

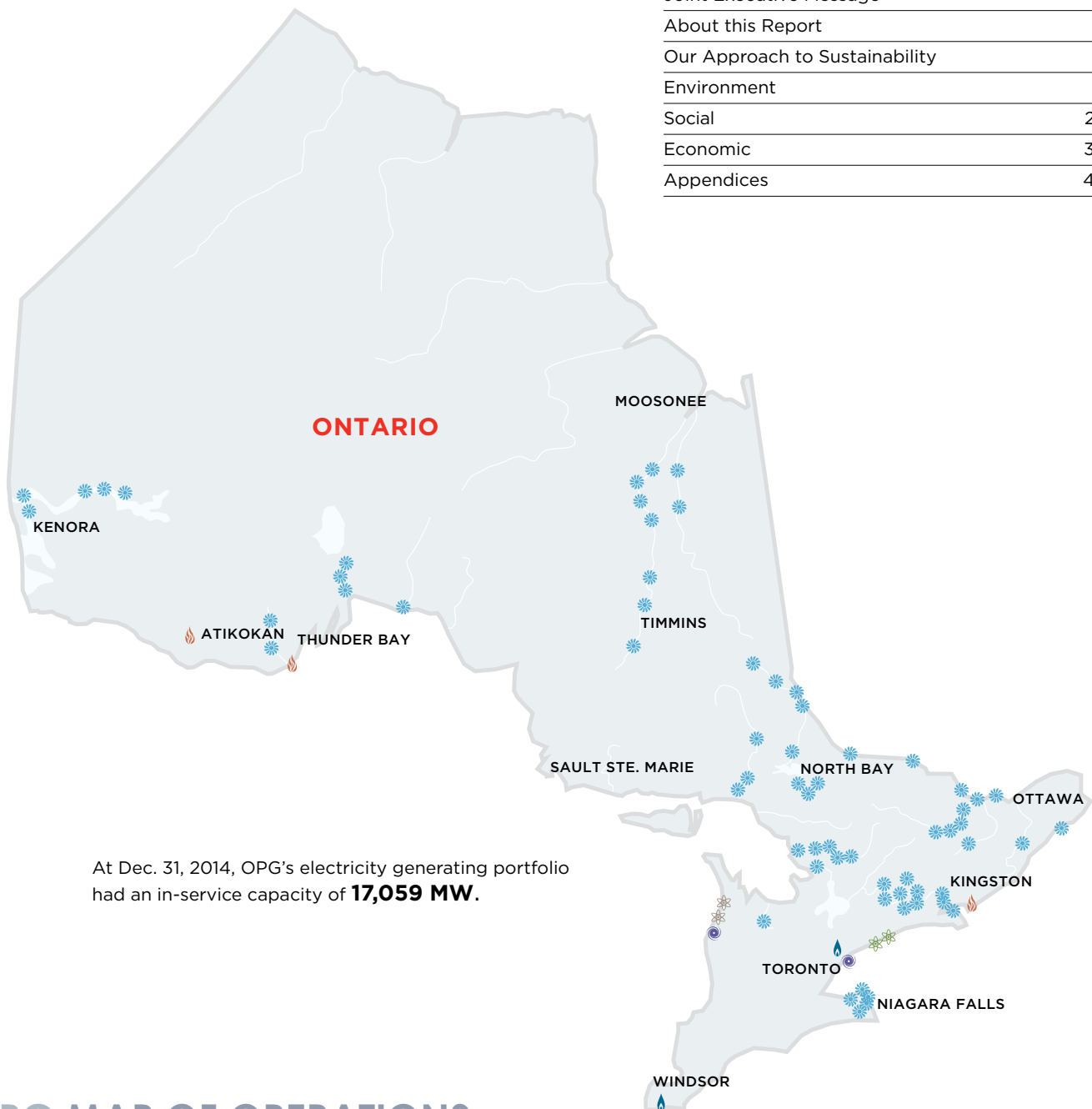
2014

SUSTAINABLE DEVELOPMENT REPORT



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OPG MAP OF OPERATIONS



2
Nuclear
Stations



2
Leased
Nuclear Stations



3
Thermal
Stations



2
Co-Owned
Gas-Fired Stations



65
Hydroelectric
Stations



2
Wind Power
Turbines

THE COMPANY

Ontario Power Generation (OPG) is Ontario's largest clean energy generator. OPG's focus is on the efficient generation 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. OPG generates more than 50 per cent of the power produced in Ontario. At December 31, 2014, OPG's electricity generating portfolio had an in-service capacity of 17,059 megawatts (MW).

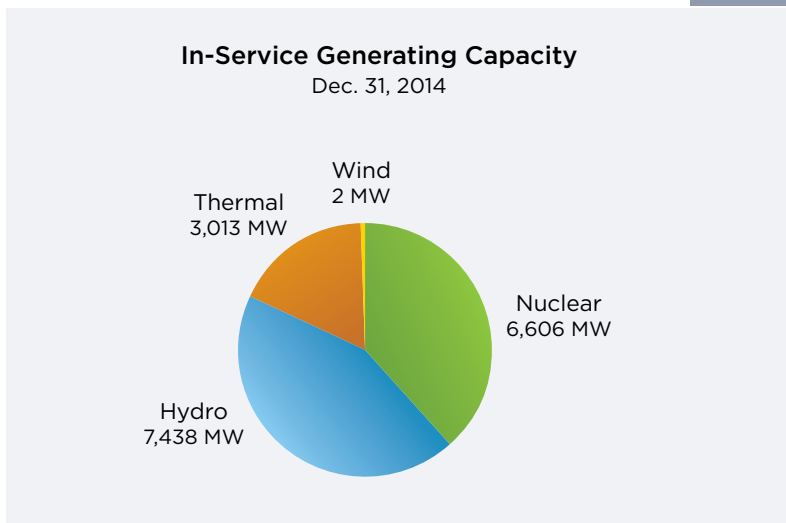
OPG owns and operates two nuclear stations, three thermal stations, 65 hydroelectric stations and two wind turbines. OPG

and TransCanada Energy Ltd. co-own the Portlands Energy Centre gas-fired combined cycle generating station (GS). OPG and ATCO Power Canada Ltd. co-own the Brighton Beach gas-fired combined cycle GS. OPG's 50 per cent share of the in-service capacity and generation volume of these co-owned facilities is included in the generation portfolio statistics set out in this report.

OPG also owns two nuclear generating stations which are leased on a long-term basis to Bruce Power LP. Income from these leased stations is included in OPG's financial results. The leased stations are not included in the generation portfolio statistics set out in this report.



Maintenance during Pickering Nuclear Outage



Atikokan GS Control Room

MESSAGE FROM THE PRESIDENT AND CEO AND THE VICE PRESIDENT OF ENVIRONMENT

2

OPG operates electricity generating stations from Kenora to Cornwall and pretty much everywhere in between. Some of our stations have been generating power for more than 100 years. We provide more than half of the power Ontario relies on every day and do so at a price that is currently about 47 per cent lower than our competitors. We are also proud to report that as of 2014, our power is 99.7 per cent free of smog and greenhouse gas emissions.

OPG's employees understand the decisions and proactive measures taken today strengthen our current and future operations and help to maintain the trust of our community, stakeholder and Aboriginal partners. We believe in the business case for sustainability and its business imperative in supporting our key strategic goals of operational excellence, project excellence and financial sustainability. We are dedicated to improving the environmental, social and economic conditions in our site communities and beyond.

In 2014, we continued to manage our generating assets responsibly and efficiently, while delivering an impressive string of project successes and our best workplace safety record ever. Our efforts revolved around the following key priorities:

Reduce Greenhouse Gas Emissions

In April 2014, OPG burned its last piece of coal to make electricity. Successfully phasing out coal helped deliver the Province's commitment to cleaner air and is North America's single largest climate change initiative.

Optimize Existing Assets

OPG added six new hydroelectric units at four existing stations along the Lower Mattagami River. In partnership with Moose Cree First Nation, the project was the largest of its kind in northern Ontario in 50 years, adding 438 MW of clean, renewable power to Ontario's electricity mix. OPG also converted its Atikokan Generating Station to run on biomass and started work on converting its Thunder Bay Generating Station to run on advanced biomass. OPG's clean power workhorse, the Darlington Nuclear Generating Station continued its preparations for refurbishment.

Provide Value

OPG continued efforts to maintain its important role as the moderator of electricity price for ratepayers in Ontario. Our company-wide business transformation has been challenging but effective. To date, we've implemented a new organizational model, streamlined our service delivery, and remain on track to save approximately \$1 billion by 2016.

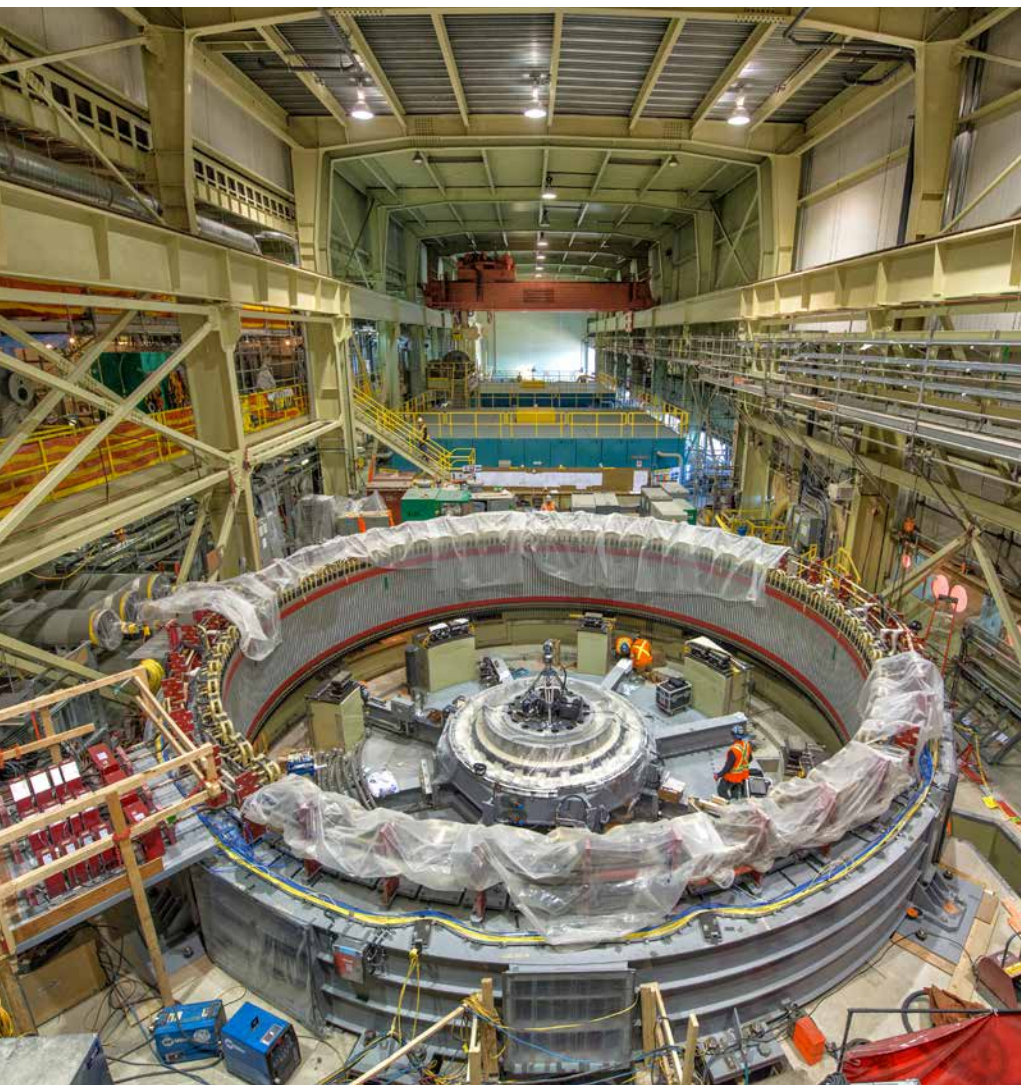
Focus on Openness and Transparency

In 2014, OPG appeared before the Ontario Energy Board for a full public vetting of our rates, and we participated in various public hearings on key projects such as the deep geologic repository for low and intermediate level nuclear waste in Kincardine. Our public outreach efforts also included opening the doors of our new Darlington Energy Complex to share information about the Darlington Nuclear refurbishment project.

Using the framework established in our First Nations and Métis Policy, we continued to work closely with our Aboriginal partners in the communities in which we operate. Since 1992, OPG has successfully negotiated grievance settlements with many of Ontario's First Nations. In November, OPG reached a settlement with Kiashke Zaaging Anishinaabek and issued a formal apology for past grievances. We also



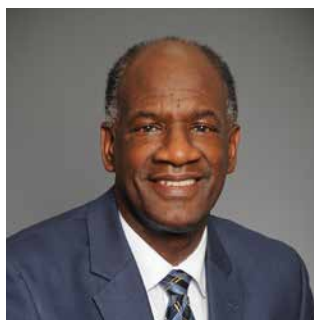
Exhibits and information about OPG and nuclear energy are on display at the Pickering Nuclear Information Centre.



Construction at Kipling GS on the Lower Mattagami River.



Jeff Lyash
President and CEO



Raphael McCalla
Acting Vice President,
Environment

neared completion of the \$2.6 billion Lower Mattagami hydroelectric project with partner Moose Cree First Nation (see Optimize Existing Assets) in 2014.

The solid results we achieved in 2014 can be attributed to the efforts of the women and men who work for OPG. Our employees are dedicated, highly skilled and committed to providing the province the power it needs, when it's needed. We thank them for their continued contributions.

Looking ahead, OPG expects to manage challenges related to the changing energy supply mix, new energy technologies and the continued transition toward a low carbon environment. We plan to stay focused on providing maximum value to the people of Ontario by generating safe, reliable, clean electricity at a price that moderates overall rates for Ontario electricity customers. Key priorities for the company will be the need to engage employees and stakeholders about impacts related to the future closure of Pickering Nuclear, and the successful completion of the Darlington refurbishment project. As we ramp up preparations, 2015 will be a critical year in ensuring the refurbishment stays on track, on time and on budget. The refurbishment of Darlington Nuclear will require significant effort from many people across the company.

We hope you find our 2014 Sustainable Development Report provides you with an informative and honest account of our sustainable development performance and our work to ensure OPG continues to play a role in Ontario's growth and success.

As always, we welcome your feedback.

ABOUT THIS REPORT

Purpose

This report outlines OPG's commitment to sustainable development and presents the environmental, social and economic performance for the sites OPG operates unless otherwise noted. The reporting period for this report is from January 1, 2014 to December 31, 2014. This is OPG's 16th annual Sustainable Development Report.

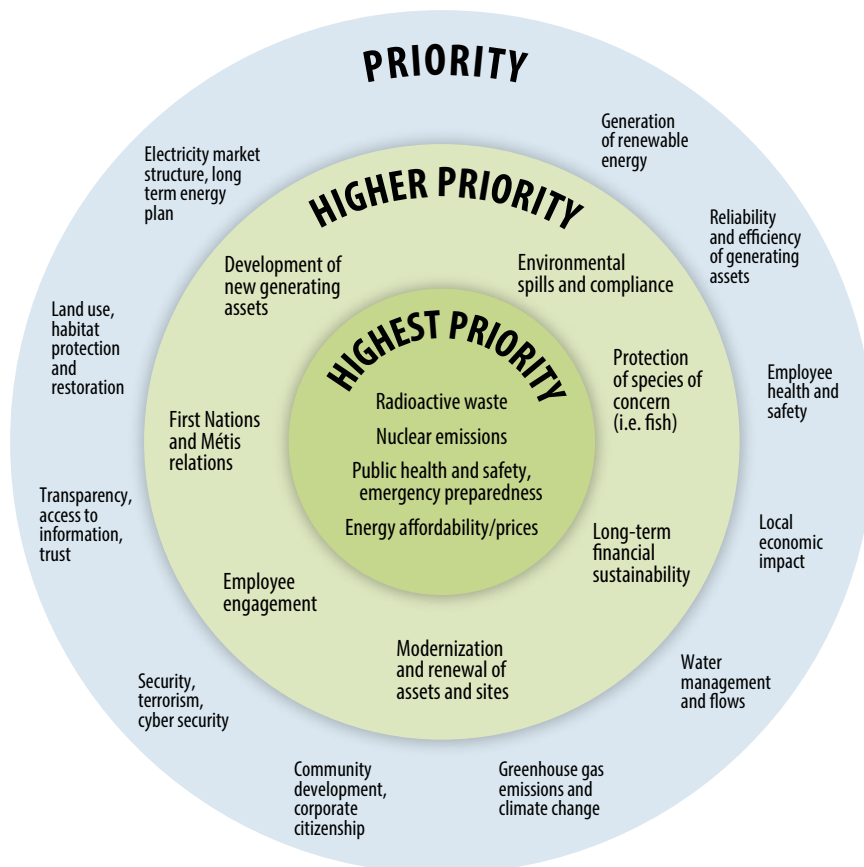
Additional details regarding OPG's financial and operating results are provided in OPG's 2014 Annual Report available at www.opg.com/news-and-media.

Key Sustainability Issues

The focus of this report is on the sustainability issues that are most material to OPG's stakeholders and the company's success. These material issues were formally identified in an assessment undertaken in early 2015 whereby environmental, social and economic issues related to OPG's business were reviewed and prioritized, based on their impacts to the business and importance to stakeholders. Internal stakeholder input was obtained through interviews with senior OPG leaders to identify and discuss the

issues they consider to be the most important to OPG's present and future operations. The views of OPG's external stakeholders were assessed by reviewing existing materials such as survey and research results, issues identified during nuclear facility relicensing hearings, topics discussed at community advisory council meetings, and requests for information submitted to OPG. The following diagram provides a summary of the key issues identified by the assessment.

Materiality Assessment Results: OPG's Key Sustainability Issues



Data Integrity








Accuracy of the data provided in this report is assured through internal and third-party reviews. Operational and performance data is validated by both line management and independent reviewers, and prescribed data is subject to assessments and audits as part of OPG's assurance program.

OPG is a member of the Canadian Electricity Association (CEA) and OPG's sustainable development data and practices are periodically verified by an independent auditor as part of the CEA's Sustainable Electricity Program to ensure information is accurate and credible. Additional details regarding the CEA, including copies of annual Sustainable Electricity reports, are available at www.electricity.ca.

