrical and Utilities Safety Association for the fourth consecutive year.
- 2009 OPG's Corporate Citizenship Program supported more than 1100 registered charitable and non-profit initiatives.
- OPG issued its newly revised policy on Diversity and Human Rights that underscores the importance of diversity, equity and inclusiveness at OPG.

Economic

- The Niagara Tunnel remains one of Ontario's most economic infrastructure projects with respect to its long-term value as an added source of clean renewable hydroelectric energy. As of December 31st 2009, the tunnel boring machine had progressed 5481 meters (54% of the overall distance).
- The new Lac Seul/Obishikokaang Waasiganikewigamig Generating Station in Ear Falls was declared in-service in February 2009. The Lac Seul First Nation have a 25 per cent equity share in the plant.
- In 2009, OPG purchased $3.30 billion worth of goods and services in Ontario.

SD Challenges

Environment

- Elevated tritium emissions from Pickering A due to dryer dependability, and chronic equipment leaks. Year end targets were achieved but opportunity exists for improved performance.
- Hydrazine, an important feedwater chemical, has been identified under Canada's Chemical Management Plan, as being a priority for risk assessment. The assessment could require reduced consumption or substitution.
- OPG's objective of continual improvement in the area of environmental infractions was not achieved.

Social

- OPG's All Injury Rate indicator was 1.19 injuries/200,000 hours worked which was not quite as good as 2008 performance of 1.15.
- The Canadian Human Rights Commission noted that OPG must continue to monitor its Employment Equity Plan and assess progress as long as areas of under representation exist in any occupational group.

Economic

- New Nuclear Build put on hold.
- A business case for the conversion of coal units to renewable (biomass) and less carbon intense fuels (gas), which are more costly, is required.
- Uncertainty regarding greenhouse gas regulations.

Integration of Risks and Opportunities in Business Planning

OPG's risks and opportunities are identified and prioritized in a variety of ways. For example, environmental aspects and impacts by means of ISO 14001 management systems, and occupational health and safety hazards via OHSAS 18001 management systems. The business planning process considers all risks and opportunities, regardless of origin and rolls them up into a comprehensive set of business priorities. OPG uses a Business Unit Risk Self Assessment (BURSA) process to establish the risk rating. The consequence element of the calculation considers potential impacts in areas including financial, environmental, health and safety, nuclear safety and corporate reputation.

Company Profile

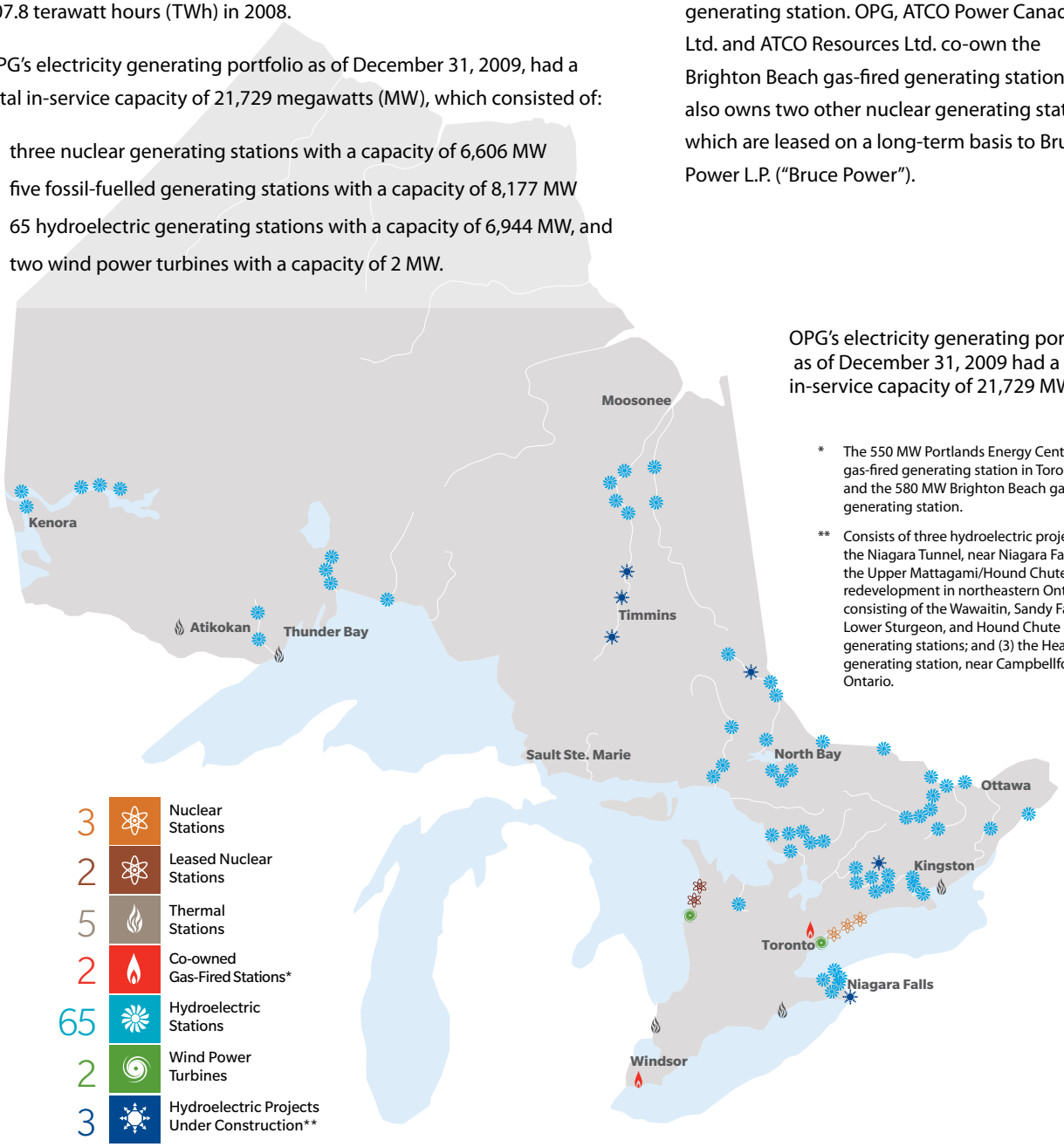
OPG is an Ontario-based electricity generation company whose principal business is the generation and sale of electricity in Ontario. OPG's focus is on the efficient production and sale of electricity from its generating assets, while operating in a safe, open and environmentally responsible manner. OPG was established under the Business Corporations Act (Ontario) and is wholly owned by the Province of Ontario.

In 2009, OPG had approximately 12,000 regular employees and generated 92.5 terawatt hours (TWh) of electricity, 14% lower than the 107.8 terawatt hours (TWh) in 2008.

OPG's electricity generating portfolio as of December 31, 2009, had a total in-service capacity of 21,729 megawatts (MW), which consisted of:

- three nuclear generating stations with a capacity of 6,606 MW
- five fossil-fuelled generating stations with a capacity of 8,177 MW
- 65 hydroelectric generating stations with a capacity of 6,944 MW, and
- two wind power turbines with a capacity of 2 MW.

In addition, OPG and TransCanada Energy Ltd. co-own the Portlands Energy Centre gas-fired generating station. OPG, ATCO Power Canada Ltd. and ATCO Resources Ltd. co-own the Brighton Beach gas-fired generating station. OPG also owns two other nuclear generating stations, which are leased on a long-term basis to Bruce Power L.P. ("Bruce Power").



OPG's electricity generating portfolio as of December 31, 2009 had a total in-service capacity of 21,729 MW.

* The 550 MW Portlands Energy Centre gas-fired generating station in Toronto and the 580 MW Brighton Beach gas-fired generating station.

** Consists of three hydroelectric projects: (1) the Niagara Tunnel, near Niagara Falls; (2) the Upper Mattagami/Hound Chute redevelopment in northeastern Ontario, consisting of the Wawaitin, Sandy Falls, Lower Sturgeon, and Hound Chute generating stations; and (3) the Healey Falls generating station, near Campbellford, Ontario.

Environmental Performance

OPG's commitment to sustainable development is reflected in its efforts to minimize the environmental footprint of its operations, while meeting the company's obligation to produce power for the residents of Ontario. OPG's website (**www.opg.com** /safety and environment/) provides information related to biodiversity, tree planting, ISO 14001, green power, emissions management , energy efficiency, water management and has a link to the annual report (/about) and the year-end report (/investor).

▲ Left photo: Assessing the revegetation program at Lennox GS.
Right photo: Darlington Nuclear's Butterfly garden.

Key Environmental Performance Indicators

OPG must comply with literally hundreds of environmental laws, regulations, by-laws and requirements contained in operating permits and Certificates of Approval. We consider regulatory compliance to be a minimum, non-negotiable standard for progress towards sustainable development by our company, and we have established voluntary internal environmental targets to help ensure that our overall performance continues to improve beyond compliance.

Accordingly, each year OPG sets key targets for improving environmental performance. Progress towards meeting targets is tracked and managed through the Environmental Management System (EMS). These efforts are reinforced by an Annual Incentive Plan that links management's compensation to meeting or surpassing established environmental targets.

As is evident based on a review of Table 1, OPG's success in meeting 2009 environmental targets was mixed.

Table 1: Corporate Environmental Performance vs. Targets (2009)

(All targets are voluntary except where otherwise specified)

Category	2009 Performance Measure	2008 Year-End Performance	2009 Year-End Performance	Target Met
Spills (1)	A (Very Serious) = 0	0	0	Yes
	B (Serious) = 1	0	1	Yes
	C (Less Serious) (continual improvement)	15	15	No
Regulatory Compliance	Major Infractions = 0	0	0	Yes
	Infractions (2) (continual improvement)	16	31	No
Energy Efficiency	29 GWh saved (Hydro)	15.7	29.6	Yes
Air Emissions	NO_x (as NO_2) ≤ 23.3 Gg net (3) regulatory limit	29.5 gross	13.3 gross	Yes (5)
	SO_2 ≤ 127 Gg net (3) regulatory limit	75.4 gross	29.5 gross	Yes
	Total Acid Gas ≤ 236 Gg gross	104.8	42.8	Yes (7)
	NO_x (as NO_2) rate (Gg/TWh-delivered) (4)	1.27	1.33 (7)	Mixed (5,7)
	CO_2 (gross Tg)	23.3 gross	10.3 gross	19.6 Tg met
Critical Group Dose	Pickering ≤ 10 µSv	4.1	1.8	Yes
	Darlington ≤ 7.5 µSv	1.3	0.7	Yes
Low & Intermediate Level Radioactive Waste	≤ 3,408 m^3	2,708	3078	Yes
Ash & Gypsum Diverted from Landfill	Gg	616	381 (6)	No Target

(1) OPG ranks the severity of spills according to guidelines set by the company's Spills Severity Rating Procedure, which mirrors Ontario Ministry of the Environment guidelines.

(2) Infractions - Include any incident resulting in regulatory action, including the issuance of a Notice of Violation, an order, a prosecution or other compliance action. All violations that lead to an Environmental Penalty are considered infractions.

(3) Regulatory Acid Gas Limits – In 2009, O. Reg. 397/01 allocated 23.3 Gg of NO_x and 120.2 Gg of SO_2 allowances to OPG. The regulation has a provision for the use of banked or purchased allowances or limited amounts of emission reduction credits to offset emissions in excess of the allowance allocations. Notwithstanding this, O. Reg. 153/99 limits OPG's total gross SO_2 emissions to 175 Gg and the total gross acid gas emissions to 236 Gg. NO_x is expressed as mass NO_2.

(4) NO_x emission rate targets are based on "delivered energy". Delivered energy is defined as "gross energy output from a generating unit, less unit service (energy supplied by and consumed by the unit), while connected to the electricity grid". The NO_x emission rate (Gg/TWh-delivered) is the total of all fossil station NO_x emissions divided by the total delivered energy from all fossil units.

(5) Although NO_x emission rate targets were not met in two cases, Thermal's overall NO_x emission rate performance was very favourable in comparison to previous years given the unexpected operating paradigm the units experienced during 2009.

(6) While the absolute amount of ash and gypsum diverted from landfill decreased, the percent diverted increased marginally to 74%.

(7) Errata (June 14) a) total acid gas 'target met' changed to 'yes' b) NO_x delivered changed from 1.40 to 1.33 c) NO_x delivered 'target met' changed to 'mixed'.

OPG strives to eliminate, control, minimize, mitigate, or compensate for the environmental impacts of its operations. As required, environmental assessments are conducted for new projects. All of OPG's generation facilities are covered by ISO 14001 registered environmental management systems. OPG's Environmental Management Systems (EMS) provide the framework to help ensure that the company complies with its environment policy within a framework of continual improvement. OPG's Environmental Policy includes commitment to: meeting or exceeding regulatory and other requirements, environmental stewardship, integration of environment into decision making, employee engagement, and enhancing the environmental wellbeing of our communities. The President is accountable for the policy. OPG's Corporate EMS, as well as those for all of its generating facilities, and the Nuclear Waste Management Division have maintained registration for 10 years. Further, in keeping with the recognized role of Supply Chain, the Nuclear Supply Chain was registered to ISO 9001/14001 and OHSAS 18001 in 2007.

www.opg.com /safety and environment/sustainable development/policy

Spills Management

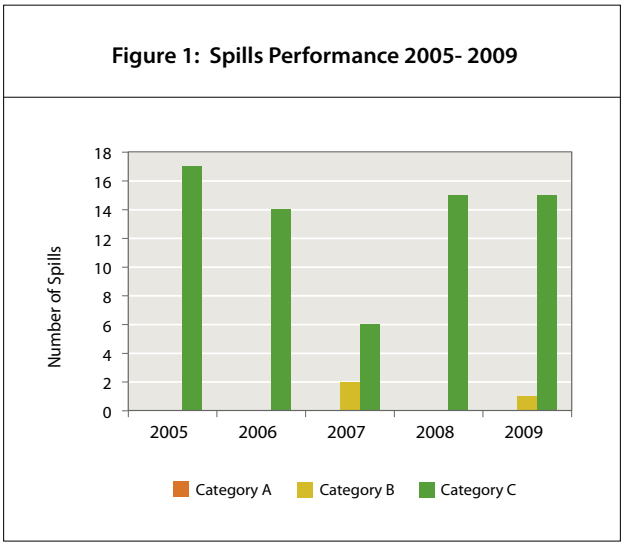
The classification of spills is based on their potential impact on the environment: Category 'A' spills are considered as very serious due to the scope of injury, damage, health effects or safety impairment that occurs or may occur. Category 'B' are considered as serious spills - typically they are more localized in terms of injury or damage. Category 'C' spills are reportable but considered less serious than A or B. These categories mirror the Ontario Ministry of the Environment (MOE) regulations.

OPG spills targets for 2009 were zero and one for category A and B respectively. In 2009, OPG experienced zero category A spills, one B spill (see Figure 1) and fifteen C spills. The target for category C spills is one of continual improvement year over year. These targets remain unchanged for 2010.

