

2022

ESG Report

ONTARIOPOWER
GENERATION

Electrifying
Life.



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1.0

Who we are

1.0 Who we are

Ontario Power Generation (OPG) is the province's largest clean power generator and a clean technology leader.

OPG meets about half of Ontario's electricity needs with one of the most diverse generating portfolios in North America. In Ontario, we own and operate two nuclear stations, 66 hydroelectric stations, two thermal generating stations, one solar facility, and four combined-cycle gas generating stations, which are operated by our subsidiary, Atura Power. Additionally, we own two other nuclear generating stations in Ontario, which are leased on a long-term basis to Bruce Power L.P. In the United States, OPG owns and operates 85 hydroelectric stations in 19 states through our subsidiary, Eagle Creek Renewable Energy.

OPG is a commercial enterprise incorporated under the Business Corporations Act (Ontario) and is wholly owned by the Province of Ontario.

As at Dec. 31, 2022, OPG's in-service generating capacity was 18,225 megawatts (MW).

By building and operating low-carbon generating stations, we have helped the province avoid millions of tonnes of greenhouse gas emissions. In 2014, we completed one of the world's single-largest climate change actions by closing the last of our coal stations. These actions, coupled with our ambitious goals of becoming a net-zero company by 2040 and enabling a net-zero economy by 2050, will continue to position our company as a global clean energy leader for decades to come.

OPG also continues to prioritize its social commitments, including our work with Indigenous communities to advance our Reconciliation Action Plan, and our efforts to become a world-leading equity, diversity, and inclusion (ED&I) employer by 2030 by enacting our ED&I Strategy.



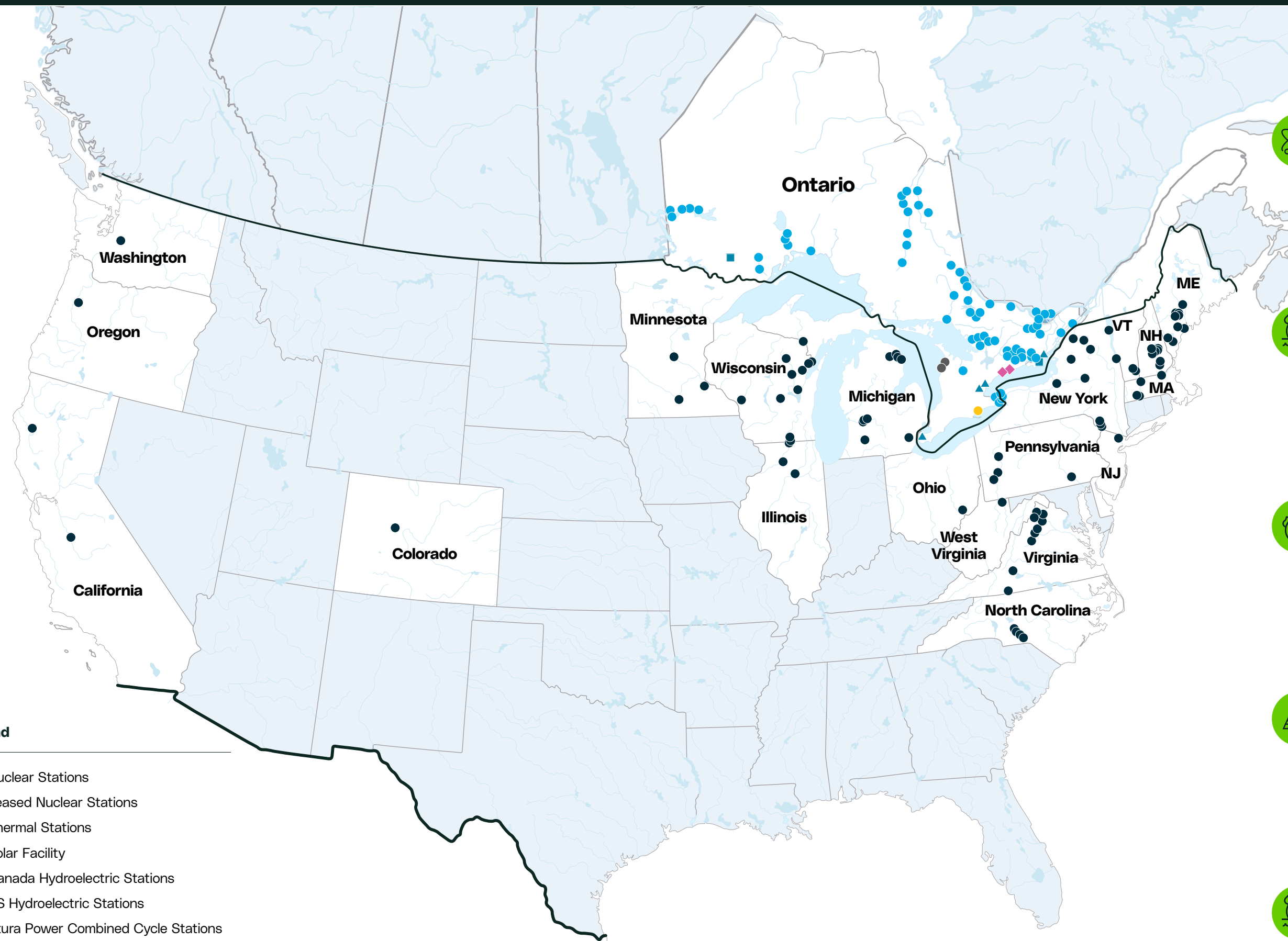
OPG at a glance

18,
225

megawatts (MW) generating capacity

\$62.3

billion in assets



One of North America's largest, most diverse electricity generators, meeting about half of Ontario's power needs

Generating facilities located across Ontario and in the U.S.