An audit of OPG's consolidated financial statements by independent external auditors Ernst & Young LLP concluded the statements present fairly the financial position of OPG. The consolidated financial statements and management discussion and analysis can be accessed at www.opg.com, on the Canadian Securities Administrators' website at www.sedar.com, or can be requested from OPG.

Performance Graphs and Targets

The graphs in this report provide a visual presentation of information and high-level conclusions related to performance. Where applicable, arrows are included alongside the graphs to summarize overall performance trends.

Performance Trend	Performance Rating
 Performance trend is improving	 Better than target by 5 per cent or more
 Performance trend neither improving nor declining	 Within 5 per cent of target
 Performance trend is declining	 Worse than target by more than 5 per cent but less than or equal to 10 per cent
	 Worse than target by more than 10 per cent

Consistent with industry norms, OPG has established targets for select parameters to measure and monitor performance and drive continual improvement. Depending on the parameter, desired performance may be below or above target. For example, a lower than target number of spills would be considered good performance, while higher than target electricity production would also be considered good performance. Graphs for parameters with targets have the target thresholds included in the graph and performance has been assigned a colour rating.

Continual Improvement

In 2014, OPG's 2013 Sustainable Development Report was evaluated by the EXCEL Partnership against criteria for best practices in sustainability reporting and was ranked as having better than average achievement. Recommendations from this evaluation were taken into account for this 2014 Sustainable Development Report and improvements were made to formally identify OPG's key sustainability issues and to more explicitly summarize OPG's stakeholder engagement framework. Additional information regarding the EXCEL Partnership is available at www.excelpartnership.ca.

OPG also participated in an Energy Sector Sustainability Study in 2014 to benchmark its management and disclosure practices on sustainability against other companies in the energy sector, including peers in the utility sector. OPG has incorporated the insights gained from the study in this report where practical for OPG's material issues.

Comments and suggestions about this report are encouraged and may be provided to:

Vice President, Environment
Telephone: 905-839-6746 Ext. 5118
Email: webmaster@opg.com

Global Reporting Initiative

The Global Reporting Initiative's sustainability reporting guidelines were used as a reference in the preparation of this report. These guidelines provide a structure for sustainability reporting that makes reports comparable across companies. Refer to Appendix A for a table mapping Global Reporting Initiative criteria to this report's content.

OUR APPROACH TO SUSTAINABILITY

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Improving Business Value

OPG's approach to sustainable development is to continually improve performance in the areas of environmental protection, social responsibility and financial health to ensure the success of the organization. By taking this approach, OPG is able to derive numerous benefits such as improved reputation, reduced risk, increased efficiency and stronger stakeholder relations.

Governance and Accountability

OPG's sustainability requirements are integrated into the company's governance. This governance establishes clear processes, policies and accountabilities throughout the organization to help ensure OPG's operations are environmentally, socially and financially responsible.

Board of Directors and Board Policy Statements

The OPG Board of Directors explicitly assumes responsibility for the stewardship of OPG and its business. The Board is made up of individuals with substantial expertise in managing and restructuring large businesses, managing and operating nuclear stations, managing capital intensive companies, and overseeing regulatory, government and public relations. Committees of the Board for risk oversight, compensation and human resources, audit and finance, governance and nominating, and nuclear oversight focus on areas critical to the company.

Board policy statements establish the parameters for the management of the company. These policies authorize the delegation of certain authorities to senior management, address statutory obligations, and give high-level direction to the operation of the company to meet objectives. Each Board policy has a sponsoring executive who is responsible for developing the business rationale and ensuring the policy is implemented in a reasonable manner. OPG has established Board policies pertaining to the environment, safe operations, employee health and safety, First Nations and Métis relations, code of business conduct, risk management, security, and disclosure.

Information about OPG's Board of Directors; Board responsibilities, committees and policy statements; and OPG's senior leaders is available at www.opg.com/about.

Business Model

OPG's business model documents how OPG operates its business. The model includes the company's mission statement and the key values that guide behaviour and decision-making. Key accountabilities of OPG's operating units and functions are identified, with the following functions having primary responsibility for developing and maintaining standards and services related to sustainability:

- **The Corporate Office** is responsible for supporting risk management, corporate strategy including

key performance indicators, and communications and stakeholder relations. Senior accountability is with the Senior Vice President, Corporate Business Development & Chief Risk Officer and the Vice President, Corporate Relations & Communications.

- **Commercial Operations & Environment** is responsible for developing and maintaining an environmental management system. Senior accountability is with the Senior Vice President, Commercial Operations & Environment.
- **People & Culture** is responsible for labour relations, health and safety standards, compensation and benefits, training, talent management and succession planning. Senior accountability is with the Senior Vice President, People & Culture.
- **Finance** is responsible for determining OPG's financial strategies and providing financial stewardship to help OPG achieve its business and operating objectives. Senior accountability is with the Senior Vice President & Chief Financial Officer.

MISSION: To be Ontario's low-cost generator.

We will achieve our mission by reliably and cost-effectively producing electricity from our diversified generating assets, while operating in a safe, transparent and environmentally responsible manner.

KEY VALUES: Safety, Integrity, Excellence, People & Citizenship

SUSTAINABILITY STRATEGY: KEY PRIORITIES, OBJECTIVES AND RISKS

Business Priority	Material Issues	Objectives	Risks*
Produce electricity reliably and cost-effectively.	<ul style="list-style-type: none"> • Energy affordability • Reliability and efficiency of generating assets • Long-term financial sustainability • Electricity market structure, long term energy plan • Modernization and renewal of generating assets and sites • Development of new generating assets 	<ul style="list-style-type: none"> • Operate and maintain nuclear facilities to optimize equipment, performance, availability, and electricity generation. • Evaluate and implement plans to increase capacity, maintain performance, and extend the operating life of hydroelectric generating assets. • Achieve a consistent level of financial performance that will ensure long-term financial sustainability and maintain the value of assets. 	<ul style="list-style-type: none"> • Variable output from stations could adversely impact financial performance. • Risks associated with major development projects could adversely impact financial performance. • Changes in Ontario electricity demand levels could impact costs, revenue and operations. • Uncertainties remain regarding the outcome of rate proceedings, which determine the regulated prices for OPG's rate regulated operations.
Operate in a safe and transparent manner.	<ul style="list-style-type: none"> • Public health and safety, emergency preparedness • Employee health and safety • Security, terrorism, cyber security • Employee engagement • Transparency, access to information, trust 	<ul style="list-style-type: none"> • Operate facilities in a safe, secure and reliable manner that minimizes risks to equipment, to employees, contractors and the public. • Prevent workplace injuries and ill health, and continuously improve employee health and safety performance. • Ensure public communications are informative, timely, and accurate and disclosed in accordance with legal requirements and best practices. 	<ul style="list-style-type: none"> • OPG's operations involve inherent occupational safety risks and hazards. • Natural, technological, or human-caused hazards may impact OPG's business continuity. • OPG is exposed to reputational risk associated with changes in the opinion of various stakeholders.
Operate in an environmentally responsible manner.	<ul style="list-style-type: none"> • Radioactive waste • Nuclear emissions • Protection of species of concern • Environmental spills and compliance • Greenhouse gas emissions and climate change • Generation of renewable energy • Land use, habitat protection and restoration • Water management and flows 	<ul style="list-style-type: none"> • Meet all legal requirements and environmental commitments that the company makes, with the objective of exceeding these legal requirements where it makes business sense. 	<ul style="list-style-type: none"> • OPG may be subject to orders or charges if it is not in compliance with applicable legislation. • Changes in environmental requirements can result in existing operations being non-compliant, and a potential inability to comply.

*Additional information about the company's business risks is available in OPG's 2014 Annual Report.

Corporate Strategies

The ability of OPG to remain Ontario's low-cost electricity generator and meet its sustainability objectives relies on three corporate strategies:

- **Operational Excellence:** OPG is committed to excellence in the areas of generation, safety and the environment.
- **Project Excellence:** OPG is pursuing several projects including the refurbishment of the Darlington Nuclear station, new hydroelectric generation and plant expansions, and a repository for waste.

- **Financial Sustainability:** OPG's financial priority is to achieve a consistent level of financial performance.

Under OPG's business model, OPG has planning processes to set business priorities and targets in the areas of safety, environment, operating performance and project performance. Annual priorities and targets are included in a corporate scorecard which is used to assess the company's overall performance. Individual operating units and functions are also required to establish annual

performance objectives and to report monthly on key performance results. Performance targets are reinforced with management employees through an annual incentive plan that links compensation to performance.

In 2014, OPG achieved strong environmental, safety and financial performance. Refer to Appendix B and Appendix C for detailed generation and performance data. OPG's financial performance results are available in OPG's 2014 Annual Report.



Worker at Pickering Nuclear



Top: Darlington Refurbishment Design Engineers
Bottom: Harmon GS

KEY SUSTAINABLE DEVELOPMENT PERFORMANCE MEASURES

Area ⁽¹⁾	Performance Measure	2014 Results	2014 Target ⁽²⁾
Environmental Compliance ⁽³⁾	Significant Environmental Events	0	0
	Environmental Infractions	16	32
	Environmental Penalties	4	N/A
	Category A Spills - Very Serious	0	0
	Category B Spills - Serious	0	0
	Category C Spills - Less Serious	14	19
Environmental Emissions	Tritium to Air (curies)	23,280	15,400
	Tritium to Water (curies)	14,007	13,050
	Carbon-14 to Air (curies)	84	115
Waste	Low and Intermediate Level Radioactive Waste Produced (cubic metres)	2,384	2,795
	Non-Processible Radioactive Waste Shipped (cubic metres)	496	696
Radiological Impact to Public	Dose to Public:		
	<ul style="list-style-type: none"> Pickering Nuclear (microsieverts) Darlington Nuclear (microsieverts) 	1.2 0.6	ALARA ALARA
Employee Safety	Accident Severity Rate (days lost per 200,000 hours)	1.31	N/A
	All Injury Rate (injuries per 200,000 hours)	0.36	0.89
Generation Performance	Electricity Production (terawatt hours) ⁽⁴⁾	82.2	N/A
	Nuclear Unit Capability Factor (per cent)	84.3	N/A
	Hydroelectric Availability (per cent)	91.8	N/A
	Thermal Equivalent Forced Outage Rate (per cent)	8.9	N/A

(1) Refer to OPG's 2014 Annual Report for information regarding OPG's key financial indicators and results.

(2) OPG sets annual targets to drive continual improvement. N/A = Not Applicable (no target). ALARA = As Low As Reasonably Achievable.

(3) OPG self-determines and classifies its environmental events. Significant environmental events (e.g., significant regulatory non-compliances and spills) are determined by the President and CEO and may affect the corporate annual incentive plan. Environmental infractions are regulatory non-compliances that have moderate potential for regulatory action. Spills are categorized based on actual or potential impacts. OPG's spill categories align with Ontario Ministry of the Environment and Climate Change regulatory requirements for the classification of contraventions.

(4) Includes OPG's share of production from co-owned gas-fired facilities.

AWARDS AND RECOGNITION

OPG is proud to have received the following awards and recognition in 2014 for its sustainable development programs. These awards are a tribute to the hard work and dedication of OPG's employees.

1. OPG was named as one of the **Best 50 Corporate Citizens in Canada** by Corporate Knights. This distinction reflects OPG's commitment to resource, employee and financial management.
2. The Canadian Electricity Association recognized OPG for its strong commitment to building and growing mutually beneficial working relationships with First Nations and Métis communities in Ontario by awarding the company the **2014 Sustainable Electricity Social Responsibility Award**.
3. OPG was presented with the Canadian Electricity Association's **Vice President's Award for Safety (Bronze)** in recognition of outstanding safety performance. In addition, two emergency responders from Pickering Nuclear received a **Lifesaving Award** for successfully reviving an employee who was suffering a non-occupational medical event.
4. Electricity Human Resources Canada presented OPG and the Sibi Board of Directors with its **Workplace Diversity and Inclusion Champion Award**. This award recognized OPG's and Sibi's innovative approach to resourcing projects in Northern Ontario through the Sibi Employment and Training Initiative, which offers employment and training services to First Nations and Métis people in the Lower Moose River Basin area.
5. OPG was honoured to receive the Ontario Waterpower Association's **Stewardship Award** for its work on the Lower Mattagami project. The Stewardship Award is given out annually to recognize organizations that have demonstrated leadership in sustainable waterpower development.
6. Darlington Nuclear received the **highest possible safety and control rating** from the Canadian Nuclear Safety Commission. Pickering Nuclear also received positive safety and control ratings with improved performance recognized in the areas of radiation protection and security.
7. Darlington Nuclear received an **excellent safety and performance evaluation** from the World Association of Nuclear Operators. This evaluation recognizes Darlington Nuclear as one of the best performing nuclear stations in the world. Darlington Nuclear also received an **Award of Excellence** from the Institute of Nuclear Power Operations.



Jacquie Hoornweg (centre) accepted the 2014 Social Responsibility Award from the Canadian Electricity Association on behalf of OPG.



Matt Eames and Shawn Seifried (centre) were presented with a Canadian Electricity Association Lifesaving Award. Other senior OPG leaders attended the ceremony to congratulate them.



Tom Mitchell (right), along with other members of the OPG team, accepted Darlington's award of excellence at the 2014 Institute of Nuclear Power Operations conference.

ENVIRONMENT



Students plant trees to improve habitat as part of the Bring Back the Salmon program.

ENVIRONMENTAL MANAGEMENT SYSTEM

Significant Environmental Aspects

OPG maintains a company-wide environmental management system (EMS) that conforms to the requirements of the International Organization for Standardization's ISO 14001 standard. OPG's major production facilities have had formal systems in place since 1999.

OPG's positive and negative impacts on the environment are managed through the EMS. The following environmental aspects of OPG's operations are considered the most significant and are addressed as a priority:

- Generation from Low Emission and Carbon Dioxide Neutral Fuel Sources: Displacement of Fossil Fuels
- Fish Impingement/Entrainment
- Habitat Enhancement: Wildlife and Biodiversity Conservation
- Water Flow and Level Changes
- Carbon-14 Emissions to Air
- Tritium Emissions
- Thermal Emissions to Water
- Chemical Emissions to Water
- Generation of Low and Intermediate Level Radioactive Waste
- Spills

Environmental Performance

As part of its EMS, OPG sets annual performance targets to minimize releases to the environment, comply with legal requirements and promote improved performance. In 2014, OPG achieved good environmental performance and there were no significant environmental events. OPG met or bettered its targets for spills, infractions, production of low and intermediate level radioactive waste, and non-processible radioactive waste shipped. OPG's tritium emissions from nuclear stations to air and water were worse than the targets OPG set for itself, but remained less than one per

ENVIRONMENTAL COMPLIANCE

Regulatory Infractions

OPG must comply with a large number of environmental requirements contained in statutes, regulations, bylaws, licences, permits and approvals. OPG considers regulatory compliance to be a minimum, non-negotiable standard and strives to exceed legal requirements and improve performance year over year where it makes business sense.

OPG identified 16 environmental infractions in 2014, none of which had a significant impact on the environment or human health. The majority of these infractions were related to water effluent discharge limits and monitoring. All environmental infractions were reported by OPG to the appropriate federal, provincial or municipal authorities as required and actions were taken to prevent recurrence. OPG also conducted analyses to identify any trends and opportunities for improvement.

In 2014, the Ontario Ministry of the Environment and Climate Change served Pickering Nuclear an Environmental Penalty Order to pay a total of \$4,416.75 for four contraventions of an Environmental Compliance Approval effluent discharge temperature limit. There were four periods in early 2014 when extreme cold weather and ice buildup at the station cooling water intake caused the daily average temperature difference between the water pumped into the station and the water discharged from the station to exceed

the approved temperature difference limit. A reduction of 35 per cent in the penalty amount was granted because Pickering Nuclear has an environmental management system and preventive and mitigative measures in place to avoid temperature difference contraventions.

Spills Management

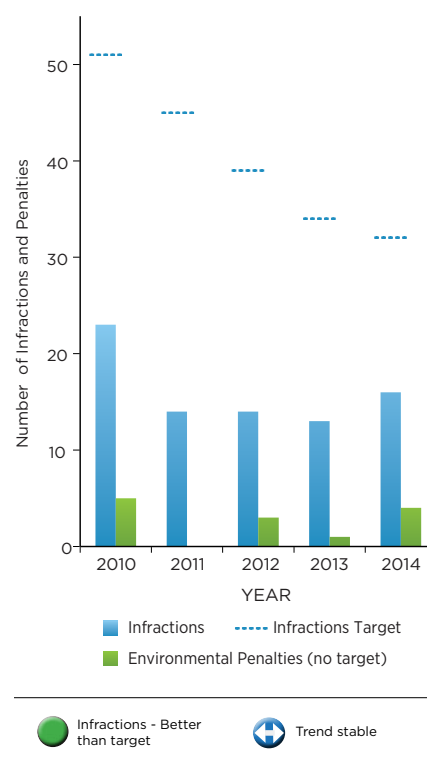
The focus of OPG's spill management program is prevention. OPG has extensive programs to assess the risk of spills and to minimize the potential consequences of spills. Programs include material handling and management practices to prevent releases, use of less hazardous materials where possible, and evaluations of past spill events for trends. Engineered controls such as spill containment structures are used to reduce the likelihood of spills.

When a spill does occur, emergency response processes minimize any adverse impacts on the environment and reporting procedures ensure regulatory authorities are notified as required.

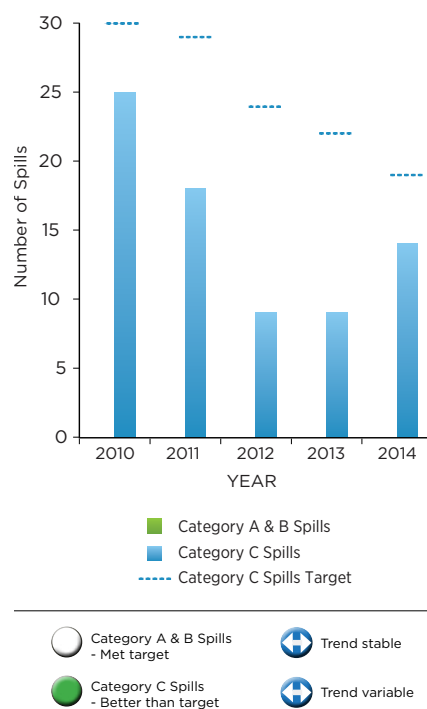
OPG classifies its spills which are reportable to a regulatory authority as Category A, B or C spills based on the actual or potential impacts. Category A spills are considered very serious due to the scale of injury or damage, health effects, or safety impairment. Category B spills are considered serious due to localized injury or impacts to property. Category C spills are all other reportable spills that are less serious than Category A and B spills. OPG's spill categories align with Ontario Ministry of the Environment and Climate Change regulatory requirements for the classification of contraventions.