On December 21, 2009, approximately 210,000 L of demineralized water containing hydrazine (58 mg/kg) and tritium (1200 µCi/kg) were released to yard drainage at the Darlington site. The Injection Water Storage Tank was overfilled from the Emergency Service Water system due to a valving error. Response teams were activated, notifications were made, and offsite local water supply plants were monitored. Groundwater monitoring is ongoing. Due to the serious nature of the 'B' spill, a root cause investigation was conducted and corrective actions are underway. No measurable impact on drinking water was found.

Of the 'C' spills, eight, three, three, and one were attributable to Hydro, Thermal, and Nuclear Generation and Nuclear Waste Management Division, respectively.

Figure 1: Spills Performance 2005- 2009



The Pickering A Unit 4 transformer spill containment was damaged in 2008. In 2009, the structure was permanently repaired.

The Pickering B Unit 8 transformer is settling, posing an ongoing threat to the integrity of the transformer. The risk is failure of system integrity and release of transformer oil. A project to install micro-piles under the transformer will permanently arrest the settling. In the interim, grout has been injected to fill the void and stabilize the ground under the transformer. The settling is being monitored. No further immediate action is required.

Regulatory Compliance

OPG must comply with a multitude of requirements contained in statutes, regulations, bylaws, operating permits and Certificates of Approval.

In 2009, OPG experienced 31 environmental infractions compared to 16 infractions for 2008. No major infractions were reported (major infractions include non compliance with Director's Orders, charges and convictions). The target of continuous improvement was not achieved for 2009. Of those infractions, 21 and 10 were attributable to Nuclear and Thermal respectively. The increase in infractions reported during 2009 is partially the result of changes to the reporting

▲ Ranney Falls GS

criteria set out by the Ministry of Environment. OPG's goal of zero major infractions and continual improvement remain unchanged.

Emerging Issues and Challenges

1. On June 20, 2009 a notice was published in the Canada Gazette detailing reporting requirements for the Batch 10 Challenge Substances, including hydrazine, under Canada's Chemical Management Plan. Hydrazine is an important boiler feedwater chemical used to remove oxygen and inhibit corrosion. This chemical has been identified as a priority for risk assessment and appropriate controls. A potential outcome of the risk assessment could include requirements to reduce consumption or substitute an alternate chemical. OPG submitted our 'Batch 10' report to the Federal Government. This report included information related to hydrazine use emissions, and employee exposure reports.

2. In September 2008, Environment Canada issued new PCB regulations that required the removal of high-level PCB equipment by the end of 2009. Nuclear, Thermal and Hydro completed the phase-out of known high-level PCB equipment ahead of the deadline. Very small quantities of low-level PCB equipment remain across OPG. The regulations require that these be phased out by 2025. The Canadian Electricity Association (CEA) PCB task group has submitted to Environment Canada compliance issues for the electrical sector under the new regulations. Two key issues are sealed equipment and low-level PCB oil re-use: Permanently sealed equipment (such as transformer bushings) may contain high-level PCB, but this cannot be determined without destroying the equipment. Also, the regulation prohibits the re-use of oil that is greater than 2 ppm. In large power transformers and circuit breakers, where oil is often reconditioned this could preclude the re-use of over 2 million litres of oil. Environment Canada recognizes these issues and is expected to address them through Interpretation Guidelines.

3. Uncertainty regarding Greenhouse Gas Regulations:
   a) The Federal Government indicated that a Cap-and Trade framework would be announced in December 2009 and legislation passed in 2010, for reporting in 2011 and compliance in 2012. The Federal Government has not yet released a GHG regulation. It is understood that the Federal Government is firm in its commitment

to wait for further development of US regulations to improve alignment.

b) The Ontario Government is also taking steps to implement a GHG Cap and Trade regime. In 2009, the province passed regulations enabling the development of Cap and Trade and requiring facilities that emit ≥ 10,000 Mg to monitor, measure and report 2010 emissions in 2011. OPG continues to recommend that Ontario work with the Federal Government to secure an effective national system.

4. In response to a Canadian Nuclear Safety Commission (CNSC) expectation that Pickering Nuclear implement effective fish impingement and entrainment mitigation measures, OPG installed a full coverage net barrier around the intake groyne. The installation met the scheduled completion date. During 2010, an evaluation of effectiveness of the barrier net in the context of overall station impingement is planned with the objective of demonstrating the ability of the mitigation measure in achieving the specified reduction targets.

5. In June 2009, the Ministry of Environment (MOE) posted a report "Report and Advice on the Ontario Drinking Water Quality Standard for Tritium". The report recommends an annual average of 20 Bequerels per litre (Bq/l) which would be the most stringent in the world. Currently, the World Health Organization has an annual average of 10,000 Bq/l, and the Canadian Guideline is 7000 Bq/l. Historical annual averages at drinking water supply plants in Durham Region (the location of OPG's Darlington and Pickering sites) are <20 Bq/l.

6. In the third and fourth quarter of 2009, the MOE Sector Compliance Branch reviewed performance at Pickering and Darlington generating stations. Preliminary indications are that the MOE will identify administrative deficiencies with the environmental programs.

7. Issues with sensitivity of chlorine measuring equipment and system material condition pose a risk of exceeding limits. Mitigation measures, including manual grab sampling and frequent surveillance, have been put in place until equipment upgrades are installed. These measures have been successful in avoiding exceedances.

8. Due to a maximum outfall temperature (specified in its Certificate of Approval (C of A)) exceeding limits in 2007, Pickering B has an amended C of A that is in effect until the end of 2010. Pickering B continues to experience elevated temperatures during algae runs. The barrier net is expected to reduce the risk of temperature exceedances.

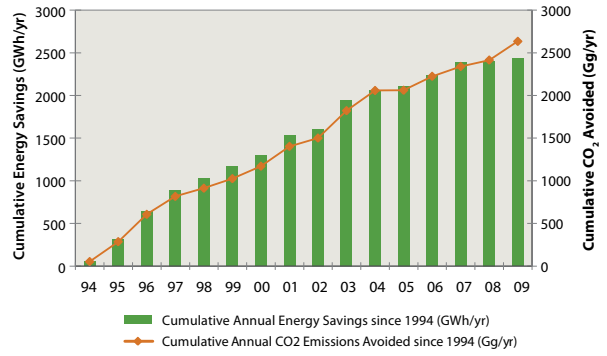
Energy Efficiency

OPG remains committed to programs that reduce its consumption of energy. Programs include specifying energy efficiency of new buildings, retrofitting existing buildings, procuring energy efficient equipment (such as computers), and upgrading the efficiency of turbine runners and transformers.

In 1994, OPG's predecessor company, Ontario Hydro, committed to an energy efficiency program, and 15 years later the program remains highly successful. Indeed, from 1994 – 2009, OPG's annualized energy savings have increased by 2,434 GWh, resulting in annual savings of $109.5 million (at an average of 4.5 cents/kWh paid to OPG) and emission savings of 2.63 million tonnes of CO_2 (Figure 2).

In 2009, OPG achieved new internal energy efficiency savings of 29.6 GWh/yr. This saving was primarily attributable to efficiencies in hydroelectric and real estate operations.

Figure 2: OPG Cumulative Energy and CO_2 Emission Savings 1994 - 2009



Energy efficiency results are reported on project completion. At year end 2009, within the hydroelectric division, 7 projects were completed including turbine runner upgrades at Cameron Falls GS, Ragged Rapids GS, Des Joachims GS, McVittie GS, frequency conversion at Sir Adam Beck GS, and transformer replacement at Harmon GS.

www.opg.com /safety/energy efficiency

"A number of conservation initiatives recently implemented at OPG's Corporate Office (700 University Avenue) contributed to a reduction in energy and water consumption.

These initiatives include the improvements to the thermal storage tanks and installation of variable frequency drives for the on-floor compartmental fans to reduce electricity consumption, and the connection of cooling equipment to a separate closed loop dry cooler system and installation of motion sensors in washrooms to reduce water use."

Glen Temple
Vice President
Corporate Real Estate

Within Real Estate services at OPG Head Office, resource efficiency initiatives resulted in the following improvements;

- Electricity consumption was 36,153 MWh, down 4.24% from 2008.
- Water consumption was 205,682 m^3, down 14.76% from 2008.
- Steam use was 20,436 m^3, down 10.9% from 2008.

Air

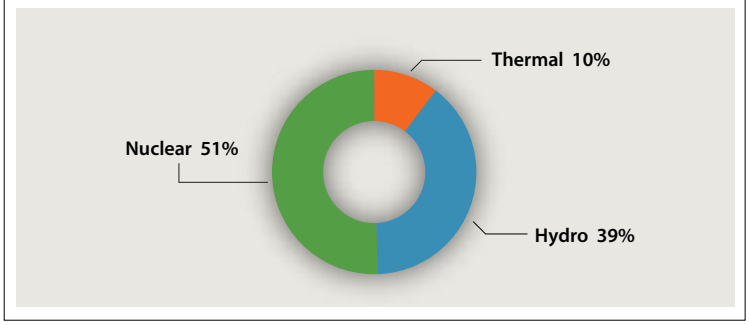
Generation Mix

In 2009, approximately 90 per cent of OPG's electricity production was derived from hydro and nuclear sources that were virtually free of air emissions causing smog, acid rain and global warming (see Figure 3).

The remaining production came from Thermal's five fossil-fuelled stations. Four of these stations use coal as their primary source of energy and one is dual-fuelled by oil and natural gas. An advantage of thermal stations, relative to nuclear and hydro facilities, is their capacity to respond to short term changes in peak demand for power.

OPG's thermal plants supply electricity demand that is not first met by other Ontario supply sources such as nuclear, hydro and Ontario's growing portfolio of alternative generation. They provide the flexibility to meet changes in demand that occur by the minute, day and year. They also provide the necessary backup required for intermittent sources like wind and solar. This flexibility means that electricity production from these plants and air emissions varies.

Figure 3: OPG Generation Mix (2009) 92,497 GWh



It is noteworthy that based upon a Memorandum of Agreement between the Province of Ontario and OPG, OPG has been given direction that it "***will not pursue investment in non-hydroelectric renewable generation projects [i.e. solar and wind] unless specifically directed to do so by the shareholder***." Thus, OPG is not at liberty to bring into its generation mix non-hydroelectric "green energy" supply, unless the Shareholder so directs.

▲ Atikokan GS

From Here to There – Thermal in Transition

Air emissions from OPG's thermal facilities have declined significantly as result of a combination of technology, economic and government policy drivers. Emissions will remain at low (albeit fluctuating) levels respecting government direction to phase out the use of coal for electricity generation by the end of 2014. (Figure 4)

Given the pending phase-out of coal, no new investment will be made in emission control technologies. Though overall emissions will remain low, emission rates may vary slightly from year to year as result of the manner in which the coal units will be called upon to operate.

Mercury Monitoring and Reporting

In 2009, OPG continued its Mercury Monitoring and Reporting Program established in accordance with the requirements developed under the Mercury Canada-Wide Standard process and approved by the Ontario Ministry of the Environment. The program requires the routine sampling and analyses of coal and coal combustion by products and stack sampling for mercury. Annual reports are submitted to MOE in accordance with the approved program.

In 2009, OPG's coal-fired facilities emitted 59 kg of mercury to air, the lowest level on record.

Further information on the Mercury Canada-Wide Standard can be found at the CCME website **www.ccme.ca.**

Figure 4: OPG 2009 Air Emissions

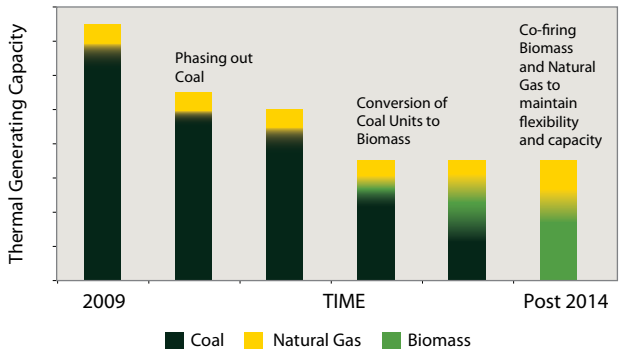
"2009 marked the start of the transition to our post - 2014 future. Looking ahead, the change in our business name, from Fossil to Thermal, makes a clear statement that our business strategy and focus are changing from reliance on coal to other fuels like renewable biomass. If the transition is successful, our role will be to 'enable' the continued expansion of the province's renewable generation portfolio. In the interim, we are committed to operating the required coal units in a safe and environmentally responsible manner through 2014."

Frank Chiarotto
Senior Vice President
Thermal

Repowering Coal Units - A Vision for the Future

OPG's thermal generating units have quick response and flexible operating characteristics that are vital to Ontario's electricity system, which complement intermittent renewable generation (such as wind and solar). In order to retain this capability and the value of these assets, OPG continues to assess the feasibility of repowering some of the coal units with alternative fuels, including wood and agricultural biomass as well as natural gas (Figure 5).

Figure 5: Transitioning the Thermal Fleet



Biomass

Wood and agricultural based biomass are recognized around the world as renewable sources of energy that have significant climate change benefits. Biomass is widely used in a number of European countries. Biomass is a renewable fuel from forest and agricultural sources that can be used to produce energy. OPG's biomass program will not use food crops and requires fuels to be from

"Our biomass initiative has great potential. Once we stop burning coal after 2014, it's an opportunity to re-power some of our coal units and preserve the important contribution they have made to Ontario. We expect our Atikokan Station to be the first coal unit to be re-powered this way. Biomass also represents a whole new industry and infrastructure for Ontario based on a new and innovative fuel source."

Tom Mitchell President and CEO

sustainable sources (all fuel sources must meet the United Nations Framework Convention on Climate Change (UNFCCC) definition of renewable).

Preliminary testing and assessment indicated that OPG's coal units are well suited for conversion to biomass. However a great deal of work remains before we know with certainty that biomass is a practical alternative to coal. This includes more research on fuel characterization; more analysis on supply chain options; examining opportunities for the forestry and agricultural sectors; and addressing any potential environmental issues.

Biomass Research and Development

In order to assess the economic, safety, operational and sustainability aspects of conversion to alternate fuels, OPG is undertaking a number of studies:

- The Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) and OPG are leading a project assessing the economic viability and environmental sustainability of developing a commercial biomass industry in Ontario.
- Research into developing advanced biomass fuels is being sponsored by OPG and a number of Canadian universities.
- Detailed engineering studies at Atikokan and engineering concept studies at other sites are underway.

Environmental Attributes

Biomass is recognized around the world and by the UNFCCC as a source of renewable energy.

Biomass also has climate change benefits – the amount of greenhouse gases emitted by the fuel when it is burned is equal to the amount absorbed by the plant when it was growing. A recently published study, conducted by the University of Toronto, found that sustainably harvested forest biomass provides significant greenhouse gas benefits (relative to coal), even after emissions associated with planting, harvesting, processing and transportation are considered. Similar studies are being undertaken to assess agricultural biomass.

OPG is also supporting a four-year research program led by the Ontario Ministry of Natural Resources and Natural Resources Canada's Canadian Wood Fibre Centre (CWFC) to:

- Examine the impacts of different harvesting practices on forest and soil carbon and nutrient fluxes; and
- Enhance the ability to measure carbon stocks in Ontario's forests.