Developing Canada's first commercial, grid-scale Small Modular Reactor (SMR)

Leading producer of nuclear and medical isotopes, first harvested at Pickering Nuclear

Two other nuclear stations leased to Bruce Power



2

Nuclear
Generating
Stations



66

Hydroelectric
Generating
Stations
in Canada



2

Thermal
Stations



1

Solar
Facility



85

Hydroelectric
Generating
Stations
in the U.S.



4

Atura Power
Combined-Cycle
Generating
Stations



2.0

A message from the Board Chair and President & CEO

2.0 A message from the Board Chair and President & CEO

At OPG, we are focused on electrifying life in one generation, for the benefit of our province, our planet, and future generations.

By producing clean power and applying the talents and innovative thinking of our approximately 10,000 employees across Ontario and the United States, we are laying the groundwork for electrified life to help decarbonize economies and build a brighter tomorrow.

And while we are moving quickly to realize this future, speed will not come at the expense of safety or our integrity, especially when it comes to Indigenous partners, host communities, and the environment.

Being a sustainable corporate citizen is at the heart of everything we do, and is fundamental to our Environmental, Social, and Governance (ESG) performance.

In OPG's 2022 ESG Report, we are happy to report our progress on key ESG matters, which is critical to our future success.

A year of ESG progress

Since launching our inaugural ESG Report last year, we have continued to make steady advancements in building new clean, sustainable generation infrastructure to meet the growing needs of the future, as well as becoming a more inclusive, diverse, and socially responsible company.

As Ontario grows and more segments of our economy electrify, we know Ontario faces a potential doubling of demand for electricity by 2050. To support this growth, as well as achieve our ambitious net-zero goals outlined in our Climate Change Plan, we have been moving quickly on many fronts.

Securing sustainable, clean power for the future

OPG continues to lead the development of Small Modular Reactors (SMRs), the next generation of clean and reliable nuclear power. At our Darlington Nuclear site, we are progressing our project to build North America's first commercial, grid-scale SMR by the end of 2028, which will power the equivalent of about 300,000 homes with low-carbon, reliable power. And through our partnership in Global First Power, we are building Canada's first off-grid SMR at Chalk River, which will be a viable alternative to diesel generators for remote mines and communities.

In keeping with the need to act and invest now to secure a clean energy future, OPG prepared the Northern Ontario Hydroelectric Opportunities Report in early 2023, with input and advice from the Ontario Waterpower Association and Indigenous communities. The report showcases 4,000 MW of hydro projects we believe hold great potential in northern Ontario and will enable Indigenous partnerships and multi-generational clean power assets for the province. It also proposes options for expediting development timelines and makes key recommendations on how to explore these opportunities in partnership with Indigenous Nations.



Workers remove a turbine during a unit overhaul at R.H. Saunders Generating Station.

In addition to new hydro development, we are investing in our existing diverse generating fleet, advancing the electrification of the transportation sector, leading the production of green hydrogen, and continuing our effort to plant 35 million trees and create 3,000 acres of both grasslands and wetlands.



OPG’s Sandy Falls Generating Station.

Making strides on Reconciliation and ED&I

We are also making advances in our Reconciliation journey. In November 2022, we released our first annual progress report on our Reconciliation Action Plan: our road map for how we intend to work in partnership with Indigenous communities, businesses, and organizations to advance Reconciliation. We met all the goals set out for 2022, including creating more than \$75 million in economic benefits for Indigenous communities and businesses and hiring more than 20 skilled Indigenous employees through our Indigenous Opportunities Network program. This is a good start, and we acknowledge that we need to continue to listen and learn to move forward.

Another major commitment we are working toward is to become a global equity, diversity, and inclusion (ED&I) leader by 2030. We know to achieve our sustainability and climate change goals, we will need to rely on a diverse workforce that is welcoming of a wide range of ideas, skills, and backgrounds. To build this workforce, in 2022, we continued to offer ED&I training and education to employees, including anti-racism training.

Externally, we recently committed to providing \$5 million over 10 years to post-secondary programs to recruit students from historically under-represented communities. And we partnered with the BlackNorth Initiative to launch a nationwide STEM recruitment platform to connect Black candidates with internship, mentorship, and career opportunities across the sector.

These commitments will not only strengthen workplaces and communities, they will also help build a diverse and inclusive OPG, where everyone can work safely and to their full potential. Thanks to significant efforts that carried on during 2022, we were proud to be named one of Canada’s Best Diversity Employers for 2023.

Building a safe workplace

We accomplished all of this while maintaining an unwavering commitment to safety. In 2022, we met our aggressive performance target for Serious Injury Incidence Rate and recorded our second best-ever Total Recordable Injury Frequency performance, two key safety metrics. In recognition of our top safety performance, we received the Electricity Canada President’s Award of Excellence for Employee Safety, and we were named to Canadian Occupational Safety’s 2022 5-Star Safety Cultures list.