There have been no Category A or B spills in the past five years and the associated annual targets remain at zero. In 2014, OPG's Category C spill performance was better than target but the number of spills increased compared to the preceding two years.

Environmental Regulatory Infractions



Spills to the Environment





American eels being released at R.H. Saunders G.S. American Eel Day at the St. Lawrence Power Development Visitor Centre.

In the past five years, the most frequent type of spill has been oil from equipment to water. Corrective actions have been taken to increase the maintenance and surveillance of equipment, and to replace and upgrade equipment, with particular focus on preventing spills from heat exchangers at OPG's nuclear stations.

Fish Protection

Electricity generating facilities can impact fish in a number of ways. The intake of water for equipment cooling purposes at nuclear and thermal stations, and the flow of water through hydroelectric stations may result in fish impingement and entrainment. Physical barriers such as dams can also prevent the migration of fish.

OPG utilizes measures such as fish ladders, nets and deterring structures, stocking programs, trap and transport programs, water flow alterations, and habitat protection and creation to manage and mitigate these impacts. OPG also works cooperatively with its regulators, the scientific community, and partner utilities on matters related to fish and fish habitat.

In 2014:

- OPG completed the development of 11 mitigation plans for lake sturgeon and American eel - two species identified under the provincial *Endangered Species Act* - for hydroelectric stations where these species may be impacted.

- OPG participated in an Electric Power Research Institute project to investigate technologies for the safe downstream passage of eels at hydroelectric stations, such as behavioral guidance field trials to guide and concentrate migrating American eels. This work forms part of the five-year action plan (2013-2017) for offsetting turbine mortality of American eels at R.H. Saunders GS.
- OPG partnered with the University of Waterloo and Manitoba Hydro to investigate technologies focused on minimizing entrainment risks and safe downstream guidance of lake sturgeon at hydroelectric stations.
- The barrier net installed at Pickering Nuclear's water intake continued to be an effective fish diversion system. Monitoring results indicate that fish impingement was reduced by more than 90 per cent compared to impingement levels before the net was installed.
- OPG completed a wetland restoration initiative in the Bay of Quinte to offset direct operational impacts. Approximately 12 hectares of ponds and five hectares of channels were created in an area that was mainly monoculture. This restoration will significantly contribute to wetland biodiversity and provide aquatic habitat.

Land Assessment and Remediation

OPG has a program to assess and remediate historical contamination at its properties. This program is the voluntary continuation of a program initially established by Ontario Hydro in 1997, in response to a Director's Order from the Ontario Ministry of the Environment and Climate Change.

As of the end of 2014, remediation at 46 sites was complete, remediation was ongoing at five sites, and remediation was still required at one site. Completion of the program is targeted for the end of 2017. The estimated present value of the assessment and remediation plan is approximately \$9 million. This amount is fully reserved under OPG's environmental and decommissioning provisions.

Environmental Emissions and Monitoring at Nuclear Stations

Environmental Monitoring Program

Very low levels of radioactivity are released to air and water as a result of operating the reactors at OPG's nuclear generating stations. Multiple systems are in place to minimize and control these releases, including dryers to remove tritium vapour, ion exchange resins to remove carbon-14, and air filters to remove particulate and radioiodine. Additionally, radioactive

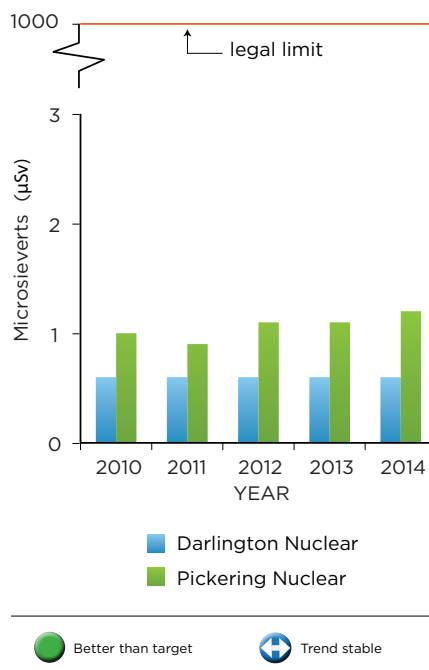
emissions are monitored and controlled through station maintenance and operating procedures.

OPG's nuclear stations also release emissions to the environment containing low concentrations of non-radiological chemicals used to prevent corrosion and mussel infestations within station water systems. Releases of chemicals such as hydrazine and chlorine are monitored and controlled to meet regulatory requirements.

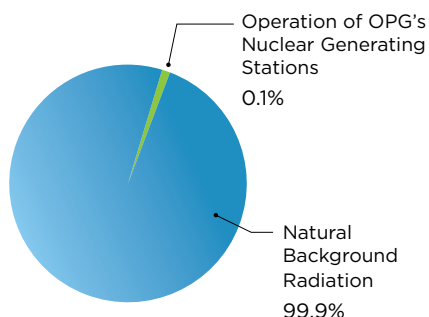
To ensure OPG's nuclear operations have minimal adverse impacts on human health and the environment, Darlington Nuclear and Pickering Nuclear have well-established environmental monitoring programs in the vicinity of the stations. These programs are designed to assess impacts, demonstrate compliance with regulatory limits, validate the effectiveness of containment and effluent controls, and verify predictions made by environmental risk assessments.

In 2014, the results from the monitoring programs confirmed that radioactive releases were small fractions of their regulatory release limits, and annual average tritium concentrations in drinking water at nearby water supply plants were well below the level committed to by OPG. Results of supplementary environmental studies

Critical Group Dose



Dose Source Comparison



undertaken in 2014 to monitor non-radiological substances indicated that no human health or ecological effects are expected.

Radiation Dose to the Public

Radiation exposure to members of the public from OPG's nuclear generating stations is estimated on an annual basis by assessing the impacts on "critical groups" of people who live or work near the stations. Dose calculations consider the actual eating, drinking and living habits of these groups. This information is obtained through surveys and analysis of environmental samples taken from a variety of sources including air, water, milk, soil, sediments, vegetation, animal feed, eggs, poultry, and fish. The group and age class with the highest dose is reported as the site public dose for the given year. Critical Group Dose is expressed in microsieverts (µSv) which is an international unit of radiation dose measurement.

In 2014, the Critical Group Doses calculated for Darlington Nuclear and Pickering Nuclear were 0.6 and 1.2 µSv respectively. These doses continue to be 0.1 per cent or less of both the legal limit of 1,000 µSv per year, and the estimated average background radiation dose around Darlington Nuclear and Pickering Nuclear of 1,400 µSv per year.

Open and Transparent Reporting

OPG is committed to ensuring its radiological emissions data is accessible to the public. Detailed environmental monitoring program results and environmental emissions data reports are available at www.opg.com/news-and-media.



Air monitoring station for the Darlington environmental monitoring program

CLEAN ENERGY AND CLIMATE CHANGE

Clean Energy Portfolio

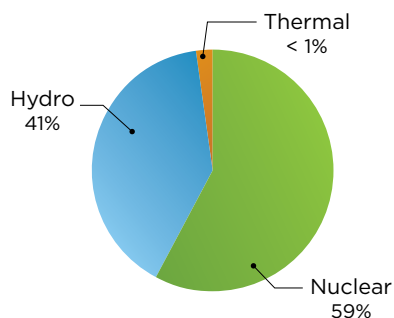
OPG produces electricity from a portfolio of energy sources that contribute to improved air quality and minimize greenhouse gas emissions. As of 2014, 99.7 per cent of the electricity produced by OPG was free of smog and greenhouse gas emissions.

In April 2014, OPG fulfilled the Ontario Ministry of Energy's mandate to end coal-fired generation in the province when the last piece of coal was burned at Thunder Bay GS. OPG has been eliminating its use of coal over the past several years and Thunder Bay was the last power plant to use coal as fuel. In 2014, OPG's emissions of carbon dioxide, sulphur dioxide (SO₂) and nitrogen oxides (NO_x) were at their lowest level since OPG was established in 1999.

Two of OPG's thermal generating stations in northern Ontario have been converted from burning coal to biomass – a renewable, plant-based fuel. Refuelling stations with biomass not only provides Ontario with more renewable energy, it also makes effective use of existing assets. The conversion of Atikokan GS was completed in July 2014, making it the largest capacity, 100 per cent biomass-fuelled power plant in North America.

2014 Electricity Production

Total electricity generated 82.2 terawatt hours*



* Includes OPG's share of production from co-owned gas-fired facilities

fast facts: ENERGY PORTFOLIO

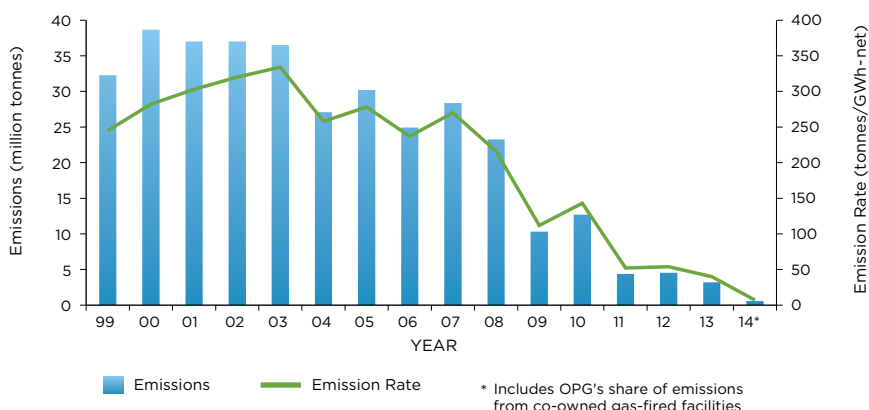
Cleaner Air for Ontarians

- Ontario is the first jurisdiction in North America to fully eliminate coal as a source of electricity generation.
- The elimination of coal was North America's single largest climate change initiative and the equivalent of taking up to seven million cars off the road.

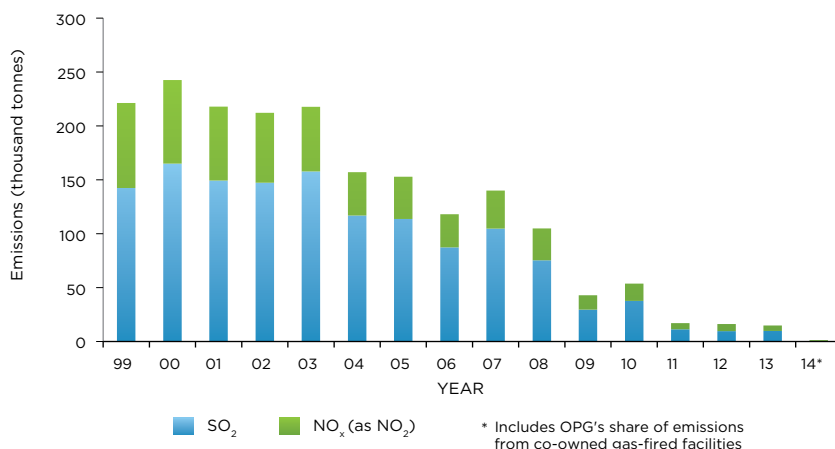
Clean Energy Investments

- \$2.6 billion budget for the Lower Mattagami River project.
- \$170 million budget for the Atikokan biomass conversion project.
- \$7 million budget for the Thunder Bay advanced biomass conversion project.
- Life-to-date capital expenditures at Dec. 31, 2014, were \$1,462 million for the Darlington refurbishment project. The budget is expected to be completed in 2015.

Carbon Dioxide Emissions



Acid Gas Emissions





▲ Atikokan GS biomass pellets

◀ The closure of OPG's coal plants and the conversion to biomass marks the start of a new era for OPG.

The conversion of Thunder Bay GS to advanced biomass was completed in January 2015. Compared to regular biomass, advanced biomass has higher energy density and is hydrophobic (repels water), allowing it to withstand the elements while being stored outside. Advanced biomass has emerged as a leading candidate for future station conversions due to its favourable handling and storage properties. Advanced biomass contains about 75 per cent less nitrogen oxide than coal emissions and virtually no sulphur dioxide. All of OPG's wood-based biomass fuel contracts require that the biomass comes from sources that meet the *United Nations Framework Convention on Climate Change* definition of renewable biomass.

Former coal-burning units at OPG's Lambton generating station are being preserved for possible conversion to natural gas and/or biomass in the future if required.

OPG continues to increase generation from its hydroelectric resources. In 2010, construction began along the Lower Mattagami River to add one additional generating unit at each of

the existing Little Long, Harmon and Kipling generating stations, and to replace the station at the Smoky Falls site with a new three-unit station. In January 2015, the Lower Mattagami project was declared fully in-service. This project was the largest hydroelectric project in northern Ontario in the past 50 years. The Lower Mattagami stations will provide clean, renewable energy for the next century or more.

OPG's nuclear stations are relied upon to produce stable baseload energy with virtually no air pollution. To maintain these valuable assets, OPG is preparing for the refurbishment of all four units at the Darlington station starting in 2016. OPG is also investing in the continued operation of the six units at Pickering Nuclear, which will allow the station to provide electricity until 2020, and provide for much needed electricity during the Darlington refurbishment when units are taken out of service.

Additional information about OPG's role in providing clean energy to Ontarians is available in *Ontario's Long-Term Energy Plan* (www.energy.gov.on.ca/en/ltep).

Climate Change

Climate Change Adaptation

Climate scientists have concluded the climate is changing, and extreme weather events are occurring as a result of natural and human activity. OPG recognizes efforts are required to plan for the effects of climate change and has identified climate change adaptation as a strategic risk issue for the company. OPG monitors for developments in climate science, adaptation activities, and potential changes to policy and regulatory requirements.

During 2014, OPG continued its participation in climate change adaptation initiatives with municipal and regional governments, the Ontario Ministry of the Environment and Climate Change, the Ontario Ministry of Energy, and Natural Resources Canada. OPG is a member of both the greater-Toronto-based WeatherWise Partnership electrical sector core project team and the Canadian Electricity Association (CEA) Adaptation working group.

OPG also continues to work with the CEA member companies, non-government organizations, and government to better define adaptation requirements through analysis and understanding of climate change impacts on watersheds and electricity supply and demand. Once adaptation requirements are better known, a risk-based analysis will help OPG determine the extent of efforts it will undertake to reduce the impact of climate change on its operations.

Regulation of Greenhouse Gas Emissions

OPG supports policy and regulation that promote reductions in greenhouse gas emissions. Specifically, OPG endorses climate change initiatives that recognize, preserve, and where possible, allow for expansion of OPG's low-emissions generating fleet. OPG continues to monitor federal and provincial developments in this area.

OPG'S LOW-CARBON FOOTPRINT

CARBON DIOXIDE EMISSIONS BY GENERATION TECHNOLOGY

Technology	Source	2014 Emissions (tonnes)
THERMAL	Combustion of fossil fuels and biomass to generate electricity, including OPG's share of emissions from co-owned gas-fired facilities. Facilities that emit the equivalent of 50,000 tonnes or more of greenhouse gases in carbon dioxide equivalent units per year are required to report under Environment Canada's Greenhouse Gas Emissions Reporting Program.	510,611
	Emissions from auxiliary boilers at thermal stations. Lambton GS and Nanticoke GS are retired from service and required heating boilers to preserve equipment.	47,796
NUCLEAR	Nuclear power plants do not emit carbon dioxide as part of the power generation process. However, OPG's nuclear sites have standby diesel generators to provide backup electrical power to the stations if required. These generators are routinely tested to ensure their availability.	8,741
HYDROELECTRIC	The generation of hydroelectricity does not produce carbon dioxide emissions.	0

BIODIVERSITY AND HABITAT STEWARDSHIP

Every business and industry has effects on biodiversity either directly through habitat loss and fragmentation or indirectly through emissions to land, water and air. OPG's biodiversity programs demonstrate that industry

can and does have a role to play in conserving biodiversity. OPG recognizes its effects on nature do not stop at the boundaries of its sites, nor do its efforts to protect and restore nature.

OPG's biodiversity initiatives are designed to implement the "4 Rs" of biodiversity: **Retain** what is ecologically significant; **Restore** habitats that have been degraded; **Replace** habitats that

have been lost (where ecologically and economically feasible); and help **Recover** species that are at risk.

OPG works with its community partners to support regional ecosystems and biodiversity through science-based habitat stewardship. Through these partnerships, OPG continues to demonstrate leadership and innovation in advancing biodiversity conservation in Ontario. OPG is also committed to



OPG partnered with the Quinte Conservation Authority to create new ponds and channels in a wetland to establish fish habitat.

managing its sites in a manner that strives to maintain, or enhance where it makes business sense, significant natural areas and associated species of concern.

Biodiversity Partnerships

OPG is the lead sponsor in the Lake Ontario Atlantic Salmon Restoration Program. This program, also known as **Bring Back the Salmon**, is designed to help restore a self-sustaining Atlantic salmon population to Lake Ontario and its streams. The main components of the program include: fish production and stocking, water quality and habitat enhancement, outreach and education, and research and monitoring. In 2014, the Ontario Ministry of Natural Resources and Forestry released a major scientific study that showed the program has exceeded benchmarks for in-stream survival and growth of juvenile Atlantic salmon through their first summer. These are extremely important indicators of stream health and restoration progress. The study also notes other positive signs such as the

presence of Atlantic salmon nests, wild juveniles and wild adults in the rivers.

OPG also partners with groups like Bruce Trail Conservancy, Earth Rangers, LEAF (Local Enhancement and

Appreciation of Forests), Ontario Nature, Rouge Park, and Toronto Wildlife Centre to facilitate conservation activities that will engage Ontario families and raise awareness regarding the many benefits of biodiversity.