BIOMASS PROVIDES EXCITING OPPORTUNITIES TO:

retain the value of our coal assets, contribute to increasing Ontario's overall renewable energy supply mix, and support the development of a revitalized forestry and new agricultural biomass industries. However there are challenges that lie ahead and we must proceed in a manner that ensures the continued safe and reliable operation of converted units and that we fully understand the environmental benefits, the operating and capital costs.

Radiological Emissions to Air

The operation and maintenance of OPG's nuclear reactors releases very low levels of radioactivity. The design of the nuclear plants minimizes these releases through, for example, multiple passive barriers including a one kilometre exclusion zone separating the public from the reactor building. Air dryers are used to remove tritium from the air, and filters capture particulate matter and iodine. Operating procedures also protect the health of employees and the public.

OPG uses a Canadian Standards Association standard as the basis for its "Critical Group Dose" methodology to measure radiation exposure to members of the public who live in close proximity to nuclear plants. OPG's radiation dose calculations consider the public's actual eating, drinking and living habits, as obtained from survey data, and focus on three distinct age groups: infant, child, and adult. Critical Group Dose is expressed in microsieverts (µSv), an international unit of radiation dose measurement.

In 2009, the Critical Group Dose levels calculated for Pickering Nuclear and Darlington Nuclear were 1.8 and 0.7 µSv, respectively. These doses are significantly less than the legal limit of 1,000 µSv per year set by the Federal Government. By comparison, members of the public around the OPG nuclear stations receive an average dose of about 1,300 µSv per year from naturally occurring radiation sources such as cosmic rays and radon in soil.

Challenges - Pickering Tritium Emissions

Pickering relies on dryers to remove tritium vapour from exhaust air. Dryer reliability has been lower than anticipated, and parts availability have delayed repairs. To address this issue, improved planning and troubleshooting have increased drier reliability. Equipment has been scheduled for upgrades and/or repair. Changing moderator water to reduce tritium levels is planned into all future long duration outages. These actions along with timely response to emerging issues and strong management oversight have resulted in achieving year end tritium emission targets for 2009. In 2010, a combination of improved dryer performance, leak management and reduction of tritium concentration will help meet the lower target.

Water

Adaptation to Climate Change

It is recognized that climate change may have far reaching affects on the hydrology of the watersheds in Ontario. Energy production is very sensitive to the amount, timing, and geographical pattern of precipitation (supply side), as well as temperature (demand side). Changes in river flows and reservoir levels will have a direct impact on the amount of hydroelectric generation that can be produced. The challenge for OPG will be to gain some level of understanding on long term climatic trends in order to understand the potential impacts to our operations, and to assess potential new development.

In 2009, OPG became an affiliated member of the Ouranos Consortium. This group, founded in 2002, was created as a joint initiative of the Government of Quebec, Hydro Quebec, and the Meteorological Service Canada. It pools the expertise and disciplines of numerous researchers to advance the understanding of climate change, and now also includes a number of universities, Manitoba Hydro and OPG.

As a first step in our work with Ouranos, it is important to summarize the climatic data that has already been generated by Ouranos for the Province of Ontario, using second and third order watershed boundaries. Our initial focus is on the Moose River and Nipigon River watersheds.

Decew Zebra Mussel Control Program

In 2009, the Niagara Plant Group, in partnership with a biotechnology company initiated the first Canadian trials of an environmentally friendly replacement to sodium hypochlorite for treating invasive zebra and quagga mussels. The trials use a dead form of native soil bacteria which is toxic to mussels, but has no impact on non-target species. Further trials are scheduled for 2010. Success could result in significant reduction in the use of sodium hypochlorite.

▼ Bahadur Todai from Niagara Plant Group along with MOE and Niagara Peninsula Conservation Authority officials inspecting service water piping bioassay.

Lake Gibson

The MOE has confirmed that OPG's assessment of Lake Gibson Human Health and ecological risks addressed all outstanding issues. Residual risk mitigation measures will be discussed with the Niagara Region Public Health and MOE in 2010.

Nanticoke Ash Lagoon

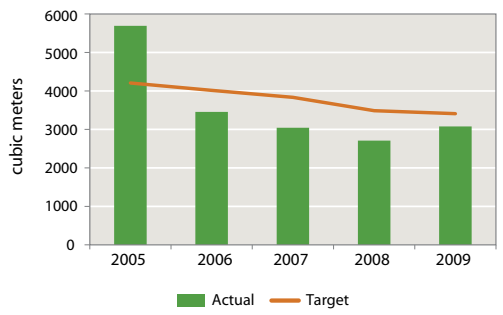
The cause of Nanticoke GS's ash lagoon toxicity was determined to be metal toxicity. A full scale test program to control pH and alter the state of metals, was successfully completed in September. Construction of a pH control system is scheduled by September 2010.

Land

Low and Intermediate Level Radioactive Waste

Nuclear operations produce Low and Intermediate Level Radioactive Waste (LILRW), which may include gloves, coveralls, booties, wipes and tools that have been radioactively contaminated. In 2009, 3078 m^3 LILRW was produced which bettered the target of 3408 by 10%. (Figure 6)

Figure 6: Low and Intermediate Radioactive Waste Produced



OPG's objective is to reduce the effect of Radioactive Waste on the environment to the lowest achievable levels that are consistent with the social and economic drivers. By reducing the volume of LILRW produced, the environmental impact is decreased and costs of transportation, storage and disposal are reduced.

As can be seen graphically, performance targets have been set progressively lower to drive improved performance. With the exception of 2005, performance has bettered the targets. Contributing to the slightly higher production level in 2009, was the preparation and execution of major unit and vacuum building maintenance outages. The target for 2010 has been reduced from 3408 m^3 to 3106 m^3.

The performance reflects sustained improvement resulting from actions taken to address external and internal assessments – by the World Association of Nuclear Operators - WANO, Electric Power Research Institute - EPRI, and the Operational Safety and Review Team - OSART – which focused on OPG's LILRW Program. OPG continues to focus on a de-packaging program and re-washable clothing program which will contribute to waste reduction.

Low and Intermediate Level Radioactive Waste Management - Deep Geologic Repository

The proposed deep geologic repository to store low and intermediate level radioactive waste at a depth of 680 meters was developed as part of a Memorandum of Understanding between OPG and the Municipality of Kincardine, to jointly study the feasibility of locating a long term facility on the Bruce site. As part of the environmental assessment process, OPG engaged interested stakeholders and held a series of open houses. Feedback from these sessions will be considered in the environmental impact statement (EIS) submitted to the CNSC joint review panel in 2011. It is anticipated that a public hearing will be scheduled in 2012, leading to a decision whether the EIS is acceptable.

▶ Deep boreholes are drilled on the Bruce site as part of the geo-scientific site characterization program.

Ash and Gypsum Diversion

By-products of coal combustion include fly ash, bottom ash and gypsum. Rather than treating these by-products as "waste", OPG sees them as commercial products and for which the company has developed markets. To illustrate, fly ash is used for the manufacture of cement and concrete, in controlled low strength material or flowable fill applications, and it is also used in engineered landfills. Bottom ash is used as granular fill in road beds and gypsum is used for the

manufacture of wallboard. OPG is also continuing to explore the potential for coal fly ash to be used as filler in paint and plastics, and as a soil conditioner.

In 2009, OPG utilized 74 per cent of its total ash and gypsum production, or 381,100 tonnes out of a total production of 517,371 tonnes. This result reflects a relatively steady rate of utilization of these by-products over the past four years, equal to the highest rate of 74% achieved in 2004. Solid combustion by-products that are not used are sent to a recoverable landfill where they may be subsequently used in the event that commercial markets develop.

PCB Management

New Federal PCB regulations were enacted in September 2008. These regulations mandated phase-out dates and reporting for various classes of PCB equipment. OPG's policy on PCB management, implemented in 1998, voluntarily committed the company to the phase-out and destruction of 81 per cent (relative to 1994 inventories) of in-storage PCB waste and high-level in-service PCBs by 2005, and the remainder by 2015. Successful implementation of this pro-active policy put OPG in a strong position with respect to compliance with the new regulations.

As a result, OPG successfully eliminated all of its remaining in-service high-level PCB equipment prior to the end of 2009, as required by the regulations. In 2009, OPG shipped approximately 78 tonnes of high and low-level PCB waste for destruction. As of December 2009, OPG's inventory of low-level PCB waste and in-service PCB equipment (excluding very low level PCB) was 106 tonnes, as compared to 3,427 tonnes in 1994.

The new regulations created an additional class of PCB equipment, with very low levels of PCB (2-50 ppm) not previously regulated nor included in OPG's inventory. This change has increased OPG's total in-service PCB equipment inventory to approximately 7,800 tonnes (comprising approximately two million litres of oil and approximately six thousand tonnes of equipment carcass). There is no mandated phase-out date for this equipment, but there are controls on its eventual disposal when removed from service.

Land Assessment and Remediation

In 1997, in response to a Director's Order from the Ontario Ministry of the Environment, OPG introduced a program to assess and remediate historical contamination on properties occupied by its generating facilities. The contaminants of concern were fuel oil, transformer oil, waste lubricants and tritium. Sites were assessed and ranked as high, medium and low in reference to the need for remediation. OPG's Site Assessment Plan, filed with the Ministry in 1998 and each year thereafter, identified 50 high priority sites with known or potential contamination. OPG has completed all of the assessments required by the Director's Order, and the Order was closed out by the Ministry of the Environment, in March 2004. Assessment of medium and low priority sites continues under OPG's voluntary site assessment program.

At the end of 2009, 39 sites had been remediated. Remediation was ongoing at eight sites and planned for two additional sites starting in 2011. By the end of 2011, remediation of all medium and low priority sites will be complete.

Other Contaminants

OPG's data reported to the National Pollutant Release Inventory (NPRI) which document emissions to air, water and land for 2008, are presented in Appendix B.

For detailed information on the breakdown of OPG's NPRI data by emissions to air, water and land please visit the NPRI web site at: **www.ec.gc.ca/npri**.

Biodiversity

Biodiversity and Habitat Stewardship

The conservation of biological diversity is an integral part of OPG's sustainable development efforts. Biodiversity, as a term, refers to the variety of life on earth. It includes the diversity of ecosystems, the diversity of species within those ecosystems and the genetic diversity within species. It also includes the ecological and evolutionary processes that keep them functioning and evolving. From an OPG perspective, it refers to the variety of life in the regions where we operate or may impact.

Every business and industry, by their very actions as consumers of resources and emitters of wastes, has effects on biodiversity either directly through habitat loss and fragmentation or indirectly through various pollution pathways to land, water and air. That reality also applies to Ontario Power Generation. The challenge is to reduce the adverse effects of our operations, while enhancing the resiliency of the ecosystems within which we operate. We seek to conserve biodiversity and manage our operations in a sustainable manner.

OPG has a proud history as a company working to protect biodiversity. The goal of OPG's Biodiversity Policy, which has existed since the inception of the company, is to demonstrate that we can co-exist with nature without causing or contributing to the long-term decline of species, or the habitats upon which they depend, on a regional basis. Our policy and our conservation actions demonstrate that industry can and does have a clear role to play in conserving Ontario's biodiversity. It builds on the notion that we should implement the 4 R's:

- retain what is ecologically significant;
- restore habitats which have been degraded;
- replace habitats which have been destroyed, where ecologically and economically feasible; and
- recover the habitats and populations of species at risk.

Our actions support Ontario's Biodiversity Strategy. That strategy recognizes that all levels of government, non-governmental organizations, industry and the public must cooperate in the care of Ontario's rich biological assets. Our work is also consistent with the mission of the Canadian Business and Biodiversity Secretariat, which seeks to engage more business in managing biodiversity as a fundamental part of their on-going operations.

In addition to the moral imperative to exercise stewardship for the natural environment, there is a more fundamental reason; that healthy ecosystems are essential for health and wellbeing. Ecosystems provide us with life sustaining clean air and water, fertile soils and renewable resources. Sustaining biodiversity is also a business imperative, essential to a healthy economy and society. This imperative is captured in Ontario's Biodiversity strategy; "Protecting What Sustains Us".

The effort to conserve biodiversity not only addresses issues of land and water management, but it also includes extensive work to reduce waste streams and to prevent and reduce pollution. We are addressing the root causes for the imperilment of biodiversity within the context of our own operations.

Impacts on biodiversity are recognized as significant therefore are managed and integrated into all of our ISO 14001 Environmental Management Systems. Baseline inventories have been conducted at many of our plants and major land holdings to identify what is ecologically significant and/or sensitive, as the basis for implementing our 4 R's for conserving biodiversity. Accordingly, each of our nuclear and thermal plants and hydro plant groups have developed their own biodiversity plans to help protect and enhance significant habitats and the species they support. To ensure those plans are robust, the majority have been both certified and audited by the U.S. based Wildlife Habitat Council.

Wildlife Habitat Council Recognizes OPG's Commitment to Biodiversity

One of OPG's more notable biodiversity partnerships is with the U.S. Wildlife Habitat Council (WHC). The WHC is a not-for-profit, non-lobbying group of corporations, conservation organizations and individuals dedicated to assisting corporate landowners in the development of programs that protect, conserve and enhance wildlife habitat and biodiversity and foster environmental values. They act as an independent advisor and certifier of programs and work to build the company's image while contributing to wildlife habitat rehabilitation. OPG and its predecessor company Ontario Hydro, has been a member of the Wildlife Habitat Council since 1996. It has proven to be a very good fit with OPG's site biodiversity management programs.

The Wildlife Habitat Council's certification process, helps to keep our site biodiversity programs dynamic and functional within the context of continual improvement. Certification brings pride with staff at the plant, and builds credibility with local communities. Sites that have been certified under WHC's "Corporate Lands for Learning" are specifically designed for community outreach and experiential learning about biodiversity. It's a win for nature, public education and for community outreach.

▲ Since 2000, OPG has planted over 3.9 million trees and shrubs.

OPG currently has 12 sites certified by the Wildlife Habitat Council for exemplary wildlife habitat enhancement programs. Those sites include: Niagara Plant Group; Northeast Plant Group - Plant Group River Systems; Ottawa-St. Lawrence Plant Group - Ottawa and Madawaska Rivers; R.H. Saunders GS; Western Waste Management Site (Nuclear Waste Management Division); Pickering Nuclear; Darlington Nuclear; Atikokan GS; Lennox GS; Nanticoke GS; Lambton GS and Thunder Bay GS. Four of these sites, Darlington Nuclear GS, Pickering Nuclear GS, Nanticoke GS, and the Niagara Plant Group have also achieved WHC certification for Corporate Lands for Learning.

▲ Darlington GS site

▲ Lambton GS site

OPG has an excellent record of achievement and recognition through the Wildlife Habitat Council, culminating in November 2009 with the **William W. Howard 'CEO' Award**. The CEO award recognizes a corporate member which has a history of striving for excellence in biodiversity **C**onservation **E**ducation and **O**utreach. Different than other recognition levels through the WHC, this award honours not a single program, but rather an **entire organization**, for its combined efforts in wildlife habitat protection and conservation, and in providing educational experiences, access to quality education opportunities, and the opportunity to experience personal contact with the natural world to its employees and the surrounding community.