As we work to electrify life in one generation, we will continue to prioritize sustainability, safety, diversity, and Reconciliation.

And we will keep striving to be a socially responsible and beneficial neighbour for communities and Indigenous partners across the province and in the U.S.

These are the focal points that will continue to drive OPG’s journey to ESG excellence in the years ahead.

Together, we will build a brighter tomorrow for all.



Wendy Kei
Board Chair



Ken Hartwick
President & CEO

3.0

About this report

3.0 About this report

This is OPG’s second annual ESG Report. Prior to undertaking this ESG reporting process, we publicly reported on our performance in these areas for many years in different formats. OPG takes seriously its responsibility to conduct its business in ways that enhance the protection of our environment and benefit the communities in which we operate, and to do so in a way that is transparent and open. To this end, we regularly update [opg.com](https://www.opg.com/reporting/sustainability-reporting/) with a wide variety of ESG-related information, stories, and reports. Additional sustainability reporting, including performance data, is available at: <https://www.opg.com/reporting/sustainability-reporting/>

This report captures the progress OPG made towards its ESG goals in the 2022 calendar year and has been reviewed and approved by OPG’s Board of Directors.

As noted earlier, OPG owns and operates several subsidiaries in Ontario and the United States. While the scope of this report focuses on our businesses and assets as a parent company, we’ve also included information about our subsidiaries where relevant.

Additional information about our subsidiary and partner companies can be found at the links below:



- ▶ Eagle Creek Renewable Energy (ECRE)
- ▶ Laurentis Energy Partners (LEP)
- ▶ PowerON Energy Solutions
- ▶ Atura Power
- ▶ Ivy Charging Network
- ▶ Global First Power

Standards and frameworks

OPG has been progressing alignment with the Task Force on Climate-related Financial Disclosures (TCFD). Since 2018, OPG has formally reported aspects of our environmental performance in accordance with the framework’s recommendations across the four pillars of governance, strategy, risk management, and metrics and targets. **Appendix 1** provides a TCFD index.

Appendix 2 shows where OPG’s ESG reporting is also aligned with the Global Reporting Initiative (GRI) standards.

While we do not currently fully conform to the TCFD framework and GRI standards, we believe that it is important that we report our ESG performance in relation to these as they include elements that are relevant to OPG and our key audiences. As these standards evolve, so will we. We will strive to show leadership in what we report, which will allow our audiences to monitor our progress.

OPG is also monitoring the development of new standards from the International Sustainability Standards Board (ISSB), the Canadian Sustainability Standards Board and the Canadian Securities Administrators’ proposed mandatory climate-related disclosure requirements per National Instrument 51-107. The ISSB standards aim for a high-quality, comprehensive global baseline of sustainability disclosures focused on the needs of investors and the financial markets.



Materiality – determining what to report

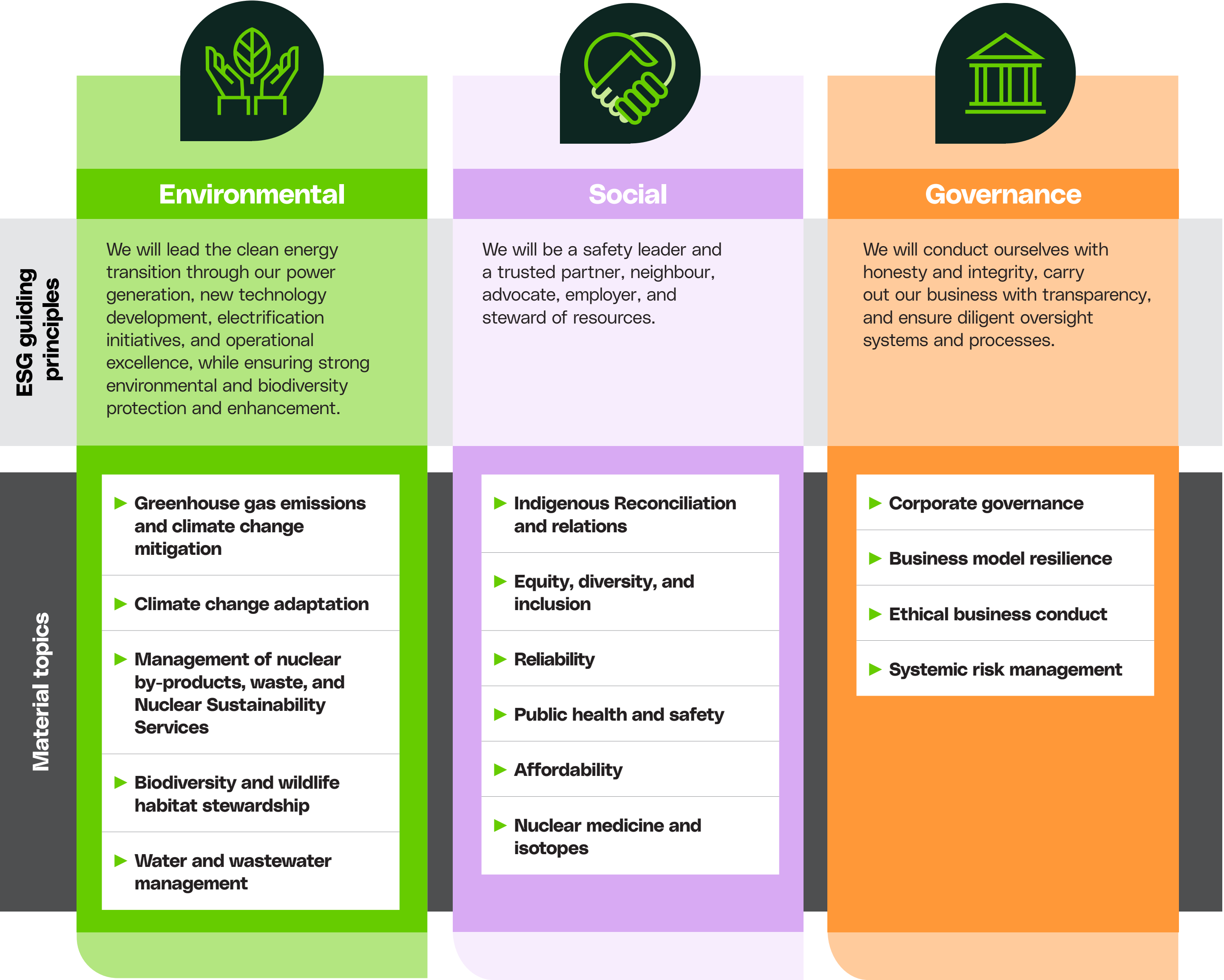
In determining what ESG issues to focus on and report, OPG has conducted materiality assessments with employees and external stakeholders to identify the environmental, social, and governance issues that matter most to our company and key audiences. As this report demonstrates, these issues are integrated throughout the company’s strategy.