More information about OPG's biodiversity partnerships is available at www.opg.com/communities-and-partners.

fast facts: BIODIVERSITY PROGRAM

OPG Biodiversity 2014

- Supported by OPG, the Lake Ontario Atlantic Salmon Restoration Program has stocked more than 336,000 one-year-old salmon since 2011.
- OPG is proud of its ongoing sponsorship of Rouge Park. In addition to the Fall Guided Walk program, OPG helped restore a much travelled footpath to provide improved safety features for trail users and visitor signage.
- OPG's conservation partners planted almost 270,000 native trees and shrubs, as well as native seeds, on approximately 150 hectares of land, bringing the total to just over six million.
- OPG's Regional Biodiversity Program partners completed a variety of initiatives including: 5.5 acres of grassland restoration, over 4 kilometres of stream bank restoration, enhancement of turtle nesting habitat, native seed collection, invasive species control, monitoring programs, and outreach and educational activities.



OPG's Pickering Nuclear Information Centre has an educational salmon hatchery as part of the outreach component of Bring Back the Salmon.



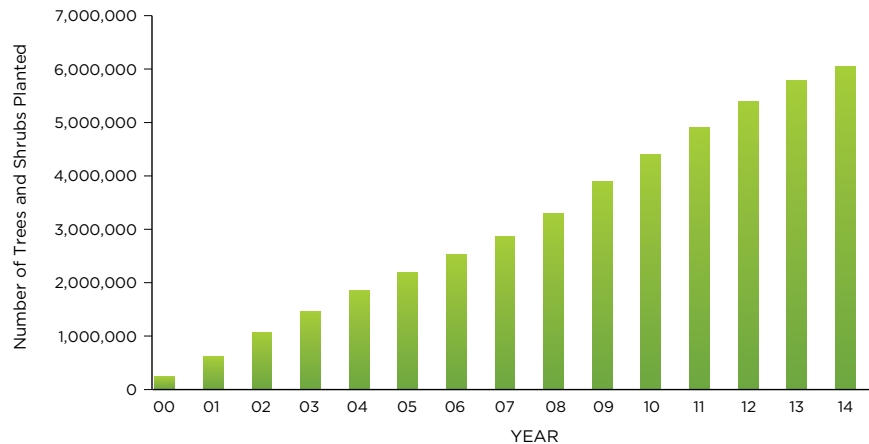
OPG supported safety and trail enhancements at Rouge Park, Canada's first urban national park.

Regional Biodiversity Program

OPG's Regional Biodiversity Program is strategically focused on funding and promoting efforts that contribute to the protection and restoration of a natural heritage system of habitat cores and corridors across Ontario.

Through OPG's Regional Biodiversity Program, woodland restoration projects are implemented in strategic locations across southern Ontario, including the Carolinian forest which is one of the most biologically imperiled regions in Canada. These projects are targeted to expand key core forested areas and connect woodland patches to 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 to achieve the greatest ecological and social value for the investment dollar. Since 2000, more than six million native trees and shrubs have been planted on approximately 2,850 hectares of land. This cumulative effort also addresses climate change adaptation and mitigation by enhancing the resiliency of woodland ecosystems to withstand the effects of climate change while naturally sequestering carbon dioxide. In addition to woodland restoration, OPG's Regional Biodiversity Program funds advanced wetland, grassland, lake and river biodiversity projects.

Cumulative Tree Planting



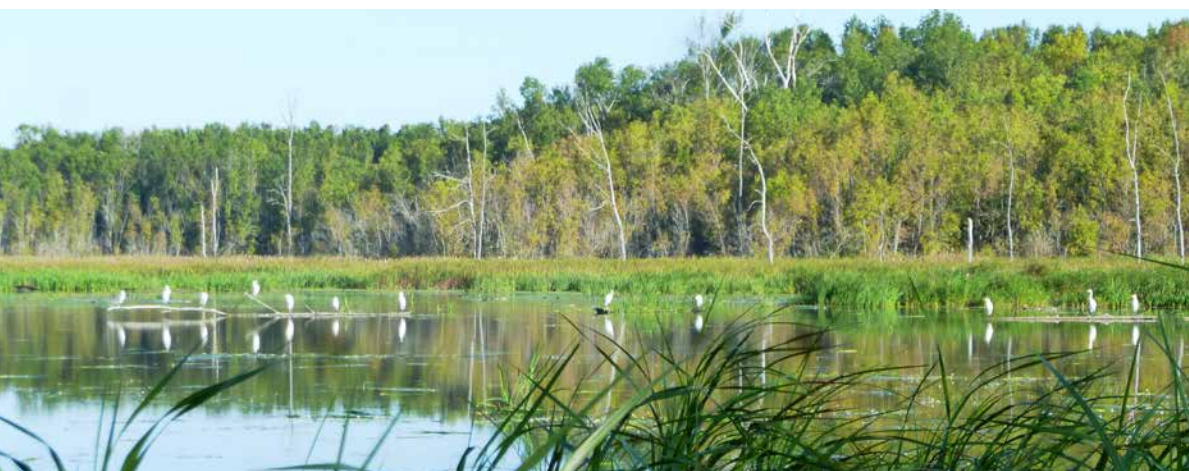
To be considered for funding under OPG's Regional Biodiversity Program, potential vendors must be pre-qualified and added to OPG's Regional Biodiversity Program Vendors List. Qualified vendors are then notified by OPG of potential project opportunities. Additional information about OPG's Regional Biodiversity Program is available at www.opg.com/communities-and-partners.

Ontario's Biodiversity Strategy

As a member of the Ontario Biodiversity Council, OPG supports Ontario's 2011 Biodiversity Strategy, which highlights four strategic directions: engage people, improve knowledge, reduce threats and enhance resilience. OPG is at the forefront in leading progress towards achieving Ontario's Biodiversity Strategy.

- OPG is a contributor to biodiversity education and awareness across Ontario through fostering various outreach programs, partnerships and contributing to scientific knowledge.
- OPG strives to minimize and mitigate adverse effects to biodiversity caused by operations.
- In addition to activities at its sites, OPG is a key contributor to habitat restoration and enhancing resilience of ecosystems across southern Ontario.

Additional information about the Ontario Biodiversity Council and Ontario's Biodiversity Strategy is available at: www.ontariobiodiversitycouncil.ca.



Great egrets in Lennox GS wetland



New osprey nesting platform at Lennox GS

Biodiversity Program Recognition

OPG continues to receive certification and recognition from the Wildlife Habitat Council for biodiversity programs at its sites. The Wildlife Habitat Council is an international non-profit, non-lobbying group of corporations, conservation organizations and individuals dedicated to restoring and enhancing wildlife habitat. The Council's certification process helps ensure OPG's biodiversity programs remain dynamic and demonstrate continual improvement.

- OPG has 13 **Wildlife at Work** certifications. Wildlife at Work programs emphasize community involvement in projects that create, conserve and restore wildlife habitats on corporate lands.
- Six OPG sites are **Corporate Lands for Learning** certified for their educational and outreach programs.
- In 2014, Courtice Secondary School, an exceptional community partner in the OPG Darlington Biodiversity Program, was selected as a finalist for the Community Partner of the Year Award. This award recognizes the special relationship between corporations and their community partners in environmental stewardship and educational conservation projects.

Additional information regarding the Wildlife Habitat Council is available at www.wildlifehc.org.

BIODIVERSITY PARTNERSHIP PROFILES

Nature Conservancy of Canada - Minesing Wetlands Program

The Minesing Wetlands is one of the largest wetland systems in southern Ontario. It supports a diversity of habitats, rare species and ecological communities uncommon to this part of the province. Minesing Wetlands has been designated an Area of Natural and Scientific Interest, a Provincially Significant Wetland and is included on the Ramsar List of Wetlands of International Importance. A priority in the Minesing Wetlands is to enhance the water quality and improve forest health to help protect Ontario biodiversity. With OPG support, Nature Conservancy of Canada, in collaboration with other partners including the Nottawasaga Valley Conservation Authority, is addressing stream restoration and stewardship needs by educating and engaging community members; participating in stewardship, monitoring and restoration activities; and conducting an assessment survey to evaluate trends in forest health.



Top: Canoeing at the Minesing Wetland Conservation Area.
Photo courtesy of the Nottawasaga Valley Conservation Authority.

Bottom: Volunteers working to restore and protect riparian habitats.
Photos courtesy of the Nature Conservancy of Canada.



Skinners Bluff, Bruce Trail
Photo courtesy of Lynn Reket.

Bruce Trail Conservancy

The Bruce Trail is an internationally recognized nature corridor stretching 885 kilometres along the Niagara Escarpment from Queenston to Tobermory. It is the longest and oldest footpath in Canada. What will you find on the Bruce Trail? Just about everything wonderful: waterfalls, centuries-old coniferous trees, and unique wildlife found nowhere else in the country. Leading the charge in preserving this irreplaceable landscape is the Bruce Trail Conservancy. The Bruce Trail Conservancy is one of Ontario's largest land trusts and works with volunteers and community partners like OPG to protect this natural treasure. OPG has proudly supported Bruce Trail Conservancy for five years. The partnership has resulted in programs that raise public awareness about this conservation corridor. Guided hikes, photo contests and tree plantings are just some of the activities offered throughout the year. Visit www.brucetrail.org for more information.

"Preserving this corridor ensures that plants and animals have food, shelter and breeding areas. We're protecting this ecosystem so that it can be enjoyed for generations to come."

Beth Gilhespy
Executive Director
Bruce Trail Conservancy

South Nation Conservation – Expansion of Wildlife Habitat

A three-year partnership with OPG allows South Nation Conservation to expand programs that restore and create habitat for plants and animals across the South Nation jurisdiction in eastern Ontario. Initiatives include: expanding South Nation Conservation's Woodlot Advisory Services and tree planting program; restoring grasslands which create important habitat for species such as the eastern meadowlark, loggerhead shrike, bobolink and pollinators; and enhancing wetland habitat by establishing riparian zones, planting wetland plant species, and increasing spawning opportunities for fish and amphibians. Outreach and education activities also ensure community members understand the benefits of and value a healthy watershed. Youth presentations that include curriculum-linked hands-on lessons about woodlands, grasslands and wetlands help connect youth to the habitats found in their backyard.



In 2014, South Nation Conservation staff captured the largest male snapping turtle recorded over the past nine years of their Turtle Watch program. Photos courtesy of South Nation Conservation.



Wild rice is harvested and sowed to combat the recent decline of native rice in the South Nation Conservation watershed.

WASTE MANAGEMENT

Low and Intermediate Level Radioactive Waste

Low and intermediate level radioactive waste (LILRW) is produced during routine operations at nuclear facilities. LILRW includes products and components used in the reactor building that may have collected some radiation. Low level waste consists of materials such as protective clothing, floor sweepings, mops and rags. Intermediate level waste includes materials such as resins, filters and used reactor components. LILRW is safely stored at OPG's waste management facility located at the Bruce nuclear site in the Municipality of Kincardine, Ontario.

Minimizing the generation of waste not only reduces OPG's environmental footprint, it is also an effective means of lowering costs associated with the in-station processing, transportation, storage, and long-term management of waste. Key strategies to reduce the generation of low level waste include segregation of radioactive and non-radioactive waste, decontaminating and/or reusing items, and only taking what is necessary into radioactive work areas to prevent contamination. OPG also actively pursues new waste reduction and recycling initiatives to further minimize waste. In late 2014, OPG initiated a waste sorting pilot project to assess the viability of sorting waste received at the waste management facility. The project is looking at reducing both legacy and current waste streams. The project has recovered storage space and identified opportunities for improving waste sorting at station job sites.

As a means to further reduce waste storage requirements, low level waste is incinerated or compacted where possible to reduce the volume of waste. In 2014, a new performance measure

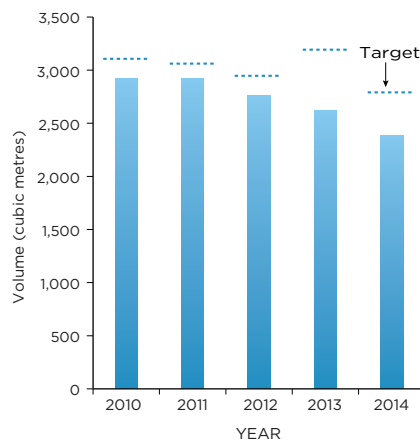


Waste pilot project sorting area

was introduced to track and drive reductions in waste that cannot be incinerated or compacted (e.g., concrete, metal items that cannot be reused or recycled). This new measure is intended to build upon the volume reductions already achieved in recent years.

More information about nuclear waste management is available at www.opg.com/generating-power.

Low and Intermediate Level Radioactive Waste Produced



Better than target



Trend improving

Deep Geologic Repository

OPG is working to make sure Ontario has a permanent solution to manage nuclear waste. One aspect of this work has been developing a safe place to store LILRW. OPG has proposed to build and operate a deep geologic repository (DGR) on its existing Bruce nuclear site that would safely isolate about 200,000 cubic metres of LILRW from OPG-owned nuclear generating stations. Used nuclear fuel will not be stored or managed in the DGR.

In September 2014, the Joint Review Panel (JRP) overseeing the federal review process for OPG's DGR project held eight public hearing days in Kincardine. These hearing days were in addition to the hearing sessions held in 2013 and were scheduled to allow interested parties to provide their views in relation to the subjects of the information requests issued by the JRP since November 2013. In November 2014, the JRP closed the public record and announced it would proceed with writing the Environmental Assessment Report to be submitted to the Minister of the Environment.

fast facts: DEEP GEOLOGIC REPOSITORY

- OPG proposes to build the DGR at a depth of 680 metres below the surface in the thick, stable and solid limestone rock of the Cobourg Formation.
- The host rocks of the Cobourg Formation have remained stable under nine glaciations over the past one million years.
- It would take a water particle at the repository depth in undisturbed rock approximately 10,000,000 years to move one metre.
- There is no evidence that glacial meltwater and water from precipitation has been able to reach the Cobourg Formation for at least 2.5 million years.
- Eighty per cent of the DGR waste volume would be low level waste.

In May 2015, the JRP issued their report to present conclusions, rationale and recommendations regarding the project. It was concluded that the DGR is the preferred solution for the long-term management of LILRW and the proposed site is appropriate. The federal government is to issue a decision statement in 2016 on whether the project may proceed.

More information about the DGR project is available at www.opg.com/generating-power and www.opgdgr.com.

Overall Conclusion of the Joint Review Panel

“The Panel concludes that the project is not likely to cause significant adverse environmental effects, taking into account the implementation of the mitigation measures committed to by OPG together with the mitigation measures recommended by the Panel.”

Long-Term Management of Nuclear Fuel

The Nuclear Waste Management Organization (NWMO) was established in 2002 by Canada’s nuclear power plant owners, including OPG, to develop and implement a management approach for the long-term care of Canada’s used nuclear fuel. OPG provides approximately 90 per cent of NWMO’s funding. The NWMO is implementing an Adaptive Phased Management plan to contain and isolate used nuclear fuel in a deep repository constructed in a suitable rock formation in an informed and willing community. The plan will be implemented over many years through a process of phased and adaptive decision-making. In the interim, OPG is storing and managing used fuel at its nuclear generating station sites.

Details regarding the NWMO’s strategic plan for implementing Adaptive Phased Management are available at www.nwmo.ca.

Hazardous Waste

OPG has programs in place to manage its hazardous waste in accordance with provincial and federal regulations. OPG’s hazardous wastes include items such as oils and lubricants, solvents, batteries, paint and laboratory chemicals. To the extent practical, OPG attempts to minimize the amount of hazardous waste generated and employs reuse and recycling programs when the generation of waste cannot be avoided.

RESOURCE USE

Water Management

Water Levels and Flows

OPG operates 65 hydroelectric plants and 240 dams on 24 river systems. Many of these structures are used to control or adjust water levels and flows in accordance with requirements that range from international treaty to voluntary watershed management commitments.

Regulating water levels and flows helps maintain water levels for recreational, commercial or other water-based activities; prevents shoreline erosion and damage to infrastructure; reduces impacts to fish; and prevents damage to aquatic and terrestrial habitats. OPG also plays a significant role in flood mitigation and prevention in many watersheds.

Water Use and Conservation

OPG relies on the flow of waterways to generate clean renewable power at its hydroelectric stations. To ensure this valuable resource is used wisely, OPG undertakes regular assessments of its hydroelectric dams, powerhouses and associated facilities to detect and repair any water leaks and to identify opportunities to update equipment and fixtures to reduce water usage. OPG also incorporates natural vegetation at a number of sites to reduce the amount of watering required.

Almost all of the water used by nuclear and thermal stations is used for cooling purposes. It passes through the station only once and is returned to its source at a slightly higher temperature.

Tips and ideas on developing water conservation initiatives for communities, homes and businesses are available from Environment Canada at www.ec.gc.ca/eau-water.

Energy Efficiency

Conservation is the cleanest and most cost-effective energy resource. In recognition of this fact, OPG (and previously Ontario Hydro) has pursued an energy efficiency improvement program for the past 20 years. The annualized energy improvement since 1994 has been 2,524 gigawatt hours, which is the result of various initiatives to reduce electricity consumption and increase energy output through station upgrades. In 2014, OPG achieved new internal energy efficiency savings of 17.5 gigawatt hours per year primarily due to reductions in lighting use at Lambton GS. In addition to this program, OPG also considers energy efficiency and sustainability when renovating and constructing buildings.

To learn more about the value of energy conservation and ways to save electricity, refer to the Ontario Ministry of Energy website at www.energy.gov.on.ca.

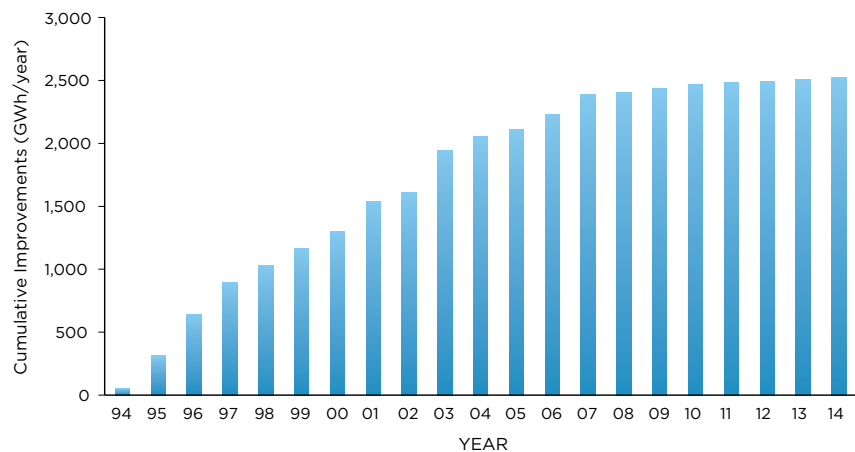
Transport and Work Equipment Fleet Optimization Initiative

In 2014, OPG undertook a company-wide initiative to transform the way its transport and work equipment fleet assets are managed. The fleet includes cars, light and heavy trucks, trailers, equipment and boats. The initiative was part of OPG's efforts to reduce costs and improve efficiencies. The initiative achieved its goal to reduce 600 assets and save \$2.5 million in 2014.