▲ Left photo: Bob Johnson, President - Wildlife Habitat Council presents the CEO award to OPG President, Tom Mitchell,
Right photo: OPG biodiversity program staff were on hand when the award was presented to OPG.

The CEO Award is added to a growing list of international awards that OPG has received from the Wildlife Habitat Council:

Biodiversity Awards Received by OPG	
2008	Darlington Nuclear wins the International Corporate Habitat of the Year Award.
2008	OPG wins Wings over Wetlands Award Jointly offered by Ducks Unlimited Inc. and the Wildlife Habitat Council.
2007	Pickering Nuclear wins Corporate Habitat of the Year Award
2007	Pickering Nuclear wins 20th Anniversary Signatures of Sustainability Award
2007	Darlington Nuclear wins 20th Anniversary Signatures of Sustainability Award
2001	Pickering Nuclear wins Corporate Habitat of the Year Award
1997	Darlington Nuclear wins Rookie of the Year Award

OPG's Carbon Sequestration and Biodiversity Management Program

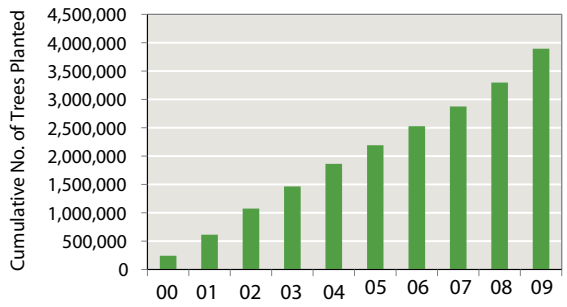
We recognize that our effects on nature do not stop at the boundaries of our plants, nor do our efforts to protect and restore nature. Accordingly, we have invested in significant habitat protection and restoration efforts in the communities where we operate and in strategic locations across southern Ontario, including some of the most biologically imperilled regions in Canada.

OPG's carbon sequestration and biodiversity management program is an example of that effort. This unique tree planting program creatively attempts to address two global issues that also have great relevance to Ontario, namely global biodiversity losses and global climate change. More specifically, this program is linking the need to restore habitat for forest wildlife that are at risk in the highly fragmented landscapes of southern Ontario with the need to both mitigate and adapt to the effects of climate change.

The planting program purposely focuses on restoring forest habitat in the human dominated landscapes of southern Ontario (defined as the region south and east of the Canadian Shield). Habitat losses are most acute in the Carolinian biotic zone of southwestern Ontario, which is considered one of the most ecologically imperiled regions in all of Canada. There are more species at risk in this region than anywhere else in Canada. Protecting and restoring habitat is vital to the recovery of many of these species. It also represents important "insurance" to help prevent even more species from becoming at risk or regionally extirpated.

Since its introduction in the spring of 2000, OPG through its many conservation partners, have planted nearly 4 million native trees and shrubs matched to site conditions, on approximately 1,800 hectares of land (Figure 7). Close to 598,000 native trees and shrubs were planted in 2009 by our various planting partners, which include conservation authorities, stewardship councils and the Long Point World Biosphere Reserve. These plantings have occurred in strategic locations to help "reconnect the fragmented landscape" that characterizes much of southern Ontario. It will also help enhance the resiliency of woodland ecosystems to withstand the effects of climate change, while also naturally sequestering CO_2 over the lifetime of those trees, helping to mitigate global warming. OPG has allocated the same funding in 2010 as in 2009.

Figure 7: OPG Tree Planting 2000 - 2009



Our plantings are targeted to expand key core forested areas and connect woodland patches to help promote the recovery of wildlife that are at risk in the heavily fragmented landscapes

of southern Ontario. Sites are identified using regional scale natural heritage systems such as the Carolinian Canada Coalition's "Big Picture", or a more local refinement thereof. The use of such systems helps us to achieve the greatest ecological and social value for our investment dollar.

Management plans have been developed for each site with explicit objectives linked to regional biodiversity conservation priorities. Sites are routinely monitored, survivorship assessments completed, and where necessary replacement plantings are undertaken to ensure long-term project success.

Developing a system of habitat cores and corridors to increase habitat connectivity will help to conserve biodiversity across southern Ontario. The plantings also provide renewable resources, reduce erosion, enhance soil structure, recycle nutrients and enhance both air and water quality. OPG is part of an expanding effort to help protect and restore the forest ecosystems which once characterized much of the southern Ontario landscape.

Enhancing Toronto's Urban Forest

OPG has continued its work with the Toronto-based organization LEAF (Local Enhancement and Appreciation of Forests), which works with Toronto home owners to help enhance Toronto's urban forest. OPG is supporting their tree planting efforts and educational workshops. Their efforts have been well received by the public and it is helping to "green" the city, while providing many important ecosystem services, including the provision of shade and windbreaks to help reduce energy consumption for cooling and heating our homes. It also helps to improve our air quality by filtering pollutants, while reducing storm water run-off and providing urban wildlife habitat.

OPG Nurture's Nature Program

As part of our expanding efforts to protect and restore ecosystems in Ontario, OPG announced a new initiative – *OPG Biodiversity 2009* . Partnering with Ontario Nature, LEAF and the Bruce Trail Conservancy, *OPG Biodiversity 2009* helped build on our commitment to conserve biodiversity, protect nature and fight climate change. Over a dozen events and activities were held, including a spring bird festival, invasive plant removal, native wildflower planting, and the sale of native trees for fundraising efforts. In 2010, we look forward to continuing expanding OPG's Biodiversity efforts to bring many more opportunities for Ontarians to grow their appreciation for nature.

▼ Community Tree Planting in Alex Robertson Park adjacent to Pickering Nuclear

Eels

The American eel, (*Anguilla rostrata*), population has dramatically declined since the mid-1980s as measured at the R. H. Saunders GS eel ladder. This fish has been classified as a species of 'special concern' by the Federal Committee on the Status of Endangered Species in Canada (COSEIC), and more recently was identified as an 'endangered species' under the Ontario Endangered Species Act. The output of several international workshops resulted in the formulation of an OPG Action Plan aimed at restoring the American eel to Ontario waters. This plan includes annual stocking with healthy glass eels, and monitoring the success of the program. Since 2006, over 3.9 million eels have been stocked into the Upper St. Lawrence River and Lake Ontario. In addition to stocking, large adult eels are caught upstream and downstream of Saunders GS and trucked downstream of the last generating station on the St. Lawrence River in an effort to reduce turbine mortality on these larger fish. In a related measure, a 300 meter extension was constructed to the existing eel ladder at the Saunders GS and was formally commissioned in 2009 by the Minister of Natural Resources, Fisheries and Oceans Canada and OPG. The purpose of this extension was to prevent the young eels that had successfully transited the ladder from being drawn back through the generating station by in the strong station current. Further, a new substrate, installed in the existing eel ladder reduced the time (from 24 hours to about 4) and energy required for an eel to ascend the ladder.

▲ Dignitaries and guests inspect the new eel ladder extension at Saunders GS.

Greening Supply Chain

Environmental responsibility has matured from being simply a regulatory burden, to a business imperative. Supply chains are being recognized as key to improving the bottom line while strengthening environmental performance.

OPG recognizes the multitude of drivers for greening the supply chain, including benefits for both buyer and seller such as cost savings, reduced environmental impacts, and strengthened business relationships.

Lean is Green

OPG's strategy is to consider the entire life cycle of a commodity, requiring the engagement of all stakeholders including suppliers, transport providers and customers along with the traditional supply chain (SC) organizations.

Everyone has the opportunity to contribute. There are many examples of staff's environmental consciousness found in daily activities that contribute to the reduction of our footprint including; specifying the recycled content of paper, and the energy efficiency of Information Technology purchases, requiring reduced packaging, and reusing/recycling through investment recovery.

There are 3 principle aspects to greening the supply chain; the nature of the product, product life cycle management, and supplier practices.

Supply Chain is committed to reducing OPG's environmental footprint. Nuclear Supply Chain has approved the following objectives as part of its goal to continually improve and become best of the best:

1. To improve performance in the area of greening the SC to upper quartile by 2012.
2. To achieve greening initiatives while maintaining the integrity of the commodities, ensuring customer satisfaction and improving the financial bottom line.

Based on benchmarking data, Nuclear Supply Chain's objective of becoming an upper quartile green performer by 2012 is within reach.

"Sustainability is a business imperative and not a fad.

Opportunities to **green** our supply chain are continually being sought."

Rob Boguski
Senior Vice President
Business Services and
Information Technology

Supply Chain staff continually search for new and innovative ways to reduce the impact of products and services used by OPG. Initiatives include product or content substitution, packaging reduction, and all aspects of waste reduction.

To date OPG has invested over $1 million in reusable skids, totes and baskets that are provided to our suppliers significantly reducing packaging impacts. By reducing the volume of packaging at source, savings in raw material, transportation, and de-packaging are achieved. This also contributes to reducing the volume of material that ends up as LILRW.

Marc Shaw and Charlie McDonald discuss merits of suppliers shipping materials in reusable bins to greatly reduce wood, cardboard and plastic materials packaging.

Greening Greater Toronto

An initiative of the **Toronto City Summit Alliance**, Greening Greater Toronto is a unique partnership of individuals, organizations and several of Canada's largest corporations across the Greater Toronto Area (GTA) committed to realizing a collective vision of making the GTA the greenest city region in North America.

OPG is a member of Greening Greater Toronto and chairs the Green Procurement Leadership Council.

Greening Greater Toronto's Green Procurement Leadership Council has a mandate to facilitate green procurement decisions, such that environmental impacts in the areas of waste, energy, carbon and resource used will be reduced.

www.greeninggreatertoronto.ca/about us/

Social Commitment

OPG is committed to building quality relationships with our external stakeholders and employees. Most importantly, we strive to ensure that safety characterizes all aspects of our operations. We also believe that a good company gives back to its host communities, thus we support many charitable and not-for-profit initiatives in the communities where we operate.

▲ Left photo: Pickering's Tuesdays on the Trail event
Right photo: Seymour GS Open House celebrating 100 years

Key Areas of Social Performance

OPG pursues excellence relative to a host of social performance initiatives. Key amongst those initiatives, particularly within the domain of sustainable development, are:

- Code of Business Conduct
- Worker Safety
- Employee Wellness
- Water Safety
- Outreach and Recruitment: Generating a Future of Possibilities
- Diversity and Employment Equity: Part of Our Past, A Key Part of Our Future
- Relationships with First Nations
- Corporate Citizenship Program (CCP)
- Charity Campaign
- Employee Volunteerism

OPG's commitment and performance, within each of these areas of focus, follows.

"OPG's Human Resources and Ombuds office are committed to ensuring that our Code of Conduct is understood and applied, and that our governing policies and programs are effective. Examples of these programs include: Human Rights, Safety and Wellness, Labour Relations, Outreach, Recruitment, and Diversity. The governance applies to all employees. Any questions related to these topics may be directed to my office."

Barb Keenan
Senior Vice President
Human Resources and Chief Ethics Officer

Code of Business Conduct

The Code of Business Conduct (the "Code") defines OPG's culture by establishing the standards, expectations and accountabilities for appropriate business behaviour. It is based on commitment to integrity, excellence and citizenship. Within the Code there are key non-negotiable values:

- respect for each other and our stakeholders,
- respect for the environment, and
- commitment to the safety and health of our employees, contractors and the communities in which we work, live and serve.

Compliance with the Code is expected of everyone and employee accountabilities are outlined in the Code. Each of OPG's Executive Management Team members is accountable for monitoring Code compliance within their business and for submitting an Annual Due Diligence Report to the Chief Ethics Officer. Introduction to the Code of Business Conduct training is a requirement for new employees as part of their orientation.

www.opg.com/about/governance/open/policy

"As a public power company, OPG is accountable to the people of Ontario. At the heart of how we expect our staff to do business is OPG's Code of Business Conduct. The Code establishes three key principles – integrity, excellence and citizenship – that underpin our business activities".

Tom Mitchell

Worker Safety

OPG is committed to achieving excellent safety performance, striving for continuous improvement and the ultimate goal of zero injuries. Safety performance is measured using two primary indicators, the Accident Severity Rate ("ASR") and the All Injury Rate ("AIR").

- OPG's 2009 ASR performance of 1.40 days per 200,000 hours worked was the best in its history with a number of sites reaching major safety milestones with no lost time injuries, demonstrating OPG's progress towards reaching the goal of zero workplace injuries.

- OPG's 2009 AIR was 1.19 injuries per 200,000 hours worked which was not quite as good as the company's 2008 performance of 1.15.

Overall, OPG's safety performance is consistently one of the best among Canadian electrical utilities, being awarded the Canadian Electricity Association's President's Safety Award (Groups I and II) in six out of the last nine years, recognizing top quartile safety performance in ASR and AIR. In 2009, OPG was honoured with a Gold ZeroQuest Award from the Electrical and Utilities Safety Association (E&USA) recognizing four consecutive years of

OPG receives the ZeroQuest Safety award from the Electrical and Utilities Safety Association.

sustaining an effective safety management system and strong safety culture. By sustaining this level of performance for one more year OPG hopes to be the first company to achieve E&USA's highest award – platinum in 2010.

OPG is committed to achieving its goal of zero injuries through further development of its strong safety culture and continuous improvement in its safety management systems and risk mitigation programs. One of the key strategies used to achieve this improvement is through maintenance of risk-based safety management systems at the Corporate and site levels, based on the British Standard Institution's Occupational Health and Safety Assessment Series 18001 ("OHSAS 18001"). These systems serve to identify trends to direct targeted improvement programs. In 2009, performance improvement priorities included:

- **Preventing Musculoskeletal Disorders** (MSD). With over 40 per cent of OPG's injuries involving MSD injuries OPG has developed improvement initiatives to increase employee involvement in making ergonomic changes, employee training and awareness, safety by design, and building MSD hazard identification and control into day-to-day safe work planning. Reducing MSD injuries will continue as a priority into 2010.
- **High Risks**. OPG has increased its focus on preventing incidents involving the key high risk areas of electrical safety, and falling objects by completing an analysis of root causes of near miss incidents to identify opportunities for program improvements going forward.
- **Incident Investigation**. OPG has a rigorous incident management system, which requires that all incidents, including near misses, be reported and investigated, and that corrective action plans are developed to ensure that lessons are learned and reoccurrences are prevented. OPG is undertaking a major initiative to improve incident investigation processes through Team Leader training and qualification, and a report quality control process. In 2010, this work will expand to the development of new investigation methodologies to enable more effective analysis of incidents.
- **Partnerships with our Unions.** OPG and it's unions share a mutual goal for an injury-free workplace. In 2009, OPG completed a revision of its tripartite Work Protection Code to improve its complex group lockout/tagout process.
- **Young Worker Safety.** OPG continues to demonstrate leadership in safety through its commitment to young worker safety in the communities where it operates, participating in initiatives to raise awareness on the importance of workplace safety. As part of this effort, OPG executives annually partner with young worker safety advocate, Rob Ellis, to discuss workplace safety with high school students across Ontario. In 2009, OPG together with the Society of Energy Professionals, co-sponsored the Youth Health and Safety Forum at the Industrial Accident Prevention Association Conference. The forum delivered key safety messages to over 2,000 young attendees.