In 2022, following the release of our inaugural ESG report, OPG undertook a comprehensive engagement process to obtain stakeholder and Indigenous perspectives on material ESG topics. A multitude of individuals from both inside and outside the organization participated in a total of 17 engagement sessions and provided crucial feedback needed to prioritize OPG’s material topic candidates by importance and impact. This work built on previous assessments in 2015, 2018, and 2021, and the results informed the content of this report.

OPG remains committed to ongoing dialogue and engagement. We will strive to keep our key audiences informed on how we are managing the ESG topics contained herein, and as we develop future annual ESG Reports, we will continue to engage with our key audiences.

Data assurance and quality

Operational and performance data is validated by line management and independent reviewers. As part of OPG’s assurance program, prescribed data is subject to assessments and audits. Additional information on data assurance and quality, as well as the scope of reporting related to OPG and its subsidiary companies, is available in **Appendix 3**.





4.0

What ESG means to OPG

4.0 What ESG means to OPG

OPG believes that operating in a sustainable manner, consistent with ESG principles, is fundamental to the long-term success of our company, and to our ability to deliver value and enhance the prosperity and well-being of the places and people we serve.

The long-term success of OPG is intrinsically linked to ESG performance. As a power generator and a business owned by the Province of Ontario, we have a responsibility to the environment, to communities, and to the people of the province. Over several years, OPG has worked to integrate ESG across our business. ESG is integrated in our corporate strategy and business model, throughout our risk management framework and policy requirements, and within our performance targets. Our Board of Directors and senior management directly oversee our ESG performance and reporting, and ESG performance helps determine executive compensation.



OPG's Woody Kassouf poses with a Harris's hawk, part of the company's bird abatement program.

Our commitment to excellence

The positive impact OPG is able to make through our power generating operations and initiatives in communities across the province are frequently recognized with awards and accolades, including the following:

- ▶ Named one of Canada's Best Diversity Employers for 2023 by Mediacorp Inc.
- ▶ Electricity Canada: President's Award for Occupational Health and Safety, with a top ranking in safety performance compared to peers.
- ▶ Included in Canadian Occupational Safety's 2022 5-Star Safety Cultures list.
- ▶ Darlington Nuclear was once again recognized for performing to exceptionally high levels of safety, operational performance, and equipment reliability.
- ▶ Pickering Nuclear achieved its strongest-ever performance in 2022, including its highest yearly production output and its best equipment reliability ratings.
- ▶ Canadian Council for Aboriginal Business (CCAB) Progressive Aboriginal Relations (PAR) program Gold Designation. PAR Gold companies demonstrate sustained leadership in Indigenous relations and commitment to working with Aboriginal businesses and communities.
- ▶ Gold certification awarded to a number of our sites by the Wildlife Habitat Council, an international group that promotes and certifies habitat conservation and management.
- ▶ Corporate Knights' Canada's Best 50 Corporate Citizens for 10th year in a row.
- ▶ OPG's Enterprise Project Management Office named as one of three finalists among hundreds of international nominations for the Project Management Institute's 2022 Project Management Office of the Year Award.