OPG also launched a new business travel option for all employees. This initiative allows OPG access to the Ontario Ministry of Transportation's existing car pool program. Employees now have access to the more than 400 vehicles located at nearly 40 car pool lot locations across the province, including at five OPG sites. More than two-thirds of the car pool vehicles are either hybrid or plug-in hybrid electric vehicles.

Cumulative Energy Efficiency Improvements



OPG's Darlington Energy Complex is LEED Gold certified.



SOCIAL

25

Darlington Nuclear welcomed about 3,500 visitors to its world-class nuclear refurbishment training facility in November 2014.

STAKEHOLDER AND COMMUNITY ENGAGEMENT

Stakeholder Framework

OPG's licence to operate depends on meeting the environmental, social and economic expectations of stakeholders and local First Nations and Métis communities. Accordingly, OPG has a mature engagement framework for sharing information about the company's activities and operations and receiving feedback. This framework allows OPG to meet its commitments as an open and accountable company, to adapt to evolving expectations and regulatory requirements, and to make better business decisions.

The following table summarizes OPG's outreach to stakeholder and community groups, as well as key engagement activities for 2014.

Group	Methods of Engagement and Feedback Systems	Engagement Examples 2014
Local communities	Internet website, social media, visitor information centres, community advisory councils, open houses, facility tours, direct mail, TV (select communities), print, radio and online advertising, hearings, consultations, participation in community events, corporate citizenship program	<ul style="list-style-type: none"> • Darlington Energy Complex “open doors” event • Hosted community open houses on select river systems to inform residents of safety and water management • Distributed more than 200,000 nuclear emergency preparedness brochures • Use of Twitter to highlight community news and events
Employees	Intranet, newsletters, regular face-to-face meetings, email, videos, posters, ad hoc surveys, information sessions	<ul style="list-style-type: none"> • PowerNet intranet site • PowerNews company newsletter • Senior manager blogs and video messages • Regular safety and department meetings
Suppliers and contractors	Internet website, supplier pre-qualification process, labour requirements, face-to-face meetings	<ul style="list-style-type: none"> • Interface to promote improvement in supplier performance and quality of parts and service
Industry groups	Participation in working groups, memberships, sponsorships and exhibits at conferences, keynote speakers at meetings and conferences	<ul style="list-style-type: none"> • Sponsorships or memberships in a variety of organizations such as: Ontario Energy Network, CANDU Owners Group, Ontario Waterpower Association, and Electricity Distributors Association
Government and agencies at federal, provincial and municipal levels	Meetings, hearings, consultations, correspondence	<ul style="list-style-type: none"> • Federal Joint Review Panel hearings on the proposed deep geologic repository • Rate hearings before the Ontario Energy Board • Continued updates on status of Auditor General's recommendations
Educational institutions	Investments in educational programs and facilities, provide resource kits for teachers	<ul style="list-style-type: none"> • Supported the OPG BioEnergy Learning and Research Centre at Confederation College in Thunder Bay • 674 education kits distributed to Ontario schools
Non-government organizations	Meetings, hearings, consultations, open houses	<ul style="list-style-type: none"> • Member or supporter of organizations such as: Ontario Community Newspaper Association, Lake Ontario Waterkeepers, Ontario Chamber of Commerce, boards of trade and chambers of commerce
Media	News releases, 24/7 media desk, media tours of nuclear, hydro and biomass stations	<ul style="list-style-type: none"> • Issued 57 news releases including end of coal-fired generation, completion of Lower Mattagami project, Darlington refurbishment, biomass conversion and water safety • Conducted a variety of media tours which included the Darlington Energy Complex, Western Waste Management Facility and Atikokan GS
Electricity ratepayers, general public	Public hearings, earned and paid media including TV water safety public service announcement, extensive digital and social media presence, open houses, visitor centres	<ul style="list-style-type: none"> • Launched improved opg.com • Advertised in major newspapers regarding OPG's off-coal initiative, Darlington refurbishment, deep geologic repository hearings and biodiversity events • Daily tweets and retweets on Twitter; @opg has more than 5,000 followers

Community Research

In an effort to understand the effect of OPG's operations and to ensure OPG is communicating effectively, OPG conducts research in its site communities on a regular basis. In 2014, OPG conducted quantitative research in Durham Region, and both quantitative and qualitative research in Atikokan and Thunder Bay.

FIRST NATIONS AND MÉTIS RELATIONS

First Nations and Métis Engagement

OPG is committed to building and growing mutually beneficial working relationships with First Nations and Métis communities near its current and future operations. These relationships are established and maintained through ongoing dialogue aimed at preserving openness, transparency and trust. They are also developed on a foundation of respect for languages, customs, cultural institutions and rights.

In an effort to enhance its relationships with First Nations and Métis people in Ontario, OPG has adopted a formal framework to assess and resolve, where appropriate, historical past grievances that are proximate to OPG facilities with respect to past construction and operation. Since 1992, OPG has reached 22 past grievance settlements with 20 First Nations communities.

OPG's First Nations and Métis Relations Policy outlines the company's commitment to engage in community relations and outreach, and to provide capacity building support, including employment and business contracting opportunities. The policy guides OPG's work with more than 50 First Nations and Métis communities on numerous projects and partnerships. OPG holds information and update sessions annually in many Aboriginal



Brian McGee, Senior Vice President, Pickering Nuclear speaking at a community information session

communities to share knowledge, discuss development initiatives, and review planned project activities.

In 2014, OPG continued to develop relationships with First Nations and Métis communities including:

- Ongoing discussions with Saugeen Ojibway Nation, the Métis Nation of Ontario and the Historic Saugeen Métis on the proposed deep geologic repository at the Bruce nuclear site.
- Information sharing sessions with local First Nations on nuclear operations and the Darlington refurbishment.
- Gull Bay First Nation and OPG celebrated a new relationship with the signing of a Final Settlement Agreement and a formal apology by OPG. The settlement and apology were related to dams constructed by OPG's predecessor companies on the Nipigon River between 1918 and 1950.



Left to Right: Mike Martelli, Senior Vice President, Hydro Thermal Operations and Roberta Jamieson, OPG board member presenting a symbolic eagle carving to Gull Bay First Nation Chief Wilfred King.

Growing Partnerships

OPG continues to pursue economic partnerships that provide for long-term commercial arrangements, while respecting the evolving relationship between First Nations and Métis peoples and broader society. Underscoring this work is OPG's acknowledgement of the inherent Aboriginal and Treaty rights of First Nations and Métis communities. This remains an important aspect of the company's generation development program.

OPG's partnership ventures are regarded by many as a best practice. In 2014, work continued on existing commercial partnerships involving Lac Seul First Nation, Moose Cree First Nation and Taykwa Tagamou Nation. Discussions also continued with a number of First Nation communities regarding potential development projects in the Lake Nipigon area and other parts of northern Ontario.

In 2014, the Métis Nation of Ontario signed a five-year Memorandum of Understanding with OPG. This agreement builds on the existing relationship and allows for future engagement on OPG's current and future operations in the Georgian Bay area, including OPG's proposed deep geologic repository.

Community Relations and Outreach

In 2014, OPG's Corporate Citizenship Program supported First Nations and Métis cultural, educational, fundraising, youth and sporting activities from across the province including:

- Indspire Awards (formerly National Aboriginal Achievement Awards)
- John Wesley Beaver Educational Awards
- Lieutenant Governor's Aboriginal Youth Reading Camp Program

Building Capacity

OPG continued to provide financial support to the Aboriginal Apprenticeship Board of Ontario to help develop its regional Link Committees. These committees provide a forum for Aboriginal Skills Employment and Training Agreement holders to network with local employers, educators and agencies, and explore opportunities and best practices in Aboriginal apprenticeship.

By the end of 2014, the Lower Mattagami River Hydroelectric Project saw a total of 458 person years of employment for Aboriginal workers. This includes an impressive nine completed construction trade apprenticeships.

Leading up to the project's completion, OPG and Moose Cree First Nation, along with the contractor Kiewit-Alarie, developed a detailed transition plan for Aboriginal workers who had been employed on the initiative. This included increasing the technical skills and certifications of workers in areas like welding, carpentry and project management.

**First Nations Employment
Lower Mattagami River Project**



Lac Seul First Nation and OPG celebrated the five-year anniversary of their partnership in the Obishikokaang Waasiganikewigamig / Lac Seul Generating Station in 2014.



OPG's Barb Keenan presents the 2014 John Wesley Beaver scholarship award to Melanie St-Georges and Darian Baskatawang.



To celebrate National Aboriginal Day (June 21), OPG held special events at its Kipling and Darlington sites.

HEALTH AND SAFETY

Employee Safety

OPG's health and safety management system ensures employees are protected from workplace hazards through the effective development and implementation of health and safety plans, procedures, monitoring processes and continuous improvement activities.

In 2014, OPG successfully implemented a single corporate health and safety management system and a suite of common hazard control procedures across the company. This management system establishes consistent high standards for performance, monitoring and corrective action in the area of health and safety.

Overall, OPG's safety performance is consistently among the best when compared to Canadian electrical utilities of similar size. In 2014, OPG achieved its best ever All Injury Rate performance with a rate of 0.36, which is 60 per cent better than target and an improvement of 41 per cent over 2013. In 2014, OPG was also recognized by the Canadian Electricity Association for the second year in a row for achieving top quartile performance among

comparable utilities with its 2014 All Injury Rate and Accident Severity Rate performance.

While OPG is very proud of its strong safety culture and performance, OPG's employees are still working to advance the company's position as a safe generator and to achieve the goal of zero injuries. Safety is not something that can be taken for granted or become complacent about; it must remain the number one priority, every day in every task.

fast facts: **EMPLOYEE AND CONTRACTOR SAFETY**

- OPG has had no fatalities since 2002.
- OPG has almost 250 Joint Health and Safety Committee members active on 41 committees.
- OPG has implemented a new program to assess contractors' health and safety programs before they are allowed to bid on work.
- OPG's construction contractor All Injury Rate performance of 0.53 injuries per 200,000 hours worked in 2014 is almost 90 per cent better than the 2014 industry construction All Injury Rate of 5.14.
- Compared to Canadian Electricity Association member averages, OPG's Accident Severity Rate performance is 92 per cent better, and OPG's All Injury Rate performance is 77 per cent better.

In 2014, OPG was fined \$75,000 for failing to follow notification procedures required under the Occupational Health and Safety Act. In 2011, two workers filed claims with the Workplace Safety and Insurance Board in respect of an occupational illness potentially resulting from their possible exposure to lead. OPG did not provide the required notice to the Ontario Ministry of Labour within four days. Corrective action was taken by OPG to review the notification process.

Occupational Safety



All Injury Rate
- Better than target



Trend improving

Employee Health

In 2014, OPG launched a Total Health initiative. This initiative aims to create a health culture similar to OPG's strong safety culture. The Total Health initiative supports employees and their families in their efforts to achieve an optimal level of health and functioning through health education, health promotion, disease and injury prevention, and crisis intervention. The initiative was rolled out to employees through email, posters and face-to-face meetings.

A keystone of the Total Health initiative is OPG's Employee and Family Assistance Program, which offers immediate confidential support to deal with life problems and challenges. Employees and family members can receive support over the phone, in person, online or through a variety of issue-based health and wellness resources. A new Total Health web page was also developed for the OPG intranet to connect employees with resources and information related to the Employee and Family Assistance Program and other health-related initiatives and topics.

In order to support employees who are sick or injured off the job in their safe and timely return to work, OPG has an integrated disability management process that offers a skilled and experienced network of health professionals and an infrastructure to provide objective and consistent case management services.

Public Safety on Waterways

OPG staff work closely with partners in site communities to help ensure public safety around OPG's dams and hydroelectric stations. In partnership with the Ontario Provincial Police, OPG continued its water safety outreach program to inform the public about the potential for rapid and dangerous

changes in water levels and flows. Fast moving water can create turbulence and strong undercurrents.

Safety messages are broadly communicated to the public on television, radio, online, and in newspaper and magazine advertisements, as well as through brochures and DVDs. OPG's message remains Stay Clear Stay Safe. Visit www.opg.com/watersafety to view OPG's most recent public service announcements.

STAY CLEAR STAY SAFE



Remotely-operated dam gates can quickly turn calm waters or dry riverbeds into dangerous flows. Stay Clear, Stay Safe around dams, hydroelectric stations and surrounding waterways.

Nuclear Emergency Preparedness and Response

During 2014, OPG continued to incorporate the lessons learned from the earthquake and tsunami that occurred at the Fukushima Daiichi Nuclear Power Plant in Japan in 2011. Highlights from the 2014 work program include:

- OPG submitted a request to the Canadian Nuclear Safety Commission (CNSC) to close the remaining Fukushima Action Items that were assigned as part of the Fukushima Action Plan. The CNSC confirmed the closure of the items in January 2015. A total of 101 actions were completed by OPG.
- Station modifications continued to be implemented to enhance and streamline the capability of OPG's nuclear generating stations to respond to accidents exceeding the design basis of the plants.
- Severe accident management guidance was expanded to encompass a further range of event sequences to add to already robust capabilities.
- OPG continued to work with industry and government agencies to develop governance and the regulating framework to sustain learning.

fast facts: **EMERGENCY PREPAREDNESS**

- In 2014, OPG distributed more than 200,000 emergency preparedness brochures, "Never Be in the Dark with Your Safety" to homes and businesses within the 10 kilometre zone of the Pickering and Darlington Nuclear stations. This initiative was in partnership with Durham Region, the Province of Ontario and the City of Toronto.
- A three-day national emergency response exercise held at Darlington Nuclear involved more than 2,000 participants and 54 agencies.
- OPG participated in an Independent Electricity System Operator exercise to enhance the level of emergency preparedness to a major incident affecting Ontario's electricity system.

In May 2014, a three-day national nuclear emergency preparedness exercise was held at Darlington Nuclear to help validate recent nuclear safety improvements and confirm Canada's ability to respond to a nuclear emergency. This exercise was organized by OPG with support from the Government of Ontario, the Regional Municipality of Durham, the CNSC, Public Safety Canada, and Health Canada. The exercise tested emergency response plans and equipment, and demonstrated how agencies and government work together to protect and inform the public should an unlikely event ever occur. It was the most

important national, full-scale, multi-jurisdictional exercise based on a nuclear power plant emergency conducted since 1999. In general, the exercise was successful in providing maximum value to emergency response organizations at every level. Although issues were identified, organizations successfully demonstrated that their plans are sufficiently integrated to support an effective response to a severe accident.

OPG will continue to enhance nuclear safety by building on the sound designs and programs already in place, as well as meet the expectations of the public and regulatory authorities.



At OPG, safety is our number one priority. Emergency preparedness is just one of the many safety programs OPG nuclear has in place to ensure the safety of our facilities, employees and communities.

Additional information about OPG's response to Fukushima, nuclear safety and emergency preparedness is available at www.opg.com/about.

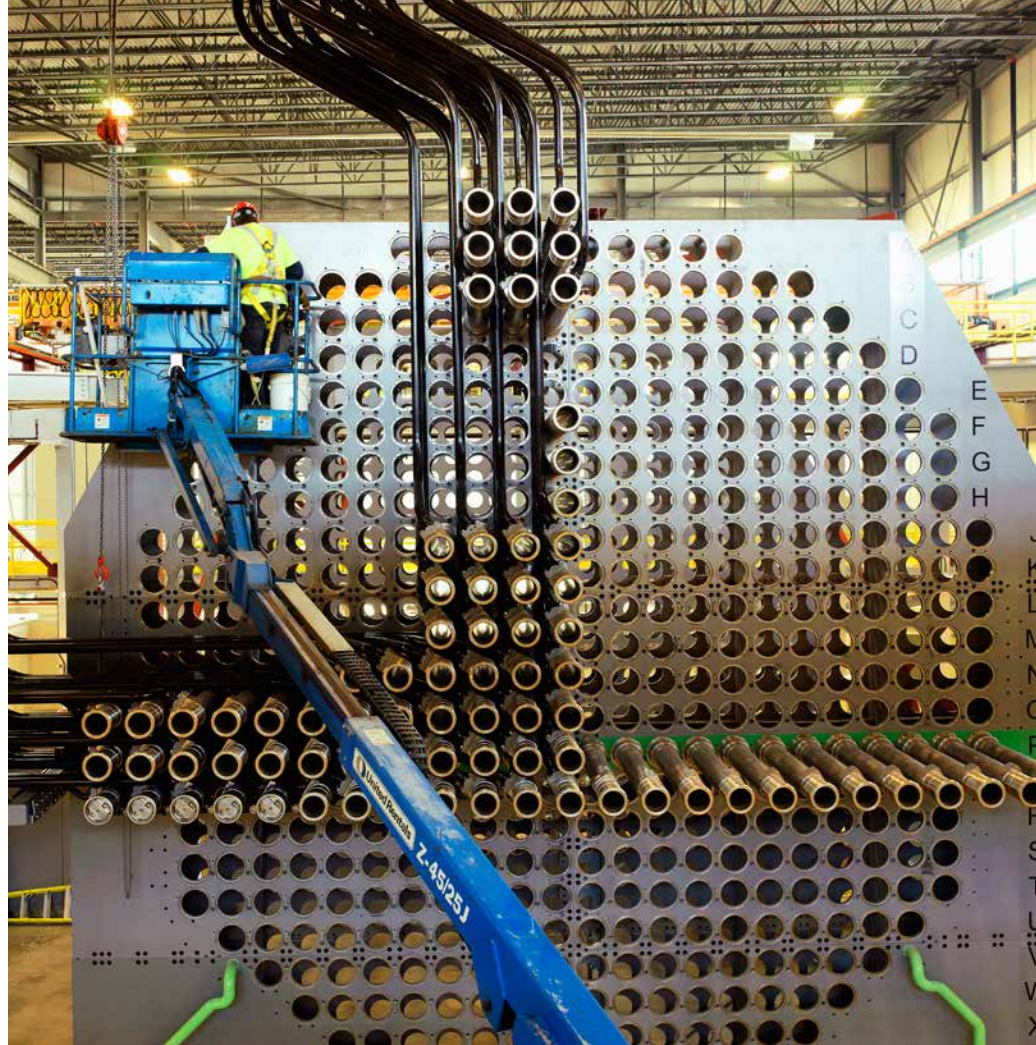
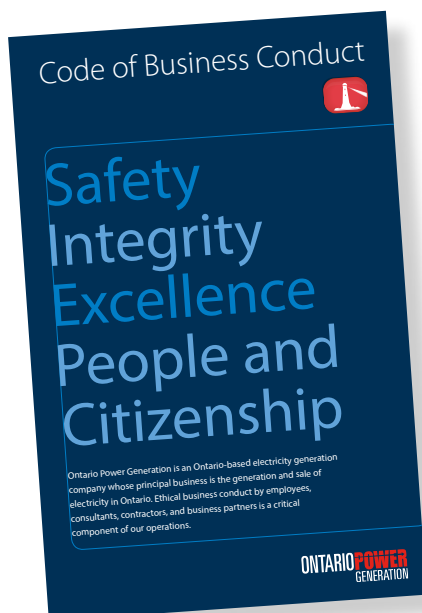
Safe and Secure

Cyber security is among the top global risks impacting industries and countries today. To minimize cyber security risks and incidents, OPG's cyber security team must continuously monitor and evolve OPG's systems as new threats arise. As a result of OPG's systems to manage cyber security, there were no cyber security threats which impacted OPG's business operations in 2014.