"Although OPG continues to enjoy excellent safety performance, recent fluctuations in our reactive indicators give reason to pause and consider renewed effort in some key areas. The Strategic Objectives below were developed to more clearly define our continuous improvement objective and to drive OPG's breakthrough to the next level of excellence in safety performance over the next five years.

- Be a leader in safety among similar utilities.
- Achieve continuous improvement in our safety management and risk control programs.
- Achieve continuous improvement in our safety performance with the goal of zero injuries."

Mary Lou Sinclair
Director
Corporate Safety

- **Contractor Safety**. OPG is also a leader in contractor safety performance with a best-in-class contractor management program where contractors are expected to contribute positively to OPG's strong safety culture. Every year, since 2005, OPG's Construction Contractor All Injury Rate (AIR) has compared favourably against the Ontario construction industry as measured by the Construction Safety Association of Ontario. In 2009, the construction contractor's AIR of 1.77 was 43% better than 2008 and was 68% better than that of the Ontario construction industry's AIR as measured by the Construction Safety Association of Ontario.

www.opg.com/safety (Corporate Safety, Emergency Preparedness, Nuclear Safety, Water Safety)

Employee Wellness

OPG helps to ensure that employee wellness is supported through several initiatives and programs, such as:

- on-site fitness/work-out facilities at many locations help employees to maintain physical and mental well-being,
- family assistance programs provide a range of counselling and referral services to those in need,
- disability management is addressed through early intervention and ongoing support during periods of illness,
- on-site flu shot clinics, blood pressure and cholesterol screening, health fairs, and a variety of related programs, address employee illness prevention and health awareness. This program was expanded in 2009 to safeguard staff against the Influenza Pandemic (H1N1),
- physicians and nurses are available across many sites, and
- employees have access to various information services, including a mental health video library, mental health workshops, stress sensitivity seminars and a mental health website, in keeping with OPG's ongoing focus on mental health well-being and reducing negative stereotypes associate with mental health challenges.

Water Safety - Stay Clear, Stay Safe

OPG's owns and safely operates more than 240 dams and 65 hydroelectric generating stations on 24 river systems throughout the Province of Ontario. To help ensure public safety around OPG hydro sites, OPG staff work closely with partners in site communities. Safety messages are broadly communicated to the public on television and radio, and in newspapers and magazine advertisements, as well as brochures and DVDs. For many years, OPG's has had a public water safety outreach program and each year makes improvements to the program. In 2008 OPG, in partnership with the Ontario Provincial Police, developed a public safety announcement (PSA) that ran on television in 2008 and 2009, reaching a broad audience across Ontario.

OPG tests the effectiveness of its outreach campaign to ensure the public understands the need to remain a safe distance from hydro facilities. Through these tests, we have learned that a large majority of people are aware of the dangers and support OPG's initiatives in this important area of safety.

In 2008, OPG worked with the Centre for Addiction and Mental Health (CAMH) to determine why some individuals continue to use hydro sites for recreation, despite warning signs, fencing, water booms and other barriers. The CAMH work showed that these individuals are aware of the dangers near dams but don't think they will be affected. As a result, these individuals are more likely to respond to a warning that they could face charges and fines if caught trespassing on OPG facilities.

In 2009, OPG modified its water safety messages to add a warning that people trespassing on OPG property could be charged and subject to a fine. In partnership with the Ontario Provincial Police, a new television PSA was developed to include this message.

To strengthen our messaging in site communities and in large urban centres, OPG has continued to develop partnerships with other agencies and groups involved in public water safety including the Ontario Waterpower Association, Ontario Federation of Anglers and Hunters, Ontario Federation of Snowmobilers, Ontario Marine Operators Association, Transport Canada and Ontario Parks.

Outreach and Recruitment: Generating a Future of Possibilities

By 2012, approximately 30 percent of our workforce could retire. For some time now, OPG has realized the challenges presented by the demographics of an aging workforce, coupled with the reality of stiff competition for quality employees. In collaboration with others in the electricity sector, in education, in government, and in our unions, OPG is identifying workforce demand and supply issues and developing strategies to address potential shortfalls.

For a third year in a row, OPG was recognized as a Top 100 Employer in Canada. OPG is extremely proud of this accomplishment and has leveraged this as an attraction tool for new recruits.

In 2009, OPG continued to expand its outreach and recruitment activities to universities and colleges across the province, and in Eastern Canada. We also ramped up our efforts to bring our message about future opportunities to younger students and disadvantaged students; our aim is to encourage young people to succeed in science and math programs that are a prerequisite to many careers at OPG. In this vein, OPG representatives regularly deliver information and advice through school and community programs,

putting a face to our Learning Zone website (**www.opg.com** /education) and to new curriculum materials on electricity and how it's generated (Grades 5 to 8 and 9-12). Our strategic priority has been to drive candidates to our career's website which was re-vamped to broadcast our newly created "Generate a Future of Possibilities" employment brand. Other features include information on our diversity program and information on why current employees feel OPG is a great place to work. In addition, the website is in full compliance with the Ontarians with Disabilities Act.

www.opg.com/community/education

Diversity and Employment Equity: Part of Our Past, A Key Part of Our Future

OPG's newly revised policy on Diversity and Human Rights underscores the importance of diversity, equity and inclusiveness at OPG. The Policy re-emphasizes our commitment to have a workforce representative of the communities in which we operate and aligns with our obligations under the federal *Employment Equity Act*. Moreover, the Policy provides overall direction in terms of ensuring we – as a company, and as individuals within our businesses – conduct ourselves in ways that are inclusive and respectful, creating work environments that are based on principles of dignity, equity and respect.

A recent study by the Electricity Sector Council has pointed to the under-utilization of internationally trained workers, women and Aboriginal people by the utility industry. In addition, people with disabilities are under-represented and under-employed across the board, in a wide range of sectors. Tapping into this resource base is an integral part of the strategy being pursued by OPG's Talent Management team. OPG recognizes the value of a diverse talent pool and is committed to broadening and deepening its current outreach efforts to help attract and retain a diverse employee base.

Every year, OPG participates in a wide range of community and recruitment events that target diverse groups. In 2009, OPG sponsored the Annual Canadian Aboriginal Festival. Other events have taken place throughout the province, and involve OPG representatives from local plants, working in collaboration with schools, settlement agencies or other community organizations. The company has also been supportive of employees taking on grassroots outreach activities to promote trades, engineering and careers in science and technology.

OPG's support and outreach related to diversity goes beyond participation in these types of events. We have also participated in studies, committees and roundtables trying to identify and address barriers to employment for designated groups in education and in the broader workforce. Within OPG, we keep track of and report on Employment Equity statistics on hiring and promotion of designated groups, identifying barriers and developing strategies and programs to address issues related to any under-representation.

In recognition of the vital role that female employees play in our long-term success, OPG wants to be an employer with a reputation for attracting women and fostering their development. OPG's "Empowered Women" program, with support of senior management, is designed to create an inclusive environment that maximizes both individual and organizational potential.

OPG was notified in December of 2009 that the audit report completed by the Canadian Human Rights Commission was approved by the Commission. The audit report indicated that OPG has taken actions to fulfill its obligations under the Employment Equity Act. These obligations included collecting workforce information, conducting a workforce analysis, conducting a review of its employment systems, policies and practices, preparing an employment equity plan, implementing and monitoring its employment equity plan, reviewing and revising its employment equity plan, providing information to OPG's workforce about employment equity, consulting and collaborating with OPG's representatives and keeping employment equity records. The Commission noted that OPG must continue to monitor its Employment Equity plan and assess progress as long as areas of under-representation exist in any occupational groups. In particular, the Commission noted that persons with disabilities and visible minorities remain significantly under-represented. This will be a focus in 2010.

Relationships with First Nations

Building strong and positive relationships with Ontario's First Nation communities is a critical aspect of OPG's hydroelectric development agenda. In 2009, OPG made good progress in advancing these relationships.

- The new Lac Seul/Obishikokaang Waasiganikewigamig Generating Station in Ear Falls was declared in-service in February 2009. Through a partnership agreement between OPG and the Lac Seul First Nations they have a 25 per cent equity share in the plant.

▲ Aboriginal Day event

- Final Settlement agreements were made with Red Rock and Whitesand First Nation to address past issues related to OPG facilities in and around the Lake Nipigon area. OPG Chair Jake Epp made formal apologies on May 26th, 2009 at Red Rock Indian Band and on June 13th, 2009 at Whitesand First Nation. OPG is pleased to have reached these settlements, which will help to support positive future commercial relationships.
- On May 14th, 2009, Moose Cree First Nation members voted in favour of ratifying the Amisk-oo-Skow Comprehensive Agreement. The agreement recognizes past impacts of OPG facilities and provides the basis for a new relationship between Moose Cree First Nation and OPG. The agreement is an important step in a proposed partnership between Moose Cree First Nation and OPG to redevelop four generating stations along the Lower Mattagami River between Kapuskasing and James Bay.
- OPG and the Chiefs of the Lake Nipigon First Nations have signed a Protocol Agreement related to the proposed Little Jackfish Hydro Development Project. This agreement commits OPG and the Lake Nipigon First Nations to work cooperatively over the next few years to define and assess the environmental, social, cultural, economic and long-term sustainability of the proposed development, prior to either party making any decisions about formally proceeding with the project.

On November 19th, 2009, OPG's Aboriginal Policy was updated and signed by our Board of Directors. It outlines OPG's commitment to building long term mutually beneficial working relationships with aboriginal communities near to its operations. OPG is committed to developing these relationships on a foundation of respect for the languages, customs, and political, social and cultural institutions of aboriginal communities. OPG acknowledges the aboriginal and treaty rights of aboriginal communities and is committed to continuing efforts to reach mutually satisfactory resolution of grievances with respect to past hydroelectric development. Where appropriate, OPG will pursue prospective hydroelectric developments with aboriginal communities that can provide the basis for long term mutually beneficial commercial arrangements.

The John Wesley Beaver Aboriginal Student Awards are presented annually to deserving Native female and male students enrolled in post-secondary study. The awards are equivalent to one year's tuition. National Aboriginal Day celebrations were held at several OPG sites in June, hosted by OPG's Native Circle, and supported by Corporate Diversity and Aboriginal Relations. The Native Circle helps build relationships between OPG and its Aboriginal employees, and with First Nation communities and the Metis.

www.opg.com/community aboriginal relations

▼ Jake Epp issues formal apology to Whitesand First Nation. L to R: Tom Mitchell, Chief Gustafson and Jake Epp.

"OPG's commitment to the community is evidenced by the safe and responsible operation of our hydro facilities. It is also reflected through the volunteerism and involvement of our employees in their communities and by the support we provide to local not-for-profit organizations such as charities, youth sports, education and environmental initiatives. At OPG we believe that being a good corporate citizen means giving back to the communities that host our facilities. This principle is one of the cornerstones of our business.

OPG's relationship with communities and stakeholders is based on trust, cooperation and mutual respect. As a proud and engaged community member, OPG values this relationship and is committed to preserving and enhancing it."

John Murphy
Executive Vice President
Hydro

Citizenship

As a primary employer in many Ontario communities, OPG takes seriously its responsibility to be a good corporate citizen and neighbour. We believe that good corporate citizenship is directly based on operating our electricity generating facilities in a safe, environmentally sound, productive, and reliable manner. We also believe that a good company gives back to the communities in which it operates, clearly making a difference in the quality of life in those communities. OPG through its Corporate Citizenship Program (CCP) helps make a difference by supporting a variety of charitable and non-profit initiatives in the communities where we operate. Our CCP provides both donation and sponsorship support to initiatives where OPG and our host communities have special interest. This includes initiatives that are innovative and are consistent with the company's commitment to be an engaged and productive member of the community. Ultimately this means minimizing our impact on the environment and ensuring that our contribution to the broader community is consistently positive.

Consistent with this commitment, OPG's CCP focuses on small grass roots contributions in the primary focus areas of environment, education and community (health and safety, arts and cultural, humanitarian, and youth amateur sports initiatives). In 2009, OPG's CCP provided support to more than 1,100 registered charitable and non-profit initiatives including scholarships and student awards.

▼ Tuesdays on the Trail at Darlington GS. Families participate in "Bug World CSI".

Some examples of OPG's citizenship efforts in the community include:

ENVIRONMENT **OPG supports a healthier environment for future generations by providing support to innovative environmental initiatives and partnerships that look at solutions - ones that focus on wildlife and habitat restoration, naturalization, biodiversity, recycling and environmental education. OPG sites support a variety of environmental education programs.**

OPG has had on-going partnerships with several environmental education organizations such as; Kids for Turtles Environmental Education, Environmental Earth Angels, and The Canadian Peregrine Foundation. These organizations help educate young people about the environment, and the importance of conservation and environmental stewardship.

Canadian Peregrine Foundation Educator Tracy Simpson, with Falon the Peregrine Falcon, made a lasting impression on attendees at OPG's Seymour Generating Station Centennial which included L to R OPG's President and CEO, Tom Mitchell and OPG's EVP Hydro, John Murphy.

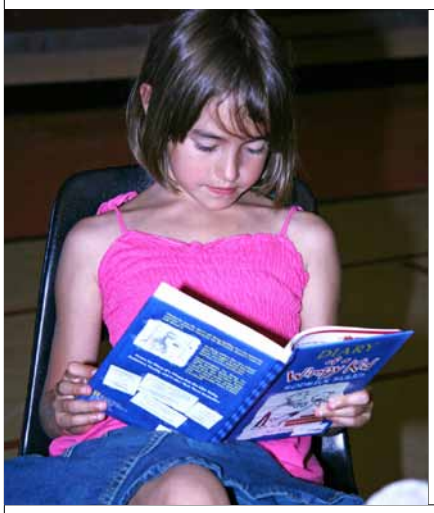
Since 1999, OPG has proudly supported the St. Lawrence River Institute for Environmental Sciences (SLRIES) innovative research, and education programs to help protect our precious water systems. SLRIES with support from OPG also offers a variety of youth environmental education programs including; The SLRIES Eco-Kids Summer Camp Program, and the Annual Eastern Ontario Children's Water Festival which is one of several Water Festivals that help teach thousands of Grade 4 students about the importance of water in our daily lives and water conservation.

Linda Halliday of OPG's Ottawa St. Lawrence Plant Group supports enthusiastic campers from The St. Lawrence River Institute of Environmental Science's Eco-Kids 2009 Summer Camp at Cooper Marsh.

EDUCATION OPG helps future generations through support of youth educational initiatives at the primary, secondary and post-secondary levels. Specifically, we focus on projects that promote science, engineering, technology, business and the environment through educational programming, scholarships and awards, support of science fairs, engineering camps and competitions, as well as mentoring programs.