2022 Performance highlights

Some of our ESG performance highlights from 2022 include:

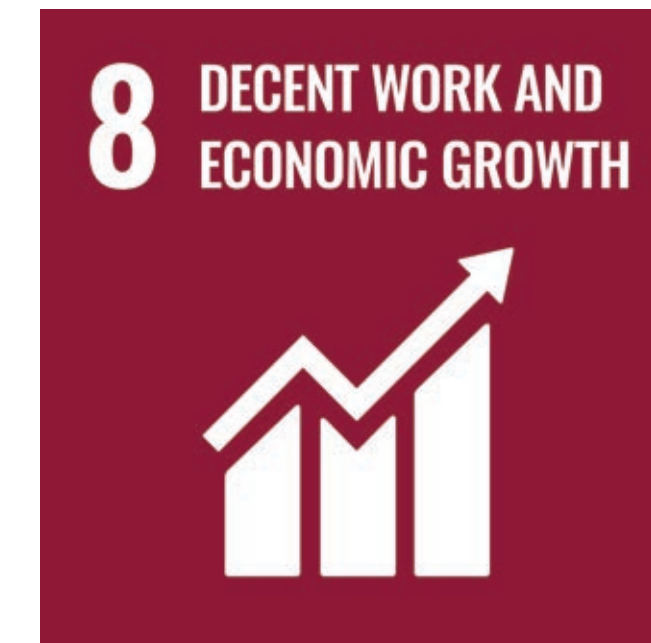
- ▶ As part of our Reconciliation Action Plan to meaningfully advance Reconciliation with Indigenous Peoples, delivered \$77 million in economic benefits to Indigenous communities and businesses, with \$56 million in Indigenous procurement and approximately \$21 million in distributions from our equity partnerships with Indigenous partners.
- ▶ Established an Equity, Diversity, and Inclusion Strategy Council to oversee implementation and tracking of the strategy's progress. Also launched a new 2022-2025 Employment Equity Plan.
- ▶ Provided support to almost 600 local community initiatives.
- ▶ Achieved preliminary testing on work to harvest Molybdenum-99 from Darlington Nuclear, a critical isotope in nuclear medicine that is in demand globally.
- ▶ Applied to the Canadian Nuclear Safety Commission for a License to Construct Canada's first commercial, grid-scale Small Modular Reactor and began site preparation activities at Darlington site.
- ▶ Completed a report for the Minister of Energy that highlighted 3,000 to 4,000 MW of untapped hydroelectricity potential in Ontario's north.
- ▶ Continued to execute the \$12.8-billion Darlington Nuclear Refurbishment project, which remains on time and on budget. This project, once completed, will result in an approximate reduction of 297 megatonnes of carbon dioxide over the next 30 years of operation.
- ▶ Continued to progress our turbine/generator overhaul of generating units across our hydroelectric fleet, redeveloped our Calabogie Generating Station (GS) in eastern Ontario, and replaced two decommissioned generating units at Sir Adam Beck I GS.
- ▶ Advanced detailed design and critical path procurement for Atura Power's Niagara Hydrogen Centre project, which is anticipated to be in operation in the second half of 2024.
- ▶ Expanded the Ivy Charging Network, in partnership with Hydro One, which at the end of 2022 included 140 fast chargers.
- ▶ Planted 342,736 trees, restored over 600 acres of woodlands and 64 acres of grasslands, and created 379 acres of wetlands.
- ▶ Delivered \$1.6 billion in net income to our Shareholder, the Province of Ontario, and generated 78.5 terawatt-hours of electricity.

Supporting the United Nations Sustainable Development Goals (SDGs)

The UN SDGs are a set of 17 interlinked objectives designed to serve as a “shared blueprint for peace and prosperity for people and the planet, now and into the future.” As they are focused on sustainable, equitable development, they overlap with a number of environmental, social, and governance issues. Member nations of the UN adopted the SDGs in 2015 with the goal of achieving them by 2030.

As a generator of clean power and an employer striving for equity, inclusion, and Reconciliation, OPG’s business priorities and practices align with several of the SDGs. We are making significant contributions to a majority of the goals, including the 12 goals displayed here.

Our alignment with these goals is expressed throughout the pages of this report, from work we are doing to provide employment and job opportunities to Indigenous communities, to our stewardship of water resources, and our efforts to become a world-leading equitable, diverse, and inclusive employer.



Our social and economic contributions

In addition to helping moderate Ontario’s electricity rates by providing power that costs less than other generators, OPG has significant direct and indirect impacts on the province’s economic and social fabric.

- ▶ In 2022, we generated \$1.6 billion in net income for the Province, and approximately \$7 billion over the last five years. These dollars benefit the people of Ontario and support essential programs and services.
- ▶ We directly employ about 10,000 skilled, dedicated people and support thousands of additional jobs across Ontario through our clean energy projects and supply chains.
- ▶ We spent almost \$3 billion to operate and maintain our fleet and operations in 2022, and we invested about \$2.6 billion in our facilities and assets.
- ▶ Our redevelopment, upgrades, and refurbishment projects inject millions of dollars into the economy.
- ▶ OPG is Canada’s largest corporate issuer of green bonds.
- ▶ We purchase goods and services from about 2,000 active suppliers, the vast majority of which are local businesses.
- ▶ We are actively increasing the number of Indigenous businesses we purchase goods and services from and are developing partnerships with Indigenous communities that provide jobs, skills training, and lasting economic benefits.
- ▶ And we produce several critical isotopes, used in health care for medical diagnostics, imaging, and equipment sterilization.



Construction underway for the Smoky Falls Dam Safety project.