ETHICS AND INTEGRITY

Code of Business Conduct

OPG is committed to being an ethical company. All relationships with its employees, suppliers, customers and other stakeholders are required to be conducted in accordance with the values of **Integrity, Safety, Excellence, and People and Citizenship** as outlined in the OPG Code of Business Conduct. All OPG employees are expected to understand their obligations under the Code of Business Conduct and must



Full-scale reactor mock-up at the Darlington Energy Complex training facility

complete training about the Code.

As part of the Code of Business Conduct, all OPG employees are expected to treat others in the workplace with dignity and respect. Managers are accountable for providing an inclusive, healthy and safe workplace that is free from harassment, discrimination and workplace violence. Employees must report any harassment or discrimination to their manager, Human Resources, union representative, the Human Rights Office, or the Chief Ethics Officer. Every complaint is taken very seriously to ensure employees are protected.

OPG's Code of Business Conduct defines conflict of interest as any situation where personal interest conflicts, appears to conflict, or could potentially conflict in any way with the interests of OPG. It is mandatory for employees to declare to their manager and Chief Ethics Officer any conflict of interest in writing.

OPG's Code of Business Conduct is available at www.opg.com/about.

TRAINING AND DEVELOPMENT

Leadership Development

The development of new leaders and retention of staff in critical roles across OPG is a key factor to OPG's success. Another success factor is related to the effective transfer of knowledge from those in critical positions throughout OPG to future leaders. In 2014, OPG developed and introduced an internal Accelerate Program to provide employees with the opportunity to learn, grow and build their career, while at the same time help ensure OPG has the right skills, leaders and culture needed to achieve its business goals now and in the future. Recognizing that almost 40 per cent of OPG's management staff is eligible to retire, OPG's Accelerate Program will take

high-potential employees and provide targeted training and development to prepare them for management roles in the future.

Darlington Energy Complex Training Facility

A significant milestone in the Darlington Nuclear refurbishment project was reached in 2014, when the training facility at the Darlington Energy Complex was declared ready for service. The training facility includes a non-functioning, mock-up reactor that accurately represents the size and space within the real reactor vaults. Workers will be trained and tested on the challenges, constraints and potential hazards they may face when executing work at the reactor face. Specialized tooling will also be tested at the facility and the work practised to determine the correct time and precise sequence needed for executing each refurbishment activity.

Educational Outreach and Recruitment

Despite the decline in the number of full-time regular jobs filled in recent years, OPG continues to seek out opportunities to promote skilled trades and engineering in order to build the workforce of the future. Specifically, OPG engages in a number of initiatives to encourage youth to pursue studies in math and sciences which include:

- **Participating in events** to encourage youth to pursue skilled trades through hands-on demonstrations and by meeting OPG staff engaged in large construction projects.
- **Offering awards and scholarships** at the post secondary and secondary levels.
- **Partnering with various colleges and universities** through participation in curriculum advisory committees.
- **Participating in various conferences, speakers' panels and networking**

fast facts: EMPLOYMENT IN 2014

- Approximately 9,700 full-time employees and 980 seasonal, part-time, casual construction, contract and non-regular staff.
- Approximately 5,600 OPG employees were represented by the Power Workers' Union.
- Approximately 3,000 OPG employees were represented by the Society of Energy Professionals.
- 6.3 per cent annual staff turnover due to retirement.
- 7.9 per cent annual staff turnover due to attrition.
- 155 external hires.
- 20 per cent of employees are eligible to retire in the next 5 years.
- 36 per cent of employees are eligible to retire in the next 10 years.

events targeted to promote learning about the electricity industry among both students and experienced professionals including members of employment equity designated groups.

- **Offering free resource kits** to Ontario teachers to help teach electrical energy and electricity generation to students in Grades 1, 6 and 9. Refer to www.opg.com/communities-and-partners for more details.

OPG continues to partner with First Nations groups to foster potential employment and training opportunities on new projects with its construction partners. In addition, OPG seeks opportunities to provide internship and temporary placements to members of designated groups where possible.

For information about work opportunities at OPG refer to www.mypowercareer.com.



DIVERSITY AND EQUITY

OPG's diversity program has evolved over the past number of years and OPG is proud of the following accomplishments in 2014:

- Electricity Human Resources Canada recognized OPG with the Workplace Diversity Champion Award for a unique partnership between OPG, the Moose Cree First Nation and construction partner Kiewit-Alarie.
- Mentorship and internship opportunities were provided by OPG to students in the Licensing International Engineers into the Profession (LIEP) program at the University of Toronto. This innovative program prepares new immigrants to obtain their P.Eng. designation while participating in hands-on engineering internships.
- OPG developed its Total Health initiative with a focus on mental health and supporting managers on how better to deal with mental health issues in the workplace.

- Through its Corporate Citizenship Program, OPG provided support to non-profit groups that assist people with disabilities. These include: Abilities Centre, WindReach Farms, Friends of the Disabled, George Jeffrey Children's Centre, Grandview Children's Centre, Special Olympics Ontario, Sports for the Disabled, and Pathways Health Centre.

- OPG continued to partner with local colleges to provide work placement opportunity for Métis, First Nation or Inuit students from the Technology Foundation Training Program in pursuit of a career in Ontario's energy sector.
- OPG developed a pilot partnership with Career Edge, Ability Edge and Career Bridge to bring diversity candidates into open internship roles.



OPG Board and Moose Cree First Nation celebrate completion of Units 1 & 2 at Kâpâskilehtekh GS, part of the Lower Mattagami River project.

Representation of Designated Groups by Employment Equity Occupational Groups

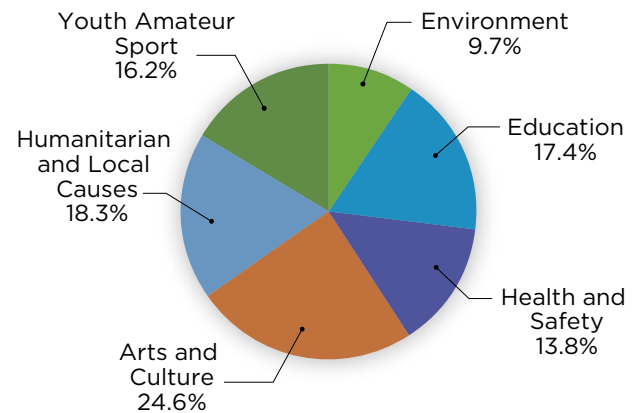
Employment Equity Occupational Group	Designated Groups	Representation as of Dec. 31, 2013		Representation as of Dec. 31, 2014	
		Number	Per Cent	Number	Per Cent
Senior Managers e.g., Board Chair, President and CEO, Senior Vice Presidents, Chief Nuclear Officer	Women	1	5.9	3	15.8
	Visible Minorities	0	0.0	0	0
	Aboriginal Peoples	0	0.0	0	0
	Persons with Disabilities	0	0.0	0	0
Middle and Other Managers e.g., Vice Presidents, Directors, Section/Senior Managers, Managers, Project Leaders, etc.	Women	210	19.7	231	22.5
	Visible Minorities	188	17.7	185	18.0
	Aboriginal Peoples	9	0.8	8	0.8
	Persons with Disabilities	16	1.5	13	1.3

CORPORATE CITIZENSHIP

The Corporate Citizenship Program (CCP) is one way OPG demonstrates its commitment to the well-being of the communities in which it operates. OPG believes this is essential to being a good corporate citizen and neighbour.

In 2014, through the CCP, OPG provided community investment support (charitable, non-profit, and in-kind support) to more than 1,000 grassroots host community initiatives in the program focus areas of: environment; education (including 250 student awards); and community (health and safety, youth amateur sport, arts and culture, humanitarian and local causes) including support of First Nations and Métis initiatives. With average annual program community investment totalling \$2.5 million, and 80 per cent of OPG's annual contributions between \$100 and \$2,500, OPG ensures funds reach a broad spectrum of community need and leverage good community value. Featured here is a sample of the beneficial work done in 2014 by OPG's community partners, which contributes to community well-being and sustainability.

**2014 Corporate Citizenship Program
Community Investment by Focus Area**



CORPORATE CITIZENSHIP PARTNERSHIP PROFILES

ENVIRONMENT

OPG invests in partnerships that help support healthier communities and a healthier environment for future generations. OPG focuses on environmental education, wildlife and habitat restoration, biodiversity, and recycling.

OPG's Niagara Plant Group supported the District School Board of Niagara's (DSBN) \$1.75 million *Living Campus Campaign* to revitalize the Woodend Outdoor Environmental Education Centre on the Niagara Escarpment. In April, representatives from the DSBN and OPG, along with local students participated in the groundbreaking ceremony (pictured). The centre will be known as the "Walker Living Campus at Woodend." The Campus will feature indoor and outdoor learning environments for up to 10,000 Niagara Region students (Kindergarten to Grade 12) each year to experience hands-on



environmental learning, which will be linked to the school curriculum through discovery of the natural landscape. The Campus will use sustainable building practices incorporating energy efficiency that will also be used as teaching tools. This innovative campus will enable students and the public to learn

about their connection to the environment. It will inspire them to find ways to reduce their impact on the environment and to become environmental guardians by living a more sustainable way of life. To learn more visit www.dsbn.org/Woodend.

EDUCATION

OPG invests in future energy sector leaders by supporting educational partnerships, programs, and student awards that foster an interest in STEM (science, technology & trades, engineering, maths), the energy sector and the environment.

On Sept. 8, 2014, Confederation College held the grand opening of its Ontario Power Generation BioEnergy Learning and Research Centre (BLRC) in Thunder Bay. As the first facility of its kind in Ontario, the centre will provide renewable power to the college and offers opportunities for demonstration, training and applied research on biomass energy. The BLRC consists of two 500-kilowatt (kW) Froling thermal boilers that heat the college, a 150 kW biomass boiler dedicated to research purposes, and emissions testing capabilities. The centre will provide hands-on training for students in the bioenergy field. The shift towards renewable energy and cleaner technology was one of the motivators for OPG's investment in the BLRC. It aligns with our Northwest Operation's strategic biomass initiatives in the area (Atikokan and Thunder Bay Generating Stations), and commitment to education and the region. More information is available at www.confederationc.on.ca/appliedresearch/bioenergy.



"We are excited at the potential this facility offers. Through the OPG BLRC, Confederation College is poised to become a leader in renewable biomass energy. The potential benefits seen by the communities of our region could be significant and the research and educational opportunities will further differentiate our college as a pioneer of innovative and sustainable learning experiences."

Jim Madder, President, Confederation College

COMMUNITY: Health & Safety

OPG invests in health and safety, arts and culture, youth amateur sports, humanitarian and local causes to help enhance quality of life for our host community residents.

The Canadian Mental Health Association (CMHA), Grey Bruce Branch, offers programs and services to assist individuals and families with mental health needs. Their Friends and Neighbours (FAN) Club is an innovative youth mental health education program reaching 10,000 students (Kindergarten to Grade 6) each year. The program's goal is to help young people talk, listen, learn and find solutions to social and mental health issues they may face such as bullying, self-esteem, smoking and attention deficit disorder. This is achieved through the use of life-sized puppets in a fun, interactive learning format.



Grade 5-8 students from Paisley Central School (pictured) received training from Jackie Ralph, CMHA Grey Bruce, to perform with the puppets and present "Wayne Gretzky is My Hero," a skit for the school's younger students on coping with bullies. During the 45-minute presentation, the students witnessed the puppets work through what is

bullying and how to respond to a bully. The program is accessible to schools, youth and community groups thanks to the support of corporate sponsors such as OPG, a proud partner of the FAN Club since 2008.

For more information visit www.cmhagb.org.

COMMUNITY: Youth Amateur Sport

Sport and recreation contribute to healthy individuals and healthy communities. They play a critical role in the personal development of young people by promoting physical fitness, self-confidence, leadership, team-building and skill development.

Recognizing the value of this, OPG proudly supports a variety of youth amateur sports organizations and initiatives each year. This includes support of over 250 youth teams and clubs in hockey, baseball, soccer, basketball, lacrosse, football, swimming, and skating.



Pictured here are young athletes from Haldimand-Norfolk who proudly represent their OPG Nanticoke-sponsored sports organizations: Norfolk Hammerheads Aquatic Club; Port Dover Skating Club; Cayuga Minor Hockey; Port Dover Steelheads Football Club; and Delhi Minor Baseball.

FIRST NATIONS AND MÉTIS COMMUNITIES

In 2014, OPG supported 80 First Nations & Métis initiatives in the CCP focus areas of environment, education, and community. Partner organizations included First Nations, Métis Nation of Ontario, Canadian Red Cross, Chiefs of Ontario, Friendship Centres, Frontier College, Indspire, Little Native Hockey League, Nishnawbe Aski Development Fund, and The Anishinabek Nation 7th Generation Charity.

Health and safety are integral components of OPG's operations and important contributors to building healthy and strong communities. When Hiawatha First Nation, which is located on the north shore of Rice Lake, identified a priority need for extrication equipment for their new fire hall, OPG's Darlington Nuclear was pleased to support this important community initiative. During emergencies, when seconds count, having specialized emergency equipment like the "Jaws of Life" in the hands of emergency responders can help save lives. The fire station, which opened in June, provides fire and rescue services in partnership with the Township of Otonabee-South Monaghan Department of Fire



and Emergency Services. The fire station is staffed by 20 dedicated volunteers who give their time and expertise to assist Hiawatha First Nation residents, as well as visitors and seasonal residents to the area.

Pictured above (left to right) at Hiawatha First Nation - Fire Station 4 are: Ted Bryan, Fire Chief of the Township of Otonabee-South Monaghan; Eleanor Rath, CAO of the Township of Otonabee-South Monaghan; Andrew Cowie, A/Captain of Fire Station 4; Ralph Loucks, District Chief of Fire Station 4; Greg Cowie, Chief of Hiawatha First Nation; Scott Berry,

OPG; Bonnie Clark, Councillor and Chair of the Protection Services Committee of the Township of Otonabee-South Monaghan; Joe Taylor, Deputy Reeve of the Township of Otonabee-South Monaghan; Dave Harney, OPG.

Grassroots partnerships help make our communities stronger and more sustainable. These are just a few partnership examples that demonstrate the "power" of community.

To learn more visit www.opg.com/communities-and-partners.



Construction at Smoky Falls GS on the Lower Mattagami River.

FINANCIAL SUSTAINABILITY

As a commercial enterprise, OPG's financial priority is to achieve a consistent level of financial performance which will ensure its long-term financial sustainability and enhance the value of its assets for its shareholder – the Province of Ontario. Inherent in this priority are three objectives:

- Enhancing profitability by increasing revenue
- Improving efficiency and reducing costs
- Ensuring a strong financial position that enables OPG to finance its operations and generation development projects.

Economic Performance

OPG's net income after extraordinary gain for 2014 was \$811 million, compared to \$135 million for 2013. An extraordinary gain of \$243 million was recognized related to 48 hydroelectric facilities, which began to receive regulated electricity prices in 2014. Higher earnings in 2014 were primarily due to increased nuclear production, higher electricity spot market prices in the first quarter of 2014 as a result of an unseasonably cold winter, increased earnings on the Used Fuel Segregated Fund, and earnings from the six new hydroelectric units constructed as part of the Lower Mattagami River project.

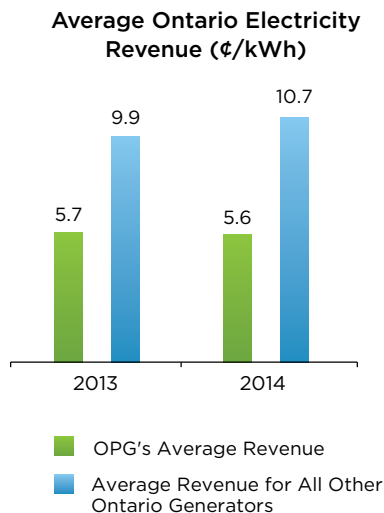
In addition, earnings were positively affected by lower costs due to improved business efficiencies and reduced headcount, and increased revenue from energy sales to neighbouring markets.

OPG manages an array of external risks to mitigate potentially unfavourable impacts on the company's financial results. OPG's generation and market share is impacted by external factors such as changes to the structure of the Ontario electricity market, the entrance of new participants into the Ontario market, the competitive actions of market participants, Ontario electricity demand, regulated electricity prices,

wholesale electricity prices in the interconnected markets, the cost to transmit electricity to interconnected markets, and new trade limitations. Additionally, the condition of Ontario's transmission and interconnection systems could impact OPG's revenue if capacity or reliability constraints limit the company's ability to supply electricity to the Ontario electricity market.

Ontario's Low-Cost Generator

OPG's revenue strategy focuses on revenue growth while taking into account the impact on Ontario electricity ratepayers. In 2014, OPG continued to generate electricity at a lower price than the average of all other generators in Ontario. OPG's average sale price in 2014 was 5.6 cents per kilowatt hour (¢/kWh) compared to 10.7 ¢/kWh for other electricity generators.