Thanks to support from Ontario Power Generation, forty students from northwestern Ontario had the opportunity to attend the recent "Kisaageetin: A Cabaret" that showcased Tomson Highway's unique talents. This renowned Canadian playwright, musician and author is one of the country's foremost aboriginal voices. OPG was a sponsor of the event that was in support of Literacy Thunder Bay and educational Aboriginal programs in northwestern Ontario. The performances were held at Confederation College and Lakehead University.

◀ Canadian Playwright, Musician and Author Tomson Highway takes time out from his recent "Kisaageetin: A Cabaret" in support of Literacy Thunder Bay and sponsored by OPG, to pose with students from Confederation College.



In 2009, OPG staff once again were given warm welcomes from the First Nation communities of Moose Cree (Northeastern Ontario) and Wabaseemoong (Northwestern Ontario) during the OPG "Reading is Cool" events held this past summer. The events are an extension of OPG's support of the Lieutenant Governor of Ontario's Aboriginal Youth Summer Reading Camp Program operated by Frontier College. The program helps build the English literacy skills of Aboriginal youth living in remote First Nation communities. During the "Reading is Cool" event, the children received books and a special donation from OPG of a colour printer for their school computer lab. The donation recognizes the importance of both reading, computer learning and the creative arts.

◀ A student reads Jeff Kinney's Diary of a Wimpy Kid during the 2009 OPG Reading is Cool event held in cooperation with the Moose Cree Education Authority.

With assistance from OPG, hundreds of students and teachers in Grade 3 classes in Durham Region benefit from the curriculum-based "Farm Connections" Agri-Food Education Program. This program allows students to be a "Farmer for the Day" and enhances their knowledge and understanding of agriculture, the agricultural heritage of Durham Region and how Durham farmers help to put food on the dinner table.

◀ Students from Durham Region have some fun and learn about the importance of agriculture in our daily lives through the FARM CONNECTIONS Program.

In 2009, the Electricity Sector Council in partnership with the Thunder Bay Aboriginal Head Start Program, with support from Ontario Power Generation and other sector members, piloted the week-long Bright Futures Youth Camp designed to bring attention to the opportunities for Aboriginal Youth in the electricity and renewable energy sectors and the importance of taking math and sciences in school. Through workshops and demonstrations, camp instructors, together with representatives from sponsoring organizations such as OPG, helped the campers develop a better understanding of the role electricity plays in day to day life, where it comes from, how it is generated, how it gets to where it is needed and how it is used.

◀ Tara-Leigh Harty of OPG's Northwest Plant Group demonstrates to Bright Futures Youth Camp participants how hydro generating stations operate and some of the dangers that could exist in and around the stations where fast moving and fluctuating waters may occur.

COMMUNITY INITIATIVES **OPG contributes to the quality of life in the communities in which we operate. In addition to local environmental and educational initiatives, we support health and safety organizations, arts and cultural initiatives, humanitarian organizations (food banks, shelters) and local youth amateur sports initiatives.**

In 2009, OPG had over 250 youth amateur sports teams / initiatives under sponsorship representing thousands of youth in our host communities that are playing on OPG sponsored teams and in OPG sponsored tournaments, and competitions for hockey, baseball, lacrosse, basketball, soccer, ringette, ball hockey, as well as figure skating, gymnastics and swimming.

◀ Participants take a breather during the action at The Thunder Bay Women's Hockey Association 16th Annual November Chill Tournament.

For over 70 years, Kingston's Fort Henry has provided world class military and historical interpretation to the tens of thousands of people who annually visit this historic site. In 2009, OPG was proud to be one of the Presenting Sponsors of the famous World Heritage Sunset Ceremonies. Fort Henry's annual Summer Sunset Ceremonies have earned critical acclaim.

◀ Members of the Fort Henry Guard and their mascot David IX, were on hand to officially welcome John Hefford, OPG's Lennox Plant Manager and to accept OPG's support of the 2009 World Heritage Sunset Ceremonies. Kingston This Week photo: Rob Moy.

HELPING OTHERS OPG'S employees and pensioners lend time and expertise to a wide variety of programs.

OPG's expertise contributed to the design and engineering of a small hydro electric plant to be built in the isolated region of Wiwili Nicaragua to supply power to northwest region of the country. The assistance is part of OPG's involvement in e8. The e8 is a non-profit international organization whose mission is to promote sustainable energy development through renewable electricity sector projects and human capacity building such as training and scholarships. **www.e8.org**

◀ Iskander Boulos (Hydro) represented OPG on the Nicaragua e8 project.

Saunders GS staff hosted an international team from Rusumo Falls (Africa) who were researching the operations, management organization and responsibility sharing of international hydroelectric facilities. Rusumo Falls is a 60 MW international project on the Kagera River which borders Rwanda and Tanzania.

Chantelle Stefan accepts a "Passport to Prosperity Merit Award" in recognition of Nanticoke's consistent provision of outstanding learning opportunities for secondary school students. Susan McFarlane, Guidance Counselor at Hagersville Secondary School, said that "Nanticoke GS is an outstanding example of an employer champion."

"OPG's support over the past several years has played a vital role in the success of our agency [Big Brothers and Sisters of Clarington] on many levels. The ongoing support has led to many new opportunities and experiences for children. We are blessed to have this wonderful partnership." BBSC Executive Director Darlene Brown.

◀ Jennifer Knox, from Darlington Nuclear, receives plaque from Mayor Jim Abernathy.

Stakeholder Relations

Ontario Power Generation is committed to being an open, accountable, and responsible presence in the communities where it operates. It has fostered strong partnerships with its host communities – a direct result of the regular communication it has with community leaders, Aboriginal communities and residents about its operations.

Participating as an active member on Boards of Trades, Chambers of Commerce, hospital boards and community-based organizations such as the Durham Strategic Energy Alliance and the Sarnia Lambton Environmental Association enables OPG to engage in community initiatives. Across the province, OPG uses a variety of approaches to communicate with its communities including, face-to-face contact, open houses, public meetings, newsletters, and the media.

In many cases, OPG goes beyond traditional communications and works with communities to collect stakeholder views and resolve issues.

Working with Stakeholders at Operating Facilities

Responsible, effective and efficient use of water requires co-operation, co-ordination, and consultation among Ontario Power Generation, other utilities, many different levels of government, and with local communities and interest groups. Water levels and flows on international and interprovincial waterways - such as the Niagara River system, the St. Lawrence and Ottawa Rivers, and the English and Winnipeg River systems - are regulated by international treaty, or federal, provincial and inter-utility licenses, agreements and legislation. OPG is an active participant when authorities overseeing these waterways hold annual public meetings to provide information and identify issues.

Most Ontario watersheds where OPG has hydro facilities are subject to Water Management Plans. Development of these plans is led by Ontario's Ministry of Natural Resources with active participation of OPG, Aboriginal communities, conservation authorities, environmental groups, cottage associations and recreational users. Advisory committees meet regularly, annual public meetings are held and working groups are established to address specific issues. Current information on water systems and flows is provided on OPG's corporate website.

At a local level, Plant and Plant Group staff have formed active community liaison and advisory committees to exchange ideas with a cross section of community representatives on a regular basis, examples include; the Nanticoke Community Liaison Panel, Pickering Community Advisory Council and Darlington Site Planning Committee. Staff from OPG's Nuclear Waste Management meet regularly with the Kincardine Liaison Committee and Area Impact Advisory Committee.

Consulting on New Developments

When undertaking a new build or refurbishment project like the Upper Mattagami Redevelopment, OPG initiates an extensive consultation process which provides stakeholders with a forum in which to learn more about the project status. Proposed development of a Deep Geologic Repository for low and intermediate level nuclear waste is also supported by community and stakeholder consultation. Similarly, as part of its biomass energy project, OPG consults with a number of stakeholders and industry experts. In 2009, OPG representatives participated in over 100 briefings, presentations and conferences to further discuss this fuel conversion opportunity.

▲ Clarington Ward 2 Councillor Ron Hooper (left) and Dave Hunter, Director Work Management (Darlington) discuss the environmental highlights of the new build project at Darlington.

The Darlington New Nuclear Project Environmental Assessment (EA) is an example of OPG striving to ensure that the views and perspectives of the community, residents and the public were considered in the EA through multiple activities including:

- Nine direct mailings to over 95,000 households and businesses in Clarington and Oshawa;
- Over 6,500 residents engaged through DNNP EA participation in 37 community events (fairs, trade shows, etc);
- Over 1,800 visitors to OPG's New Build EA community resource centre (Kiosk) at the Bowmanville Mall;
- 38 Community Information Sessions in the Regional Study Area with over 1,000 participants;
- Over 100 stakeholder interviews with community organizations in Durham Region;
- Special initiatives for Darlington Nuclear site neighbours including:
  - Site neighbour interviews/surveys;
  - Kitchen Table Meetings with 18 site neighbours;
- Surveys with recreational users, particularly Darlington Site recreational users and Darlington Provincial Park users;
- Ongoing work through Darlington Planning and Infrastructure Information Sharing Committee re: planned projects in Clarington; and
- Regular updates (letters and briefings) to 13 Regional and Municipal Councils, existing community committees (Durham Nuclear Health Committee, Darlington Site Planning Committee, Pickering Community Advisory Committee), and other stakeholder groups.

Economic Contribution

OPG's presence has a measurable positive economic impact on the government and on our host communities.

▲ Left photo: Abitibi Canyon
Right photo: Lac Seul GS opening ceremony

Key Areas of Economic Performance

OPG strives to bring value to Ontario, the communities in which we operate, and to its employees, through a variety of responsible "best business" practices. Accordingly, key areas of focus for OPG, particularly in reference to sustainable development, include:

- OPG's Financial Strength Benefits Ontario
- New Hydro Projects will Provide More Clean Energy
- New Nuclear and Refurbishment will Ensure Reliable and Virtually Emissions-free Electricity
- New Thermal: As Coal is Phased Out, New Energy Sources Emerge
- Well Maintained Assets Enhance Reliability
- Employee Compensation and Provincial Payments
- Purchase of Goods and Services

www.opg.com/investor (financial reports, news releases, contact and information request)

> Our strong commercial focus does not contradict our public power status. We would never compromise our commitment to safety or to the environment simply to save money or earn a greater profit.
>
> **Tom Mitchell** - President and CEO

OPG's commitment and performance, within each of these areas of focus, follows.

OPG's Financial Strength Benefits Ontario

OPG's 2009 net income was $623 million, compared to its 2008 net income of $88 million. The primary contributor to this increase was higher earnings in OPG's nuclear funds due to improved performance of the global financial markets. Recognition of a regulatory asset related to tax losses also served to increase net income. These factors were partially offset by lower generation and electricity prices, and increased fuel expenses.

Reflecting the overall efficiency of OPG's operations in 2009, OPG's income before interest and income taxes from its electricity generating segments was $827 million compared to over $1 billion in 2008. The reduction in income was primarily due to a decrease in average sales price in the unregulated generation segments due to lower Ontario spot electricity market prices, lower thermal generation, and higher coal prices and costs related to contract adjustments to coal supply contracts.

Rate Structure: In January 2009, OPG filed a motion with the OEB to review and vary a portion of the Ontario Electricity Board's (OEB) decision establishing current regulatory prices as it pertains to the treatment of tax losses and their use for mitigation of regulated prices. The OEB granted OPG's motion in May, and required the establishment of a variance account to record the difference between the amount of mitigation included in the approved payment amounts and the revenue requirement reduction available from tax loss carried forward. The establishment of this variance account resulted in an increase in regulated assets and corresponding increase in revenue in 2009.

Rate: The current prices which OPG receives for power from its nuclear stations and baseload hydroelectric operations are set by the OEB. OPG did not seek a rate increase in 2009 and has deferred its rate application to the OEB by one year. Given the economic downturn, OPG opted instead to pursue cost reductions and achieved savings of $85 million. We must go to the OEB in 2010 to address major developments since our last hearing, such as the announcement to proceed with the planning phase for the Darlington refurbishment and the continued operation of Pickering B. Also, there are outstanding matters pertaining to deferral accounts from the prior hearing.

▼ Lower Sturgeon construction

▲ Niagara Tunnel reaches halfway milestone

▲ Sandy Falls - Hydroelectric redevelopment

New Hydroelectric Projects will Provide More Clean Energy

OPG continued to make progress on its mandate to expand Ontario's hydropower supply. OPG's newest generating facility Lac Seul/Obishikokaang Waasiganikewigamig Generating Station in Ear Falls was declared in-service in February 2009. The Niagara Tunnel ended the year slightly over half (54%) of the way through its 10.4-kilometre journey under the City of Niagara Falls. Progress has been difficult due to unstable rock conditions, which will delay the scheduled completion date and increase project costs. When finished (year end 2013), the Tunnel will provide Ontario with 1.6 TWh of additional clean energy per year for more than 90 years.

Construction of the Upper Mattagami and Hound Chute development projects continued during 2009. The capacity of the four stations that are being replaced will increase from 23MW to 44 MW.

OPG is planning for several other new hydro projects in northern Ontario. Project development for the planned Lower Mattagami, which will increase the capacity of the four stations from 483 MW to 933 MW, continued.

New Nuclear and Refurbishment will Ensure Reliable and Virtually Emissions-free Electricity

New Nuclear at Darlington: OPG's reputation as a capable nuclear operator was confirmed in June 2008, when the Ontario Government chose OPG to operate two new nuclear units at its Darlington Nuclear site. On June 29, 2009 the Ontario Government suspended the competitive request for proposal process to procure two new nuclear reactors for the Darlington site. However, OPG was instructed to continue with work that supports the construction and operation of a new nuclear station. The Environmental Assessment and site license work is continuing. On November 16th 2009, the Joint Review Panel announced a six month public review period of OPG's September 30th 2009 submission to the Canadian Environmental Assessment Agency and the Canadian Nuclear Safety Commission.

Darlington Nuclear Refurbishment: Initial studies on the plant's condition and continued strong performance supported the business decision to move forward with a mid-life refurbishment of the Darlington Nuclear Station. Refurbishment construction activities are projected to commence around 2016.

Refurbishing Darlington Nuclear will enable the 3,500 MW station to continue to meet Ontario's electricity needs for decades to come.

Pickering B Nuclear Refurbishment: Refurbishment of Pickering B will not be pursued. OPG will invest approximately $300 million to continue the safe and reliable performance of the plant for about the next ten years, after which the decommissioning process will commence.

New Thermal: As Coal is Phased Out, New Energy Sources Emerge

OPG has been directed by the Ontario Government to stop burning coal at its fossil-fuelled stations by the end of 2014. To help ensure Ontario continues to have a flexible, reliable source of energy to meet its needs, OPG is developing and exploring new opportunities in natural-gas generation and renewable, biomass fuel.

Looking to the future, Ontario Power Generation's biomass initiatives have great potential. Biomass burning has been successfully demonstrated at all OPG coal plants. Despite encouraging results to date, a great deal of work remains before we know that biomass is a practical and economic alternative to fossil fuels. OPG is working with stakeholders in forestry, agriculture, transportation industries, research and the Provincial Government to study all aspects of biomass fuel including characterization, availability, economics, and safely handling and storage as well as life cycle environmental advantages of biomass compared to fossil fuels. Biomass has the potential to create a new Ontario based industry.