5.0

Enviromental pillar



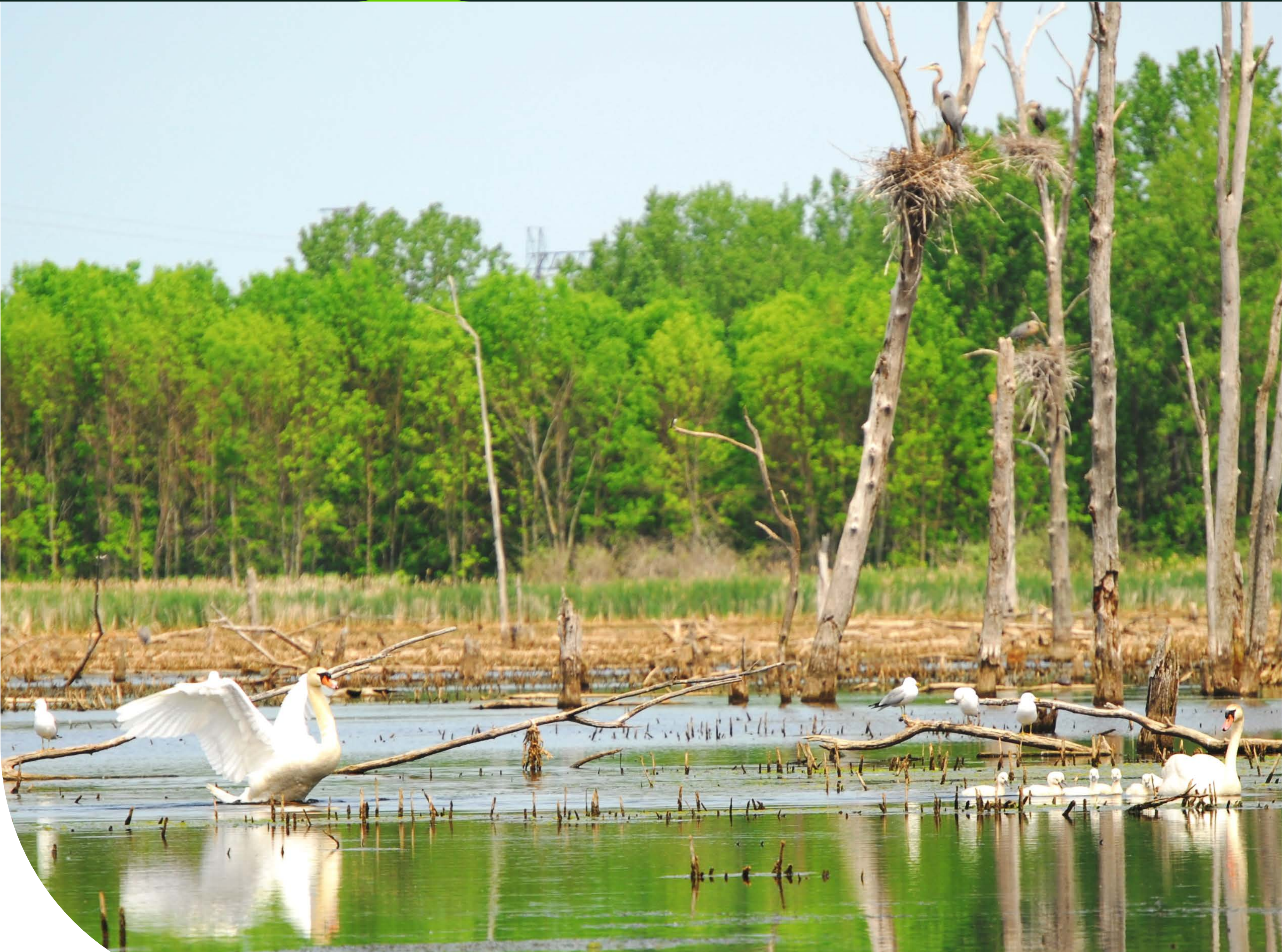
5.0 Environmental pillar

As Ontario’s largest generator of clean electricity, the environment is of critical importance to OPG. For this reason, we strive to manage our environmental impacts from our operations and projects and improve our natural and developed surroundings.

To ensure best-in-class environmental performance, OPG employs an ISO 14001-registered Environmental Management System (EMS). The EMS provides us with a framework to meet our compliance obligations, establish environmental objectives, and maintain operational control in a way that manages significant environmental aspects of operations.

However, it is not just our work to nurture biodiversity and wildlife, reduce waste, and comply with international best practices that shows our commitment to achieving strong environmental performance. Our already built assets and approach to electricity generation have positioned Ontario as a leader in the fight against climate change. Currently, Ontario’s electricity sector accounts for just 2% of the province’s total greenhouse gas emissions. Few jurisdictions can lay claim to such a clean electricity grid. We are now working aggressively to use our clean power to electrify life by supporting the adoption of electric vehicles (EVs) and the electrification of industrial processes and home heating.

Ontario’s clean energy leadership is underpinned by the investments OPG has made in closing down coal power facilities, refurbishing our Darlington Nuclear station, and modernizing our hydroelectric fleet. And as demand for electricity increases in the years ahead, we will be prepared, with work already underway to expand our nuclear and hydroelectric generation, as outlined in this section of the report.



Swans and cygnets enjoy the wetland near OPG’s Lennox Generating Station.