Revenues for other electricity generators are calculated as the sum of hourly Ontario demand multiplied by the Hourly Ontario Energy Price, plus total global adjustment payments, plus the sum of hourly net exports multiplied by the Hourly Ontario Energy Price, less OPG's generation revenue.

The Ontario Energy Board (OEB) sets the prices for electricity generated from OPG's regulated nuclear and hydroelectric facilities. Prior to Nov. 1, 2014, OPG received revenue based on electricity spot market prices for production from the 48 hydroelectric facilities prescribed for rate regulation in 2014. Electricity generated from OPG's unregulated assets receives contract revenue under energy supply agreements or cost recovery agreements. The majority of OPG's revenue comes via regulated rates. Regulated rates and energy supply agreements provide stable and predictable revenue streams, compared to potential fluctuations in revenue caused by increases or decreases in market prices.

In 2013, OPG filed an application with the OEB for a rate increase for OPG's regulated facilities for the period of 2014 and 2015. The main drivers for OPG's application were the completion of the Niagara Tunnel, preparations for the Darlington refurbishment project, and continued funding of OPG's obligations for spent nuclear fuel management, future nuclear station decommissioning, and pension and other post-employment benefit costs. OPG's application was subject to public review and assessment by the OEB. Effective Nov. 1, 2014, the OEB granted OPG new payment amounts which are approximately 10 per cent more than the previous amounts and the 48 hydroelectric stations which were previously unregulated began to receive regulated prices. This was OPG's first increase in regulated base rates since 2008. OPG remains the lowest cost energy producer in Ontario.

Additional information about the OEB and OPG's submissions to the OEB can be found at www.ontarioenergyboard.ca.

Information regarding OPG's role in Ontario's long-term plan for the continued delivery of a cost-effective energy supply is available at www.energy.gov.on.ca/en/ltep.

Business Transformation

From 2011 to 2014, OPG undertook a company-wide business transformation initiative to focus on cost reductions and improved efficiencies to better compete, grow and respond to changing market conditions. This initiative resulted in improved processes, a streamlined company with fewer staff, and a more sustainable cost structure.

This transformation was achieved through a restructuring of the company that combined the hydroelectric and thermal operations, restructuring commercial operations to take advantage of market opportunities, implementing a centre-led organizational model to more efficiently utilize resources, and challenging every business unit to improve efficiencies and reduce costs. In addition, OPG undertook a large-scale project to further improve business processes by implementing a common enterprise software platform to support plant operations, purchasing, payments and time reporting.

At the end of 2014, overall headcount from ongoing operations was reduced by more than 2,000 with cumulative cost savings of more than \$500 million since the initiative began. OPG plans to further reduce headcount and save a total of approximately \$1 billion by the end of 2016.

While OPG's business transformation initiative formally concluded at the end of 2014, the company will continue to implement the projects identified during the initiative and seek further improvements as the business transformation becomes business as usual.



Control Room at Pickering Nuclear

Dedicated Nuclear Funds

OPG is responsible for the management of used nuclear fuel and low and intermediate level radioactive waste, and the eventual decommissioning of its nuclear stations and waste management facilities, including the stations leased to Bruce Power. OPG recognizes the costs of long-term nuclear waste management and decommissioning must not be passed on to future generations. Pursuant to the Ontario Nuclear Funds Agreement between OPG and the Province, OPG established a Used Fuel Segregated Fund and a Decommissioning Segregated Fund to fund future costs. OPG maintains these funds in third-party custodial accounts which are segregated from the rest of OPG's assets. OPG makes quarterly payments to the Used Fuel Fund over the life of its nuclear generating stations as specified in the Ontario Nuclear Funds Agreement. As of Dec. 31, 2014, the Decommissioning Fund was in an overfunded position.

Additional information regarding these funds is provided in OPG's 2014 Annual Report available at www.opg.com/news-and-media.

GENERATION AND RELIABILITY

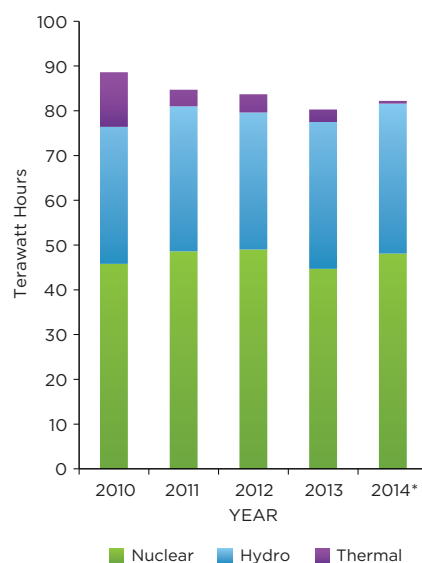
Electricity Generation

Total electricity generated in 2014 was 82.2 terawatt hours, which was slightly higher than the 80.3 terawatt hours generated in 2013. The increase was mainly due to higher nuclear generation as a result of fewer unplanned outage days at the Darlington and Pickering stations and an increase in generation from OPG's existing regulated hydroelectric stations due to higher water flows on the Niagara and St. Lawrence Rivers.

All of OPG's electricity generation is offered into the energy market administered by the Independent Electricity System Operator (IESO). The IESO is responsible for ensuring there is

enough power to meet the Province's energy needs in real time while also planning and securing energy for the future. Additional information about the IESO is available at www.ieso.ca.

Electricity Production



* Includes OPG's share of production from co-owned gas-fired facilities

Reliability

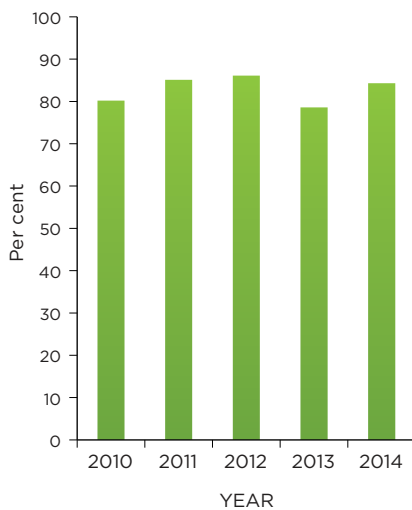
OPG strives to operate and maintain its facilities to optimize the reliability of its generating assets. OPG manages reliability risks by performing inspections and maintenance on critical components and by conducting engineering reviews and station condition assessments. In 2014, OPG maintained its record of strong reliability at its nuclear and hydroelectric stations.

OPG reports Nuclear Unit Capability Factor as the reliability measure for its nuclear stations and Hydroelectric Availability for the reliability of its hydroelectric generating units. In 2014, OPG replaced Thermal Start Guarantee Rate with Thermal Equivalent Forced Outage Rate as the key reliability measure for thermal station performance.



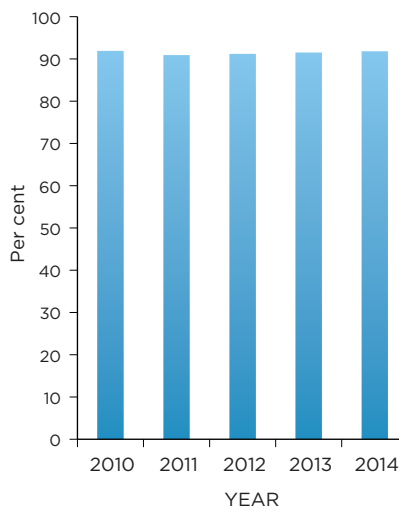
Hoisting an upper bracket at the Niagara Pump GS.

Nuclear Unit Capability Factor



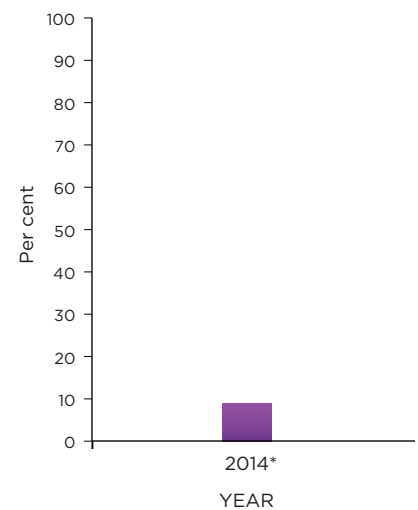
Capability Factor represents actual energy generated, adjusted for external constraints such as transmission or demand limitations, as a percentage of potential maximum generation over a specified period. (Good = ⬆)

Hydroelectric Availability



Availability represents the amount of time that units are capable of producing electricity as a percentage of the total time for a respective period. (Good = ⬆)

Thermal Equivalent Forced Outage Rate



Equivalent Forced Outage Rate represents the amount of time that units are forced out of service as a percentage of the amount of time available to operate. (Good = ⬆)

* Key indicator as of 2014.

INFRASTRUCTURE INVESTMENTS

OPG produces electricity from a diversified portfolio of generating assets. In 2014, OPG continued to invest in infrastructure renewal and modernization and to pursue projects to increase generation capacity.

Hydroelectric

Lower Mattagami River Project

Construction activities on the Lower Mattagami River commenced in 2010 to add one additional generating unit at each of the existing Little Long, Harmon and Kipling generating stations, and to replace the existing generating station at the Smoky Falls site with a new three-unit station. By the end of 2014, all six new generating units were in-service on budget and ahead of schedule. Overall, the project increased the generating capacity of the four stations on the Lower Mattagami River by 438 MW without adding additional dams on the rivers.

OPG expanded and refurbished the hydroelectric stations on the Lower Mattagami River in partnership with the Moose Cree First Nation. At the end of 2014, the Amisk-oo-Skow Finance Corporation, a corporation wholly owned by the Moose Cree First Nation, had a 25 per cent interest in the value of the assets.

Peter Sutherland Sr. Generating Station Project

In 2014, OPG and its partner Coral Rapids Power, a wholly-owned company of the Taykwa Tagamou Nation, continued to move forward to develop 28 MW of renewable hydroelectric power through the construction of the Peter Sutherland Sr. GS on the New Post Creek. The station has a planned in-service date of 2018, and an approved budget of \$300 million. Under the partnership agreement, Coral Rapids Power may acquire up to a 33 per cent interest in the partnership.

fast facts: LOWER MATTAGAMI RIVER PROJECT

- This was the largest hydroelectric project in northern Ontario in 50 years.
- Six new units on the Lower Mattagami River added enough capacity to meet nearly three times the peak demand of Thunder Bay.
- Over the course of the project, about \$1 billion in contracts was awarded to Ontario businesses, including over \$350 million in northern Ontario.
- Moose Cree businesses were awarded over \$300 million worth of sub-contracts.
- At the peak of construction, about 1,800 people were employed, including about 250 First Nation and Métis people.
- OPG's socio-economic study determined that 0.65 indirect jobs would be created for every direct job created by the project.

Overhauls and Improvements

OPG continues to evaluate and implement plans to increase capacity, maintain performance and extend the operating life of its hydroelectric generating assets. These plans are expected to be accomplished through refurbishment or replacement of existing turbine runners, generators, transformers and controls. This includes increasing the total capacity of hydroelectric generating stations by approximately 45 MW over the next five years.

During 2014, OPG continued to work on a number of projects and completed major equipment overhauls and rehabilitation work at several stations. Major projects included:

- Rehabilitation work at the Sir Adam Beck Pump Storage Facility
- Overhaul and upgrade of units at Des Joachims GS
- Dam rehabilitation work at Chats Falls GS
- Turbine runner replacement and generator upgrade at Pine Portage GS
- Equipment overhauls at R.H. Saunders GS.



Des Joachims GS has been undergoing an extensive asset improvement program to upgrade the entire station.



Construction of a new station at Smoky Falls, also known by its Cree name, Kâpâškilehtehk, replaces the existing Smoky Falls station.

Thermal

Conversion from Coal to Biomass

OPG is leading the way in generating electricity from biomass. In 2014, OPG burned its last piece of coal to make electricity, which is the largest, single action to combat climate change in North America. Since then, OPG has converted two of its stations in northern Ontario from burning coal to biomass as fuel.

Atikokan GS was the first station to convert to biomass. This \$170 million project was completed in July, ahead of schedule and on budget. Generating 205 MW of clean electricity, Atikokan is the largest 100 per cent biomass station in North America.

In April, Thunder Bay GS stopped burning coal. It was the last of OPG's plants to use coal to generate electricity. In January 2015, OPG completed the conversion of a unit at the station to burn advanced biomass fuel. The converted unit has an in-service capacity of 153 MW, making it the first commercially operating advanced biomass plant in North America. The conversion was completed ahead of schedule and within the approved budget of \$7 million.

OPG's biomass conversion initiatives not only demonstrate the company's commitment to mitigating the effects of climate change, but the conversions make use of existing generating assets, create opportunities for the forestry industry, and protect local jobs.

Additional details regarding OPG's conversions from coal to biomass are available in the Environment section of this report.

Maintenance of Thermal Assets

Lambton GS and Nanticoke GS stopped generating electricity from coal in 2013. During 2014, two units at Lambton and four units at Nanticoke GS were preserved so they may be available to be converted to natural gas and/or biomass if required in the future. In July 2015, OPG announced the company will

Community celebration for the successful conversion of Atikokan GS





no longer preserve and staff Nanticoke GS, because further preservation costs cannot be commercially supported. OPG will continue to preserve the option to convert the Lambton GS, and will revisit the decision in conjunction with Ontario's Long-Term Energy Plan. OPG will continue to own both sites, which remain valuable assets to the company.



A dehumidified air system at Lambton GS minimizes corrosion of the turbine shaft and blades.

Nuclear

Pickering Operations and Future Repurposing

OPG is working to ensure Pickering Nuclear, OPG's longest-running nuclear plant, generates safe and reliable electricity up to its last day of operations, which is expected to be around 2020. In 2014, OPG continued to make investments and improve the performance of the Pickering station with a focus on implementing equipment modifications and fuel handling reliability improvements, reducing equipment maintenance backlogs, and completing critical and high priority work. These investments will help ensure a reliable electricity supply for Ontario while the Darlington reactors are being refurbished.

Since the decision was made in 2010 not to refurbish Pickering Nuclear, OPG has been planning for the station's end of commercial operations. Decommissioning of the Pickering Nuclear station will be a lengthy process that includes a safe storage period, removal of used fuel and other radioactive materials from the site, and demolition of structures. Throughout

the decommissioning period, portions of the site will be prepared and made available for new uses. OPG is committed to keeping its stakeholders informed and involved in the plans and timelines for the changes to come.

Darlington Refurbishment Project

Darlington Nuclear, which provides about 20 per cent of Ontario's electricity, is consistently among the best performing nuclear stations in the world. A mid-life refurbishment of the station will ensure the continuation of the station's role as a key supplier of clean, safe and affordable power. The refurbishment project involves the replacement of life-limiting critical components, the completion of upgrades to meet current regulatory requirements and the rehabilitation of components. It is a multi-phase project that will span into 2025 to complete the refurbishment of all four reactor units.

In 2014, work progressed on the definition phase of the project. This phase involves project planning, engineering, design and construction of prerequisite projects, development of reactor tooling, and construction of a reactor training facility that includes a full-scale reactor mock-up. The training facility is part of OPG's intensive planning and preparation to ensure everyone working on the refurbishment will be trained and ready to complete their tasks safely, precisely and efficiently.

At the end of 2014, OPG had approximately 1,000 people working on the Darlington refurbishment project, 400 of which are located at the Darlington Energy Complex in Courtice and another 600 contractors working on the Darlington site and at various supplier locations across Ontario. Additionally, OPG issued contracts valued at over \$2 billion related to the refurbishment of Darlington. These contracts relate to work to be completed in the planning and execution phases.

"A refurbished Darlington station will provide 3,500 megawatts of clean, reliable, cost-effective electricity for the people of Ontario for an additional 30 years. It is one of the largest capital infrastructure projects in Canada, creating significant benefits including employment, business and supplier opportunities and increased municipal revenue."

Dietmar Reiner, Senior Vice President, Nuclear Projects



Reactor mock-up at the Darlington Energy Complex training facility



Welding at the Darlington Energy Complex

Capital project expenditures for 2014 were \$696 million and the life-to-date capital expenditures at Dec. 31, 2014 were \$1.46 billion. The project budget and schedule is expected to be completed in 2015. In 2016, OPG expects to commence the first unit outage and start execution of the refurbishment scope on that unit.

Additional information about the Darlington refurbishment project is available at www.opg.com/darlingtonrefurb.



What is Repurposing Pickering?

Repurposing Pickering is a study to determine the most beneficial uses for the Pickering Nuclear site once the station has ended commercial operations around 2020. The goal of the project is to help identify a broad range of potential uses of the site both during and after decommissioning.

OPG is seeking input from many people, including: the local community, our employees, community leaders, industry, government, and infrastructure planning specialists.

Additional information about the Repurposing Pickering project is available at www.opg.com/repurposingpickering.

PROCUREMENT AND PAYMENTS

Economic Value

Electricity generation is a capital-intensive business. It requires continued investment in plants and technologies to improve operating performance, increase generating capacity, and to maintain and improve safety and environmental performance. When making these investments, OPG provides support to the economy through the purchase of goods and services. During 2014, OPG purchased \$2.1 billion in goods and services in Ontario.

In 2014, compensation to employees totalled approximately \$1.4 billion. The majority of employees live in Ontario and purchase their goods and services locally, thereby transferring wealth back into the economy.

Payments made by OPG to its shareholder, the Province, also benefit the economy and the people of Ontario. Payments to the Province include payments in lieu of taxes, gross revenue charges, and current income tax payments. These payments totalled \$415 million in 2014.

fast facts: SUPPLY CHAIN

- 2,350 suppliers engaged by OPG.
- 93 per cent of spending on goods and services to Canadian suppliers.
- 89 per cent of spending on goods and services to suppliers in Ontario.

Supply Chain

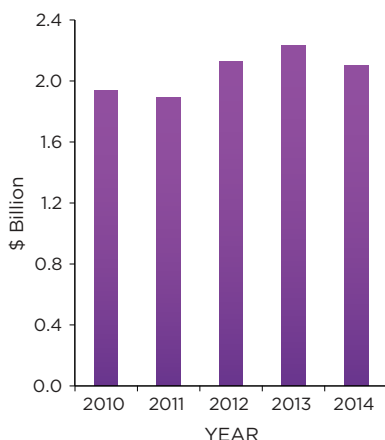
The objective of OPG's supply chain organization is to provide the material and services required by the business at the right time for the best value. OPG's supply chain processes are consistent with approved financial management and control standards, and all applicable legal requirements. OPG's supply chain begins with its suppliers and ends with OPG's consumption.