On behalf of OPG, the University of Toronto studied the lifecycle impacts of using sustainably harvested forest based fuel and concluded that significant reductions in net CO_2 can be achieved by using biomass instead of fossil fuels. Similar studies considering agriculture biomass are being considered.

In order to assess the economic aspects of conversion to alternate fuels, OPG is undertaking a number of initiatives including:

- A Request for Indicative Pricing for the supply of approximately 90,000 tonnes of dried wood pellets for delivery to Atikokan has been issued to potential wood pellets suppliers.
- The Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) and OPG are leading a project assessing the economic viability and environmental sustainability of developing a commercial biomass industry in Ontario.

Well Maintained Assets Enhance Reliability

OPG operates a wide range of both newly constructed and established generating facilities across Ontario. Proactive improvement programs, regular maintenance and targeted equipment upgrades keep these assets operating at high levels of efficiency and reliability.

Nuclear Planned Outages: Planned outages are an important tool for maintaining and improving nuclear performance. OPG completed eight planned outages on nuclear units at Pickering Nuclear and Darlington Nuclear in 2009. These outages accomplished important maintenance and upgrade work, enhancing reactor efficiency and performance.

▼ OPG staff performing maintenance

Hydro Improvements Continue

In addition to the new Lac Seul GS being put in-service, performance upgrades and outages took place at many of OPG's hydro stations during 2009. Examples include;

- Completion of the Sir Adam Beck GS No 1 (Unit 7) upgrade and frequency conversion from 25 Hz to 60 Hz,
- Runner upgrades and overhauls at Cameron Falls (Unit 4), Des Joachims (Unit 6), McVittie (Unit 1 and 2), and Ragged Rapids (Unit 2),
- Initiation of the major replacement of the "powertrain" components at SAB 1 (Unit 9),
- Initiation of runner replacements/overhauls at Chats Falls (Unit 8) and Cameron Falls (Unit 3), and
- Replacement of major electrical components at Mountain Chute (Unit 1).

Upgrades contributed to an annual incremental energy saving of 29.6 Gwh/yr in 2009.

Over the next five years, OPG plans to increase the capacity of its existing hydro stations by 66 MW – as part of its ongoing program to replace existing turbine runners with more efficient equipment. Since 1999, this program has added 266 MW of clean, renewable hydropower to Ontario's electricity supply - about the same amount of capacity as a small gas-fired station. (see Energy Efficiency)

Thermal Provides Reliable Backup

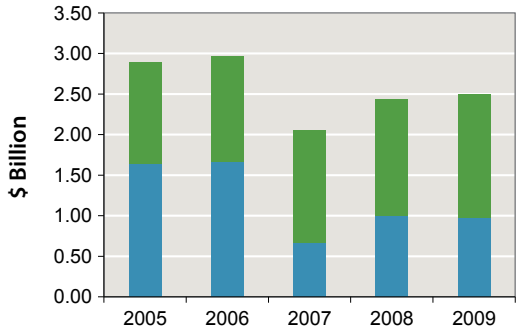
OPG's Thermal stations achieved a combined Equivalent Forced Outage (EFOR) rate of 8.5% (a measure of reliability) compared to 12.8% in 2008. Thermal's continued improved reliability (EFOR in 2004 was 18.7%) reflects effective maintenance programs and the changes in operating strategy implemented at these stations.

Employee Compensation and Provincial Payments

In ongoing efforts to attract and retain a highly qualified workforce, OPG offers employees competitive compensation. In 2009, compensation to OPG employees totalled approximately $1.53 billion (see Figure 8). Recognizing that most OPG employees live in Ontario and purchase their goods and services locally, this compensation directs a substantial transfer of wealth back to the province.

OPG creates additional benefit for the provincial economy through payments of taxes, gross revenue charges (including water rental payments*), dividends, interest on long term debt, Market Power Mitigation Agreement Rebates**, Revenue Limit Rebate (ONPA) and other payments to the Province of Ontario (see Figure 9). In 2009, these payments totaled nearly $0.969 billion (see notes, Figure 8).

Figure 8: OPG Salaries and Payments Made to the Province of Ontario



OPG Employee Salaries

Payments in Lieu of Taxes, Gross Revenue Charges (incl Water Rental Payments*), Dividends, Interest on Long Term Debt, Market Power Mitigation Agreement Rebates**, Revenue Limit Rebate (ONPA)***, OEFC**** capital/income tax payments, and other payments to the Province of Ontario. 2005-2008 values restated from 2008 SD Report to account for inclusion of payments to OEFC with Payments to Province of Ontario instead of Goods and Services Purchased in Ontario.

* This amount only includes water rentals charged under the Gross Revenue Charge (GRC) regime. Therefore, it does not include amounts charged for non-provincial water rentals.

** Replaced by ONPA (Revenue Limit Rebate) effective Apr 1, 2005

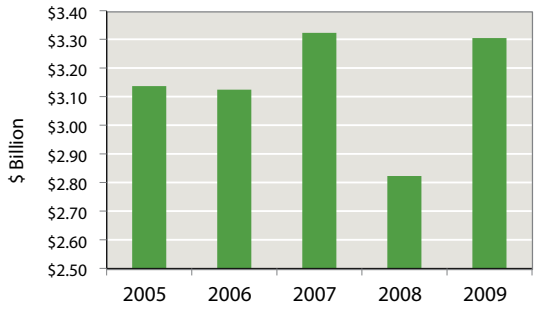
*** ONPA – OPG non-prescribed Asset Rebate, now referred to as the "OPG Rebate", effective April 1, 2005

**** OEFC – Ontario Electricity Financial Corporation

Purchase of Goods and Services

OPG provides support to the Province of Ontario through the purchase of goods and services. In 2009, the total purchase of goods and services in Ontario by OPG totalled $3.30 billion (see Figure 9).

Figure 9: Goods and Services Purchased in Ontario



OPG Ventures Inc.

Through its wholly owned corporate venture capital group, OPG Ventures Inc (OPGV), OPG continues to manage a portfolio of investments in enterprises developing and commercializing leading-edge energy technologies. OPGV was established to invest in private companies developing or commercializing emerging energy technologies for the purposes of yielding financial returns and strategic benefits for OPG.

Since it was established in 2001, OPG Ventures has invested directly and indirectly in small private companies developing technologies that generate, transmit, store, transact or utilize electricity more efficiently, more cost effectively and in cases with reduced environmental impact. As of the end of 2009, the fair value of the entire investment portfolio was about $30 million.

Given OPG's current mandate to focus on its core generation business, OPG Ventures has scaled back its investment activities to meeting existing commitments and making selective follow-on investments with a view to monetizing the investment portfolio in a manner that optimizes the return to OPG.

Plug'n Drive Ontario

OPG and Ontario Centres of Excellence (OCE) – Energy have been instrumental in the development of Plug'n Drive Ontario. Plug'n Drive is a proposed partnership of Ontario based companies, auto manufacturers, government agencies and researchers with the goal of helping Ontario get ready for the arrival of plug in electric vehicles (PEVs). Given that Ontario's base load generation is virtually free of GHG emissions, PEVs have the potential to make a significant contribution to Ontario's GHG emission reductions goals.

In 2009 OCE, with the support of OPG and other Ontario based utilities, initiated a study by the University of Waterloo that is expected to set out a number of recommendations that will contribute to a better understanding of what needs to be done to ensure that Ontario is ready for PEVs. The report will be finalized in 2010.

Appendix A

Nuclear

General Information

Pickering A & B GS	Generation (net GWh)					Critical Group Dose (µSv)				
Generation capacity:	**2009**	**2008**	**2007**	**2006**	**2005**	**2009**	**2008**	**2007**	**2006**	**2005**
Pickering A: 1,030 MW net **Pickering B: 2,064 MW net** Located on Lake Ontario in the city of Pickering, each generating station has 4 units. Two of the 515 MW Pickering A units taken out of service during the nuclear recovery program will not be refurbished. Number of used fuel bundles stored on site: 609,086 Tel: (905) 839-1151	20,761	19,123	16,855	19,801	17,297	1.8	4.1	2.6	3.6	6.8

Darlington GS	Generation (net GWh)					Critical Group Dose (µSv)				
Generation capacity: 3,512 MW net Located on Lake Ontario in the municipality of Clarington, 70 km east of Toronto. This generating station has 4 units. Number of used fuel bundles stored on site: 366,863 Tel: (905) 623-6670	**2009**	**2008**	**2007**	**2006**	**2005**	**2009**	**2008**	**2007**	**2006**	**2005**
	26,037	28,840	27,155	26,968	27,491	0.7	1.3	1.4	1.2	0.9

- Ontario Power Generation for the years ended December 31
- Totals may not add up due to rounding

Thermal

General Information	Net Generation and Emissions*										
Atikokan GS **Generation capacity: 211 MW net** Located west of Thunder Bay, the station has 1 coal-fired unit equipped with low-NO_x burners.	**Generation (net GWh)**					**Emissions (tonnes)**					
	2009	**2008**	**2007**	**2006**	**2005**		**2009**	**2008**	**2007**	**2006**	**2005**
	133	313	651	737	965	**SO_2**	837	1,613	2,999	3,304	4,774
						NO_x	436	757	1,192	1,435	1,701
						CO_2	197,000	415,000	751,000	849,400	1,104,000
Lambton GS **Generation capacity: 1,920 MW net** Located on the St. Clair River south of Sarnia, the station has 4 coal-fired units, 2 of which are equipped with SO_2 scrubbers and selective catalytic reduction (SCR) equipment to reduce NO_x emissions.	**Generation (net GWh)**					**Emissions (tonnes)**					
	2009	**2008**	**2007**	**2006**	**2005**		**2009**	**2008**	**2007**	**2006**	**2005**
	3,596	6,544	8,855	6,856	9,422	**SO_2**	6,191	18,115	30,796	17,227	29,343
						NO_x	3,932	6,444	9,205	6,179	8,804
						CO_2	3,729,000	6,373,000	8,459,000	6,451,000	8,692,000
Lennox GS **Generation capacity: 2,100 MW net** Located on Lake Ontario in the town of Greater Napanee. The station has 4 oil and/or natural gas-fired units.	**Generation (net GWh)**					**Emissions (tonnes)**					
	2009	**2008**	**2007**	**2006**	**2005**		**2009**	**2008**	**2007**	**2006**	**2005**
	122	278	789	317	1,263	**SO_2**	571	405	899	623	2,503
						NO_x	213	354	936	420	1,554
						CO_2	194,000	264,000	583,000	281,720	953,530
Nanticoke GS **Generation capacity: 3,640 MW net** Located on Lake Erie, the station has 8 coal-fired units fitted with low-NO_x burners, 2 of which are equipped with selective catalytic reduction (SCR) equipment to reduce NO_x emissions.	**Generation (net GWh)**					**Emissions (tonnes)**					
	2009	**2008**	**2007**	**2006**	**2005**		**2009**	**2008**	**2007**	**2006**	**2005**
	5,563	15,329	18,083	16,174	17,666	**SO_2**	21,480	52,720	67,423	61,958	67,946
						NO_x	8,314	20,087	22,376	20,048	22,942
						CO_2	6,010,000	15,412,000	17,868,000	16,222,800	17,580,000
Thunder Bay GS **Generation capacity: 306 MW net** Located in Thunder Bay, this station has 2 coal-fired units.	**Generation (net GWh)**					**Emissions (tonnes)**					
	2009	**2008**	**2007**	**2006**	**2005**		**2009**	**2008**	**2007**	**2006**	**2005**
	123	702	590	959	962	**SO_2**	421	2,528	2,530	4,163	4,215
						NO_x	447	1,820	1,550	2,701	2,632
						CO_2	188,00	800,000	706,000	1,127,620	1,149,600

* NO_x is reported as NO_2.

Hydro

General Information	Net Generation				
Niagara Plant Group	**Generation (net GWh)**				
Generation Capacity: 2,257 MW Includes 5 stations, Head Quarters (HQ) in Niagara area	**2009**	**2008**	**2007**	**2006**	**2005**
	12,291	11,907	11,530	11,538	12,526
Ottawa/St. Lawrence Plant Group	**Generation (net GWh)**				
Generation Capacity: 2,571 MW Includes 10 stations, HQ in Renfrew	**2009**	**2008**	**2007**	**2006**	**2005**
	13,926	13,873	11,484	13,133	11,869
Northeast Plant Group	**Generation (net GWh)**				
Generation Capacity: 1,312 MW Includes 13 stations, HQ in Timmins	**2009**	**2008**	**2007**	**2006**	**2005**
	4,723	5,112	4,562	4,552	4,109
Northwest Plant Group	**Generation (net GWh)**				
Generation Capacity: 684 MW Includes 11 stations, HQ in Thunder Bay	**2009**	**2008**	**2007**	**2006**	**2005**
	4,630	4,894	3,865	3,355	4,426
Central Hydro Plant Group EcoLogo^{M}-certified	**Generation (net GWh)**				
Generation Capacity: 130 MW HQ in North Bay	**2009**	**2008**	**2007**	**2006**	**2005**
EcoLogo^{M}-certified Green Power generation capacity from 31 OPG stations (29 small hydro stations including 4 NEPG stations), and 2 wind turbines, 117 MW (at Dec 31, 2009)	579	693	620	742	623
EcoLogo^{M}-certified Green Power capacity available from Power Purchase Agreements.	0	0	12	50	37
Total available EcoLogo^{M}-certified Green Power capacity: 117 MW (at Dec 31, 2009)	579	693	632	792	660
Other Central Hydro Plant Group capacity	**Generation (net GWh)**				
Other Central Hydro capacity (non-EcoLogo: Eugenia Falls hydroelectric station: 6.1 MW; New York Wind Farm: 6.6 MW)	45	46	38	33	41

Appendix B

Indicator					
ENERGY GENERATION BY SOURCES (gross GWh)	**2009**	**2008**	**2007**	**2006**	**2005**
Thermal	10,570	24,807	30,941	26,756	32,816
Hydro (Renewable - excl. Central Hydro Plant Group)	36,178	36,305	31,754	32,977	36,418
Nuclear	49,744	51,140	47,003	49,763	47,810
Central Hydro Plant Group (includes 4 NE Plant Group stations)	626	726	669	825	701
Total Internal Energy Generated	97,118	112,978	110,168	110,322	113,746

ENERGY GENERATION BY SOURCE (net GWh)	**2009**	**2008**	**2007**	**2006**	**2005**
Thermal	9,538	23,165	28,969	25,042	30,938
Hydro (Renewable - excl. Central Hydro)	35,536	35,724	31,339	32,475	31,912
Nuclear	46,799	48,182	44,010	46,769	45,005
Central Hydro Plant Group (includes 4 NE Plant Group stations, wind, power purchases)	624	726	670	825	701
Total Internal Energy Output (incl. power purchases)	92,497	107,797	104,987	105,112	108,556