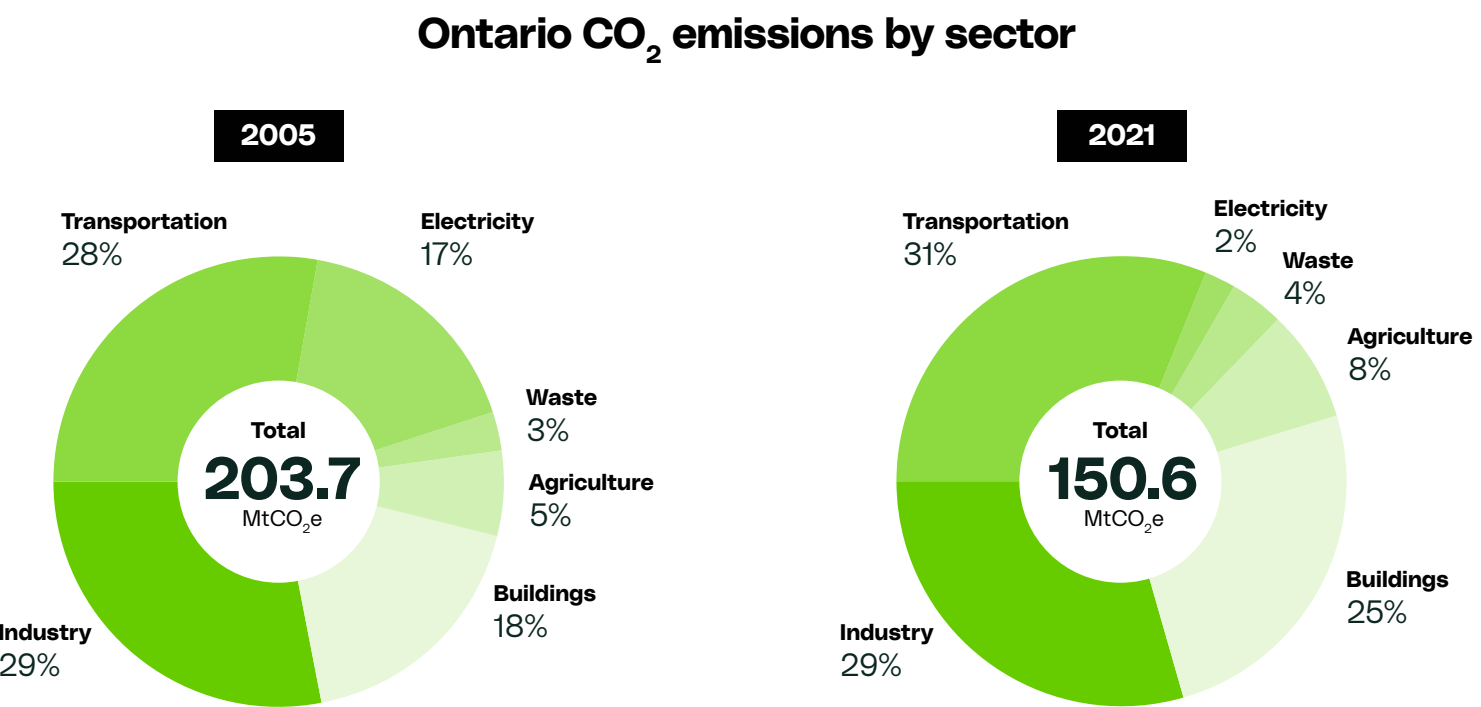
Greenhouse gas emissions and climate change mitigation

As more North American power generators seek to define and commit to their role in tackling climate change, OPG has already made major shifts to build a sustainable future.