OPG requires all suppliers and contractors who wish to do business with OPG be pre-qualified based on a demonstration of their ability to manage quality, health and safety, and environmental aspects, in addition to

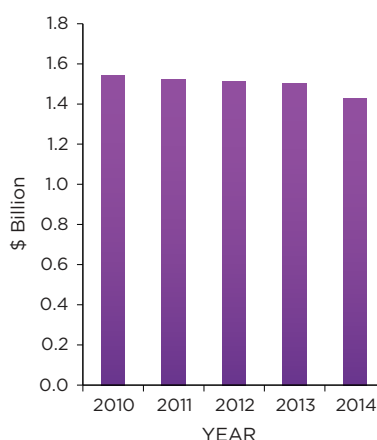
satisfying technical and commercial requirements. Contracts are awarded following OPG's established procedures for competitive bidding, evaluation and negotiation. OPG's suppliers are expected to ensure full compliance with OPG's Code of Business Conduct in their business dealings with OPG. A supplier's quality capability may also be subject to OPG audits or assessments, which are commensurate with the scope of work and specified quality requirements.

Additional information about OPG's supply chain and how to become a supplier is available at www.opg.com/working-with-opg.

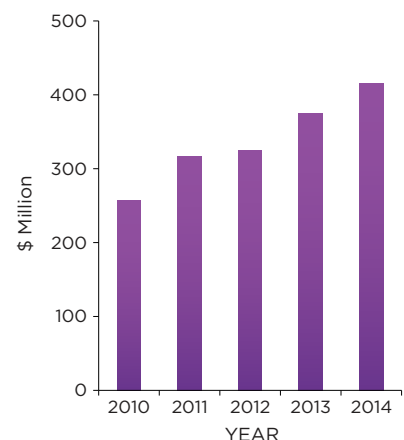
Spending on Goods and Services



Employee Compensation



Payments to the Province of Ontario



2010 - 2013 dollar values restated from the 2013 Sustainable Development Report.

Appendix A

GLOBAL REPORTING INITIATIVE (GRI) INDICATOR ALIGNMENT

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Appendix B

GENERATION CAPACITY AND PRODUCTION

NUCLEAR	Net Generation Capacity (MW)	Net Generation (GWh)				
		2014	2013	2012	2011	2010
Pickering Nuclear Located on Lake Ontario in the city of Pickering. The station has six operating units and two units in a safe shutdown state.	3,094	20,045	19,642	20,735	19,675	19,236
Darlington Nuclear Located on Lake Ontario in the municipality of Clarington east of Toronto. The station has four units.	3,512	27,960	25,051	28,308	28,951	26,549

THERMAL	Net Generation Capacity (MW)	Net Generation (GWh) ⁽¹⁾				
		2014	2013	2012	2011	2010
Atikokan Generating Station Located near the town of Atikokan in northwestern Ontario. The station has one biomass unit. The station stopped using coal in 2012.	205	10	-18	13	39	417
Lennox Generating Station Located on Lake Ontario in the town of Greater Napanee. The station has four oil and/or natural gas-fired units.	2,100	73	-29	104	9	60
Thunder Bay Generating Station Located in Thunder Bay. The station has one advanced biomass unit. The station stopped using coal in 2014.	153	43	-16	16	74	191
Brighton Beach ⁽²⁾ Located in Windsor. The station is a combined cycle generating station fuelled by natural gas.	280	100	Not reported	Not reported	Not reported	Not reported
Portland Energy Centre ⁽²⁾ Located in Toronto. The station is a combined cycle generating station fuelled by natural gas.	275	500	Not reported	Not reported	Not reported	Not reported
Lambton Generating Station Located on the St. Clair River south of Sarnia. The station was retired from service in 2013.	0	-42	1,552	2,218	1,129	3,317
Nanticoke Generating Station Located on Lake Erie in Haldimand County. The station was retired from service in 2013.	0	-55	1,361	1,731	2,465	8,206

⁽¹⁾ Negative net generation indicates the station consumed more electricity from the grid than it produced.

⁽²⁾ Represents OPG's 50 per cent share of capacity and generation. Reported by OPG as of 2014.

HYDROELECTRIC	Net Generation Capacity (MW)	Net Generation (GWh)				
		2014	2013	2012	2011	2010
Niagara Operations Includes 5 stations, headquarters in Niagara area	2,277	12,267	12,372	11,953	12,614	12,415
Eastern Operations Includes 10 stations, headquarters in Renfrew	2,571	13,281	12,774	11,632	12,535	11,154
Northeast Operations Includes 13 stations, headquarters in Timmins	1,782	3,802	3,359	2,982	3,128	2,875
Northwest Operations Includes 11 stations, headquarters in Thunder Bay	683	3,448	3,583	3,528	3,442	3,558
Central Operations Includes 26 stations, headquarters in North Bay	125	692	645	519	609	576

WIND	Net Generation Capacity (MW)	Net Generation (GWh)				
		2014	2013	2012	2011	2010
Includes 2 turbines	2.4	3.4	3.5	3.7	2.9	3.1

Appendix C

SUSTAINABLE DEVELOPMENT PERFORMANCE

INDICATOR	2014	2013	2012	2011	2010
REGULATORY COMPLIANCE					
Significant Environmental Events	0	0	0	0	0
Environmental Infractions	16	13	14	14	23
Environmental Penalties	4	1	3	0	5
REPORTABLE SPILLS TO THE ENVIRONMENT					
Category A Spills - Very Serious	0	0	0	0	0
Category B Spills - Serious	0	0	0	0	0
Category C Spills - Less Serious	14	9	9	18	25
ATMOSPHERIC EMISSIONS *					
ATMOSPHERIC EMISSIONS - OPG * (includes non-generation auxiliary boilers at Lambton and Nanticoke)					
Carbon Dioxide (tonnes)	567,148	3,195,649	4,528,023	4,370,375	12,688,028
Sulphur Dioxide (tonnes)	552	9,812	9,705	11,264	37,661
Nitrogen Oxides (tonnes, as NO ₂)	792	5,018	6,556	5,835	15,996
ATMOSPHERIC EMISSIONS - THERMAL * (does not include small non-generation sources)					
Carbon Dioxide (tonnes)	510,611	3,190,396	4,517,690	4,361,150	12,680,340
Atikokan Generating Station	37,471	0	44,830	75,280	496,220
Lennox Generating Station	137,290	33,386	155,550	77,200	95,000
Thunder Bay Generating Station	92,990	35,920	71,340	138,940	264,760
Brighton Beach	41,133	Not reported	Not reported	Not reported	Not reported
Portlands Energy Centre	201,727	Not reported	Not reported	Not reported	Not reported
Lambton Generating Station	0	1,592,290	2,237,250	1,253,200	3,286,360
Nanticoke Generating Station	0	1,528,800	2,008,720	2,816,530	8,538,000
Sulphur Dioxide (tonnes)	550	9,812	9,705	11,264	37,661
Atikokan Generating Station	0	0	207	358	2,401
Lennox Generating Station	327	35	39	43	126
Thunder Bay Generating Station	223	80	142	317	713
Brighton Beach	0	Not reported	Not reported	Not reported	Not reported
Portlands Energy Centre	0	Not reported	Not reported	Not reported	Not reported
Lambton Generating Station	0	1,288	2,474	1,340	5,853
Nanticoke Generating Station	0	8,409	6,843	9,205	28,568
Nitrogen Oxides (tonnes, as NO ₂)	596	4,989	6,515	5,794	15,962
Atikokan Generating Station	36	0	100	148	1,040
Lennox Generating Station	200	35	144	89	91
Thunder Bay Generating Station	212	75	232	386	608
Brighton Beach	19	Not reported	Not reported	Not reported	Not reported
Portlands Energy Centre	129	Not reported	Not reported	Not reported	Not reported
Lambton Generating Station	0	2,118	3,019	1,627	3,062
Nanticoke Generating Station	0	2,761	3,021	3,544	11,161
Mercury (kilograms)	2.3	28	25	43	87

* Includes OPG's 50 per cent share from co-owned facilities as of 2014.

INDICATOR	2014	2013	2012	2011	2010
ATMOSPHERIC EMISSIONS - NUCLEAR					
Carbon Dioxide (tonnes)	8,741	5,253	10,333	9,225	7,688
Sulphur Dioxide (tonnes)	2.3	0	0.1	0.1	1
Nitrogen Oxides (tonnes, as NO ₂)	48	29	40	41	33
Waste Incinerator Dioxins and Furans Toxicity Equivalent Emissions Test Result (pg TEQ/Rm ³)	Exempt from testing	<1.80	<3.03	1.79	2.97
ATMOSPHERIC EMISSION RATES*					
ATMOSPHERIC EMISSION RATES - OPG*					
Carbon Dioxide (tonnes/GWh-net)	7	40	54	52	143
Sulphur Dioxide (tonnes/GWh-net)	0.01	0.12	0.12	0.13	0.43
Nitrogen Oxides (tonnes/GWh-net, as NO ₂)	0.01	0.06	0.08	0.07	0.18
ATMOSPHERIC EMISSION RATES - THERMAL*					
Carbon Dioxide (tonnes/GWh-net)	703	1,119	1,107	1,172	1,040
Sulphur Dioxide (tonnes/GWh-net)	0.76	3.44	2.38	3.03	3.09
Nitrogen Oxides (tonnes/GWh-net, as NO ₂)	0.82	1.75	1.60	1.56	1.31
ECOLOGO[™] - CERTIFIED GREEN POWER					
Net Generation (GWh) (26 small hydroelectric stations and 2 wind turbines)	674	625	507	592	563
RADIOACTIVE EMISSIONS					
Tritium to Air (curies)	23,280	17,072	17,976	18,837	19,266
Tritium to Water (curies)	14,007	11,164	11,211	11,479	10,588
Carbon-14 to Air (curies)	84	73	76	76	118
PUBLIC RADIATION DOSE					
Pickering Nuclear Critical Group Dose (microsieverts)	1.2	1.1	1.1	0.9	1.0
Darlington Nuclear Critical Group Dose (microsieverts)	0.6	0.6	0.6	0.6	0.6
RADIOACTIVE WASTE MANAGEMENT					
Annual Production of Used Fuel (tonnes of uranium)	1,561	1,392	1,439	1,610	1,357
Used Fuel in Storage (tonnes of uranium)	43,714	42,152	40,647	39,319	37,910
Used Fuel Bundles in Storage at Pickering Nuclear	693,049	676,059	662,437	642,089	625,357
Used Fuel Bundles in Storage at Darlington Nuclear	478,026	455,301	435,266	411,747	388,503
Low and Intermediate Radioactive Waste Produced (m ³)	2,384	2,616	2,762	2,924	2,921
Low and Intermediate Radioactive Waste Stored (m ³) (includes waste stored by OPG on behalf of Bruce Power)	2,515	2,455	2,639	3,913	2,615
UTILIZATION OF SOLID COMBUSTION BY-PRODUCTS					
Ash and Gypsum Produced (tonnes)	2,366	189,125	283,366	241,207	575,140
Ash and Gypsum Recycled (tonnes)	2,255	164,778	296,208	209,744	388,885
Diversion Rate (per cent)	95	87	105	87	68
HAZARDOUS WASTE GENERATION					
Solids (tonnes)	1,283	113**	1,125	339	690
Liquids (kilolitres)	3,544	1,175	1,615	1,458	1,943

* Includes OPG's 50 per cent share from co-owned facilities as of 2014.

** Value restated from the 2013 Sustainable Development Report.

INDICATOR	2014	2013	2012	2011	2010
PCB MANAGEMENT					
High Level PCB Material in Storage at Year-End ⁽¹⁾ (tonnes)	0	0.4	0.1	7	1
High Level PCB Material Sent for Destruction ⁽¹⁾ (tonnes)	9.7	27.6	60.9	21	215
Low Level PCB Material in Storage at Year-End ⁽²⁾ (tonnes)	1.7	0.8	0.4	0	1
Low Level PCB Material Sent for Destruction ⁽²⁾ (tonnes)	2.4	6.1	184.5	140	42
Estimated Inventory of Low Level PCB Material in Service ⁽²⁾ (tonnes)	9.4	14.0	63	18	23
(1) High level PCB: ≥500 mg/kg PCB (2) Low level PCB: ≥50 to <500 mg/kg PCB					
WATER USE					
Hydroelectric Turbine Flows (million m ³)	463,110	443,998	404,229	483,200	400,397
Nuclear and Thermal Non-Consumptive Cooling and Service Water Use (million m ³)	8,677	9,785	10,722	10,829	12,221
ENERGY CONVERSION EFFICIENCY - THERMAL (excludes OPG's co-owned facilities)					
Energy Input (GWh equivalent)	988	10,400	14,345	13,490	39,497
Net Energy Output (GWh)	251	2,998	4,082	3,678	12,192
Fuel Conversion Efficiency (per cent)	25.4	28.8	28.5	27.3	30.9
INTERNAL ENERGY EFFICIENCY					
Generation Energy Efficiency (per cent)	95.76	95.42	95.25	95.46	95.24
Internal Energy Saving - Cumulative since 1994 (GWh/year)	2,525	2,507	2,493	2,481	2,469
Cumulative Value of Energy Savings at Market Clearing Rate (millions of dollars) (2014 = 5.6¢/kWh; 2013 = 5.7 ¢/kWh; 2012 = 5.1¢/kWh; 2011 = 5.3¢/kWh; 2010 = 4.7¢/kWh)	141.4	142.9	127.1	131.5	116.0
Annual Incremental Energy Saving (per cent of internal energy use)	0.5	0.4	0.3	0.3	0.8
Annual Incremental Energy Saving (GWh/year)	17.9	13.9	12.3	12.1	34.5
OCCUPATIONAL SAFETY					
Accident Severity Rate (days lost per 200,000 hours)	1.31	0.94	2.4	1.10	2.04
All Injury Rate (injuries per 200,000 hours)	0.36	0.61	0.63	0.56	0.92
Fatalities	0	0	0	0	0
GROSS ENERGY GENERATION* (excludes power purchases)					
Total Energy Generated (GWh)	85,814	84,136**	87,925**	88,703**	92,984**
Thermal (GWh)	851	3,354	4,737	4,381	13,300
Hydroelectric (GWh)	33,793	33,068**	31,015**	32,674**	30,962**
Nuclear (GWh)	51,166	47,711	52,169	51,644	48,718
Wind (GWh)	3.4	3.5	3.7	2.9	3.1
NET ENERGY GENERATION* (excludes power purchases)					
Total Energy Output (GWh)	82,177	80,280**	83,745**	84,674**	88,557**
Thermal (GWh) (net of laid-up station consumption)	629	2,851	4,082	3,717	12,192
Hydroelectric (GWh)	33,489	32,733**	30,616**	32,328**	30,577**
Nuclear (GWh)	48,055	44,693	49,043	48,626	45,785
Wind (GWh)	3.4	3.5	3.7	2.9	3.1

* Includes OPG's 50 per cent share from co-owned facilities as of 2014.

** Value restated from the 2013 Sustainable Development Report.

INDICATOR	2014	2013	2012	2011	2010
GENERATION PERFORMANCE					
Nuclear Unit Capability Factor (per cent)	84.3	78.6	86.1	85.1	80.2
Hydroelectric Availability (per cent)	91.8	91.5	91.2	90.9	91.9
Thermal Start Guarantee (per cent)	8.9	Not reported	Not reported	Not reported	Not reported
ECONOMIC CONTRIBUTIONS					
Spending on Goods and Services (billions of dollars)	2.1	2.2	2.1	1.9	1.9
Employee Compensation (billions of dollars)	1.43	1.50	1.51	1.52	1.54
Payments to the Province of Ontario (millions of dollars)	415	375	324	317	257
Data Reported to Environment Canada's National Pollutant Release Inventory (NPRI)	2013	2012	2011	2010	2009
Emissions to air, water and land (tonnes unless otherwise specified)					
Aluminum	35.6	40.5	68.1	218.6	250.1
Ammonia	22.68	33.48	35.62	43.42	30.8
Arsenic	0.233	1.128	0.873	3.314	6.284
Cadmium (kilograms)	5.1	21.8	37	215	126
Chromium	Not reported	3.198	2.928	21.418	18.852
Cobalt	Not reported	Not reported	Not reported	5.886	Not reported
Copper	0.042	0.042	6.042	25.342	25.442
Dioxins and Furans (grams Toxic Equivalent)	0.087	0.107	0.495	0.661	0.995
Hexachlorobenzene (grams)	0.017	0.404	1.026	5.662	4.929
Hydrazine	0.55	0.525	0.31	0.82	0.746
Hydrochloric Acid	185	194	Not reported	1,112	1,577
Hydrogen Fluoride	31	34	50	133.0	126.0
Lead	70.3	0.884	1.64	10.24	7.79
Manganese	0.096	4.237	5.48	33.34	27.08
Mercury (kilograms)	29.13	30.36	63	186	155
Nickel	Not reported	Not reported	Not reported	19.547	16.56
Phosphorus	4.150	26.773	99	489	297
Selenium	0.857	1.079	2	Not reported	Not reported
Sulphuric Acid	214.005	294.006	188.006	452.319	522.983
Vanadium	0.374	4.105	5.9	38.7	30.5
Zinc	0.000	3.320	4.4	27.3	20.7
Criteria Air Contaminants (tonnes)					
Carbon Monoxide	846	1,345	955	5,693	1,813
Nitrogen Oxides (as NO ₂) (includes small generation sources)	5,037	6,572	5,855	16,016	13,457
PM - Total Particulate Matter	416	385	468	1,432	2,105
PM10 - Particulate Matter ≤ 10 microns	253	273	324	1,555	1,425
PM2.5 - Particulate Matter ≤ 2.5 microns	143	180	169	531	700
Sulphur Dioxide	9,752	9,706	11,264	37,662	29,500
Volatile Organic Compounds	21	27	24	38	48

For detailed information about OPG's emissions to air, water and land, please visit the NPRI web site at: www.ec.gc.ca/pdb/npri/npri_home_e.cfm. NPRI data for 2014 was not available at the time of publishing.



2014 SUSTAINABLE DEVELOPMENT REPORT



This report is also available on our website: www.opg.com

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