ENERGY CONVERSION EFFICIENCY OF THERMAL GENERATING STATIONS	**2009**	**2008**	**2007**	**2006**	**2005**
Total Energy Input (GWh equiv.)	31,616	70,940	86,337	75,760	92,986
Net Energy Output (GWh)	9,538	23,165	28,969	25,042	30,938
Fuel Conversion Efficiency (%)	30.2%	32.7%	33.6%	33.1%	33.3%

OPG INTERNAL ENERGY EFFICIENCY	**2009**	**2008**	**2007**	**2006**	**2005**
Gross Generation (GWh)	97,118	112,978	110,168	110,322	113,732
Net Generation (GWh)	92,497	107,797	104,987	105,112	108,543
Generation Energy Efficiency (%)	95.24%	95.41%	95.30%	95.28%	95.44%
Internal Energy Saving - Cumulative since 1994 (GWh/yr)	2,434	2,405	2,389	2,234	2,111
Avoided CO_2, NO_x (as NO_2) **and SO_2** (tonnes)	2,644,565	2,425,715	2,350,772	2,234,700	2,071,357
$ Value of Energy Savings @ average price paid to OPG (2009 = 4.5¢/kwh; 2008 = 4.76¢/kwh; 2007 = 4.6¢/kwh; 2006 = 4.63¢/kwh; 2005 = 4.6¢/kwh)	$109,537,997	$114,458,089	$109,890,398	$103,431,501	$97,123,940
Annual Incremental Energy Saving (% of internal energy use)	0.6%	0.3%	3.0%	2.4%	1.1%
Annual Incremental Energy Saving (GWh/yr)	29.6	15.7	155.0	122.6	57.5

Indicator					
ATMOSPHERIC EMISSIONS - THERMAL	**2009**	**2008**	**2007**	**2006**	**2005**
Total Gross Annual CO_2 Emissions (tonnes)	10,320,000	23,264,000	28,366,000	24,932,840	30,198,130
Total Gross Annual SO_2 Emissions (tonnes)	29,500	75,382	104,647	87,275	113,642
Total Gross Annual NO_x Emissions (tonnes, as NO_2)	13,340	29,462	35,261	30,783	39,043
EMISSION RATES - THERMAL	**2009**	**2008**	**2007**	**2006**	**2005**
CO_2 Emissions (tonnes/GWh-net)	1,082	1,004	979	996	976
SO_2 Emissions (tonnes/GWh-net)	3.09	3.25	3.61	3.49	3.67
NO_x Emissions (tonnes/Gwh-net, as NO_2)	1.40	1.27	1.22	1.23	1.26
ATMOSPHERIC EMISSIONS - NUCLEAR	**2009**	**2008**	**2007**	**2006**	**2005**
Total Gross Annual CO_2 Emissions (tonnes)	9,107	6,289	15,428	6,271	11,459
Total Gross Annual SO_2 Emissions (tonnes)	0.2	0.6	3	1	2
Total Gross Annual NO_x Emissions (tonnes, as NO_2)	40	26	85	23	64
ATMOSPHERIC EMISSIONS - OPG	**2009**	**2008**	**2007**	**2006**	**2005**
Total Gross Annual CO_2 Emissions (tonnes)	10,329,107	23,270,289	28,381,428	24,939,111	30,210,459
Total Gross Annual SO_2 Emissions (tonnes)	29,500	75,383	104,650	87,276	113,645
Total Gross Annual NO_x Emissions (tonnes, as NO_2)	13,380	29,488	35,346	30,806	39,141
EMISSION RATES – TOTAL OPG	**2009**	**2008**	**2007**	**2006**	**2005**
CO_2 Emissions (tonnes/GWh-net)	112	216	270	237	278
SO_2 Emissions (tonnes/GWh-net)	0.32	0.70	1.00	0.83	1.05
NO_x Emissions (tonnes/GWh-net, as NO_2)	0.14	0.27	0.34	0.29	0.36
NUMBER OF REPORTABLE SPILLS	**2009**	**2008**	**2007**	**2006**	**2005**
Category A Spills	0	0	0	0	0
Category B Spills	1	0	2	0	0
Category C Spills	15	15*	6	14	17
Category D Spills	n/a	n/a	22	29	12
NR = not reported in given year					

* Previously reported 'D' spills merged with 'C' spills to align with the MOE's changes to spill reporting in 2008.

Indicator					
PCB MANAGEMENT (tonnes)	**2009**	**2008**	**2007**	**2006**	**2005**
High Level PCB material in storage	0	7	7	3	1
High Level PCB materials sent for destruction	58	9	18	326	97
Estimated inventory of High-Level PCB material in service*	0	41	42	56	411
Low-Level PCB materials in storage	4	9	3	2	2
Low-Level PCB material sent for destruction	20	11	25	6	74
Estimated inventory of Low-Level PCB material in service	102	12	5	3	2.6
Total Year-End Inventory (waste in storage + in-service equipment)	106	70	50	65	417
Total PCB material sent for destruction	78	20	43	332	171
*Excludes in-service high-level PCB equipment at Bruce Power included in previous SD Report inventories					

RADIOACTIVE WASTE MANAGEMENT	**2009**	**2008**	**2007**	**2006**	**2005**
Used fuel - annual production (tonnes of uranium)	1,345	1,354	1,326	1,409	1,290
Used fuel in Storage (tonnes of uranium)	36,521	34,783	33,713	32,302	30,862
Low and Intermediate Radioactive Waste produced (m^3)	3,078	2,708	3,043	3,455	5,695
Low and Intermediate Radioactive Waste stored (m^3)	3,300	3,568	3,530	2,538	2,577

UTILIZATION OF SOLID COMBUSTION BY PRODUCTS	**2009**	**2008**	**2007**	**2006**	**2005**
Total Ash and Gypsum Produced (tonnes)	517,371	975,213	1,183,383	1,117,023	1,286,980
Total Ash and Gypsum Recycled (tonnes)	381,205	615,918	760,057	746,270	801,913
Diversion Rate (%)	74%	63%	64%	67%	62%

HAZARDOUS WASTE GENERATION	**2009**	**2008**	**2007**	**2006**	**2005**
Solids (tonnes)	464	190	338	165	348
Liquids (kilolitres)	1,897	2,668	2,430	2,146	1,567

WATER USE (million m^3)	**2009**	**2008**	**2007**	**2006**	**2005**
Turbine flows - hydroelectric stations (total flow)	505,967	503,533	424,623	450,579	440,574
Cooling and service water use (non-consumptive)	12,372	13,807	13,702	13,264	14,072

National Pollution Release Inventory (NPRI)

NPRI Emissions: air, water and land [4] (tonnes unless otherwise specified)	2008[1]	2007[1]	2006	2005	2004
Aluminum	466.854	393.280	307.932	343.950	286.18
Ammonia	40.3	40.2	27.554	29.447	28.34
Arsenic	15.255	19.075	15.625	22.638	12.41
Benzo(a)anthracene	NR(2)	NR(2)	0.000	0.000	0.014
Benzo(a)phenanthrene	NR(2)	NR(2)	0.000	0.000	0.041
Benzo(a)pyrene	NR(2)	NR(2)	0.000	0.000	0.006
Benzo(b)fluoranthene	NR(2)	NR(2)	0.000	0.000	0.005
Benzo(e)pyrene	NR(2)	NR(2)	0.000	0.000	0.011
Benzo(g,h,i)perylene	NR(2)	NR(2)	0.000	0.000	0.010
Benzo(j)fluoranthene	NR(2)	NR(2)	0.000	0.000	0.000
Benzo(k)fluoranthene	NR(2)	NR(2)	0.000	0.000	0.000
Cadmium	342 kg	269 kg	400 kg	341 kg	315 kg
Chromium	47.553	44.522	46.308	67.601	43.90
Cobalt	17.065	21.501	7.81	10.135	2.13
Copper	68.72	77.625	62.3	73.245	45.16
Dibenz(a,h)anthracene	NR(2)	NR(2)	0.000	0.000	0.002
Dibenz(a,j)acridine	NR(2)	NR(2)	0.000	0.000	0.005
Dibenzo(a,i)pyrene	NR(2)	NR(2)	0	0	0
Dioxins & Furans	0.798 g TEQ(3)	1.603 g TEQ(3)	1.042 g TEQ [3]	1.642 g TEQ [3]	3.13 g TEQ [3]
7H-Dibenzo(c,g)carbazole	NR(2)	NR(2)	3.1	0.004	0.003
Fluoranthene	NR(2)	NR(2)	1.200	1.547	0.010
HCFC-22	NR(2)	NR(2)	0	0	0
Hexachlorobenzene	3.612 grams	0.042 grams	0.103 grams	6.86 grams	197.20 grams
Hydrazine	0.684	1.096	0.881	1.039	0.942
Hydrochloric Acid	2,720	3,142	2,308	2845.693	5037.46
Hydrogen Fluoride	270.0	342.0	308	345.7	403.9
Indeno(1,2,3-cd)pyrene	NR(2)	NR(2)	0	0	0.001
Lead	20.70	27.47	20.33	0.00	15.87
Manganese	63.05	76.13	67.20	99.62	59.32
Mercury	419 kg	516 kg	445 kg	550 kg	476 kg
Nickel	39.091	51.495	36.881	49.038	27.624
n-Hexane	NR(2)	NR(2)	0	0	0
Perylene	NR(2)	NR(2)	0 kg	8 kg	0 kg
Phenanthrene	NR(2)	NR(2)	0.005	0.008	0.106
Phosphorus	822	912	992	574	349
Pyrene	NR(2)	NR(2)	1.100	0.001	0.015
Selenium	NR(2)	8.9	7.6	9.285	5.15
Sulphuric Acid	575.006	493.131	222.594	289.474	4.972
Vanadium	81.0	102.1	79.4	107.2	64.79
Zinc	54.500	67.000	58.900	80.922	46.95

Criteria Air Contaminants (tonnes)	2008[1]	2007[1]	2006	2005	2004
Carbon Monoxide	6,012.00	10,817.00	8,163.00	12,267.66	11,407.96
Oxides of Nitrogen (as NO_2)	29,532.00	35,363.00	30,841.00	39,780.32	40,617.94
PM - Total Particulate Matter	4,097.20	7,776.06	8,259.56	10,421.67	8,696.56
PM10 - particulate matter ≤ 10µ [5]	2,679.32	4,179.45	3,750.55	4,665.46	5,801.61
PM2.5 - particulate matter ≤ 2.5 µ [5]	1,058.89	1,586.56	1,295.96	1,603.94	2,376.28
Sulphur Dioxide	75,380.03	104,647.65	87,275.59	113,645.3	116,979.3
Volatile Organic Compounds (VOCs)	74.00	166.00	376.00	437.85	387.88

(1) Year 2009 data was not available at the time of publishing.
(2) NR ported in given year
(3) g TEQ = grams Toxic Equivalent
(4) For detailed information on the breakdown of OPG's NPRI data by emissions to air, water, and land please visit the NPRI web site at **http://www.ec.gc.ca/npri**
(5) µ = microns (particle diameter)

Environmental Policy

Effective: May 10, 2006

Policy Statement: OPG will strive to continually improve its environmental performance by committing to the following seven requirements:

Requirements:

- **Meet or Exceed Legal Requirements**: Meet all legal requirements and OPG's voluntary commitments, with the objective of exceeding those standards where appropriate and feasible.
- **Advance Environmental Stewardship**: Contribute to environmental protection, pollution prevention and energy and resource use efficiency.
- **Maintain ISO 14001 System**: Maintain registrations to the International Organization for Standardization (ISO) 14001: 2004 Environmental Management System.
- **Integrate Environment in Decision-Making**: Integrate environmental factors and stakeholder considerations into our planning, decision-making and business practices.
- **Engage Employees**: Engage and educate employees to conduct their activities in a manner that respects and protects the environment.
- **Contribute to Our Communities**: Contribute to and enhance the environmental well-being of the communities in which we operate and the broader public who grant us our license to operate.
- **Communicate**: Measure and publicly communicate our environmental performance with employees, governments, local communities, contractors and other stakeholders.

This Environmental Policy is an important part of OPG's commitment to Sustainable Development.

Accountabilities:

The President and CEO is accountable for this Policy.

The Vice President Sustainable Development is accountable for monitoring and reporting regularly to the Executive and Board on OPG's environmental performance and progress in implementing this Policy, including immediate notification of a Significant Environmental Event.

The Business Unit leaders are accountable for environmental performance and compliance within their Business Unit.

All employees have accountability for protecting the environment and for complying with this Policy.

Sponsoring Unit:
Vice President Sustainable Development

Approval: Board of Directors
Date: May 10, 2006

Glossary

Biomass	a renewable fuel from forest and agricultural products.
Co-Generation	the simultaneous generation of both electricity and useful heat.
EMS	environmental management system (generally ISO 14001).
Fly Ash	a residual fine particulate generated in the combustion of coal, conveyed with flue gas. In OPG's Thermal Plants >99 per cent is captured by electrostatic precipitators.
GHG Cap and Trade	Cap and Trade (also known as Emissions Trading) is a market based mechanism that places a dollar value on the targeted emissions thus creating an economic incentive to cause reductions.
Gigawatt hour (GWh)	One billion watt hours (one million kilowatt hours).
Net generation	gross generation minus internal energy use.
ISO 14001	an internationally accepted management system standard for environment.
Kilowatt hour (kWh)	is a measure of electricity demand per hour by customers. The average Ontario household uses 1,000 kWh per month.
Megawatt (MW):	is one million watts.
Polychlorinated Biphenyls (PCBs)	organic compounds that were widely used for a variety of applications, such as dielectric fluids in transformers, capacitors, and coolants.

▼ Mattagami Lake Dam

▲ Pickering Nuclear - Tuesdays on the Trail

Public trust is our oxygen. Without it we can't operate. Nor would we deserve to. As CEO I am committed to ensuring that OPG remains a company people can trust – one that is safe, responsible, open and transparent.

We have nailed our colours to the mast – and we look forward with confidence to the journey ahead.

Tom Mitchell
President and CEO

We welcome any comments, questions or suggestions for improvement that you may have.

Please contact the Vice President of Sustainable Development at 1-877-592-2555, (416) 592-2555 or e-mail us at **webmaster@opg.com**.

Our mailing address is:
Ontario Power Generation, 700 University Avenue, Toronto, Ontario, M5G 1X6

Visit our Web site at **www.opg.com**

We are committed to protecting the environment and to the responsible use of natural resources. Only a minimal number of hard copies of this report have been printed by OPG. These copies are printed on 100% post-consumer recycled paper, processed chlorine and acid free and are printed with vegetable based inks. The production and distribution of this report has been made carbon neutral.

FSC Mixed Sources
Product group from well-managed forests, controlled sources and recycled wood or fibre
www.fsc.org Cert no. SGS-COC-004789
© 1996 Forest Stewardship Council

100%

Materials used in this report are environmentally friendly. Cover and text stocks are recycled and recyclable, with a minimum of 100% post-consumer waste. Vegetable-based inks have been used throughout.

Design, Print, Distribution: OPG Office Services

▼ Lower Sturgeon Spillway

2009 Sustainable Development Report

ONTARIO POWER GENERATION