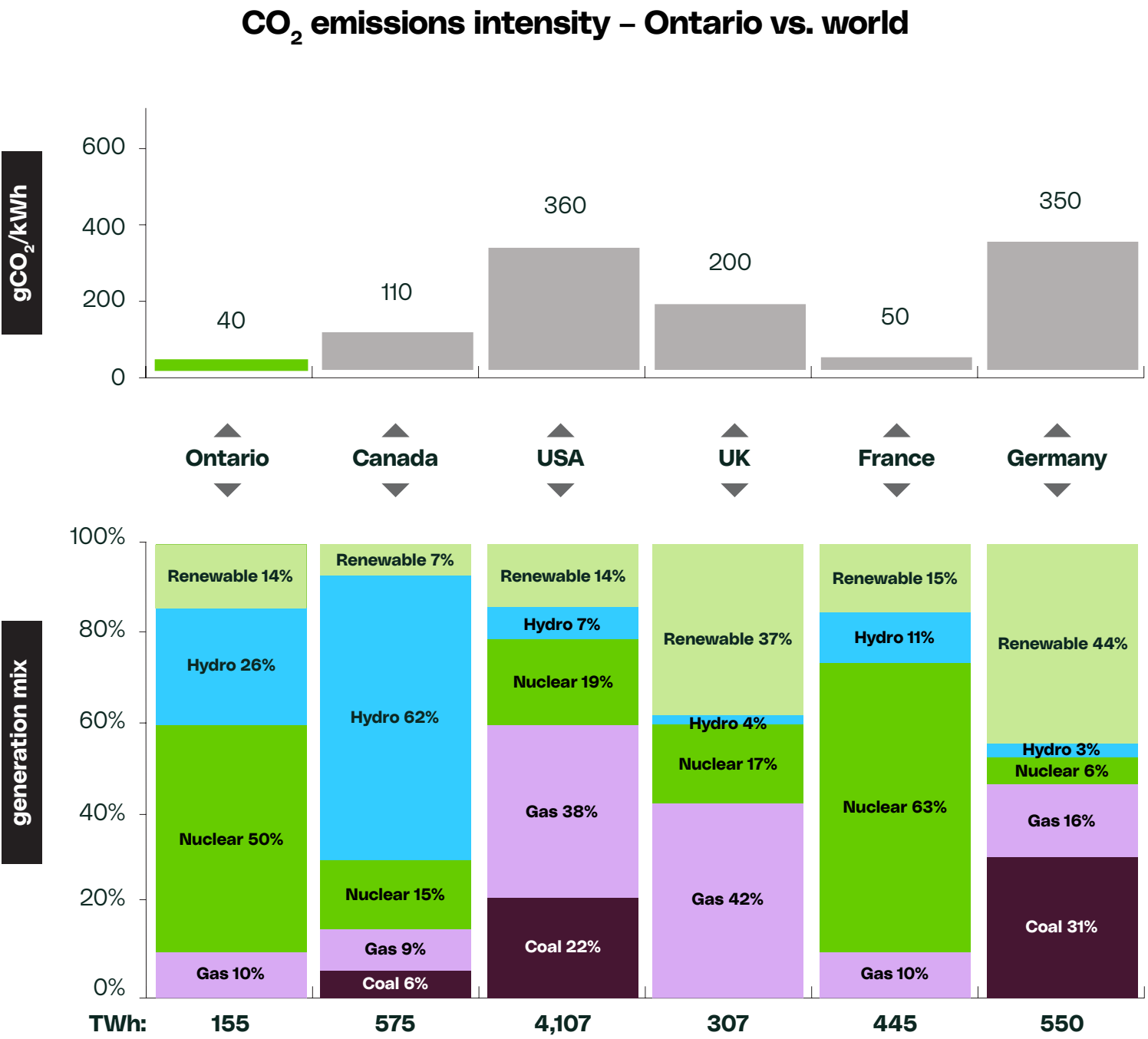
In 2014, we stopped burning coal to generate electricity and embarked on a company-wide mission to create low-cost, low-carbon electricity for Ontario. Today, we have some of the lowest-carbon electricity not just in North America, but in the world, which reflects our diverse mix of generating assets and our record of innovation and successful delivery of projects on time and on budget.

Ontario’s electricity ranks, by a wide margin, among the lowest globally from a carbon intensity perspective when compared to other jurisdictions, including Canada as a whole, the United States, Britain, France, and Germany.

In 2021, about 98% of Ontario’s greenhouse gas (GHG) emissions came from sectors other than electricity generation, as shown below.



Source:
Canada’s 2023 National Inventory Report



- Notes:
- ▶ Based on actual 2022 generation for Ontario, France, and Germany, 2021 generation for USA, 2021 generation for Canada, and 2019 generation for Britain.
 - ▶ CO₂ emissions intensity estimates are for in-region generation only; CO₂ from imports and life-cycle emissions are not included.
 - ▶ Renewable excludes hydro and includes wind, solar, biofuels and geothermal; small brown portion is oil.
 - ▶ CO₂ emissions intensity estimates calculated assuming emissions of 420 gCO₂e/kWh for natural gas, 800 gCO₂e/kWh for oil and 900 gCO₂e/kWh for coal.





A view of transmission equipment at Atura Power's Napanee Generating Station.

2022 GHG Emissions

Greenhouse gas emissions are categorised into three groups or “Scopes” by the most widely-used international accounting tool, the Greenhouse Gas Protocol.

Scope
1

Covers direct emissions from owned or controlled sources.

Scope
2

Covers indirect emissions from the generation of purchased electricity, steam, heating, and cooling consumed by the reporting company.

Scope
3

Includes all other indirect emissions that occur in a company's value chain.

OPG’s Scope 1 GHG emissions metric identifies direct carbon dioxide equivalent (CO₂e) emissions from OPG’s thermal, nuclear, and hydroelectric operations in Ontario, including from our combined-cycle gas-turbine (combined-cycle) facilities. OPG’s Scope 2 GHG emissions metric identifies indirect emissions from the generation of purchased electricity. A summary of OPG’s Scope 1 and Scope 2 emissions and OPG’s GHG emissions intensity for 2022 and prior years are shown are described in this section of the report.

Through its subsidiary, Atura Power, OPG is focused on operating its fleet of combined-cycle natural gas plants in a way that reduces GHG emissions to the lowest levels possible. The increase in Scope 1 emissions and emission rate in 2022 was primarily due to year-over-year stronger market demand resulting in an overall increase in natural gas-fuelled electricity generation supply. Atura Power’s market share of natural gas-fuelled electricity generation increased to 42% in 2022 from 36% in 2021 due to significant outages at non-Atura Power gas generation facilities in 2022. Atura Power continues to pursue opportunities to reduce GHG emissions at its facilities where technologically and economically feasible.



OPG's dual-fuelled Lennox Generating Station.



In Ontario, natural gas generation plays an important role in the transition to a clean energy future. Owning and operating these gas plants aids our effort to combat climate change as these facilities are an important enabler of intermittent renewable energy like solar and wind, providing back up when the sun is not shining and when the wind is not blowing. This allows for quicker decarbonization of higher emitting sectors, such as transportation, buildings, and industry.

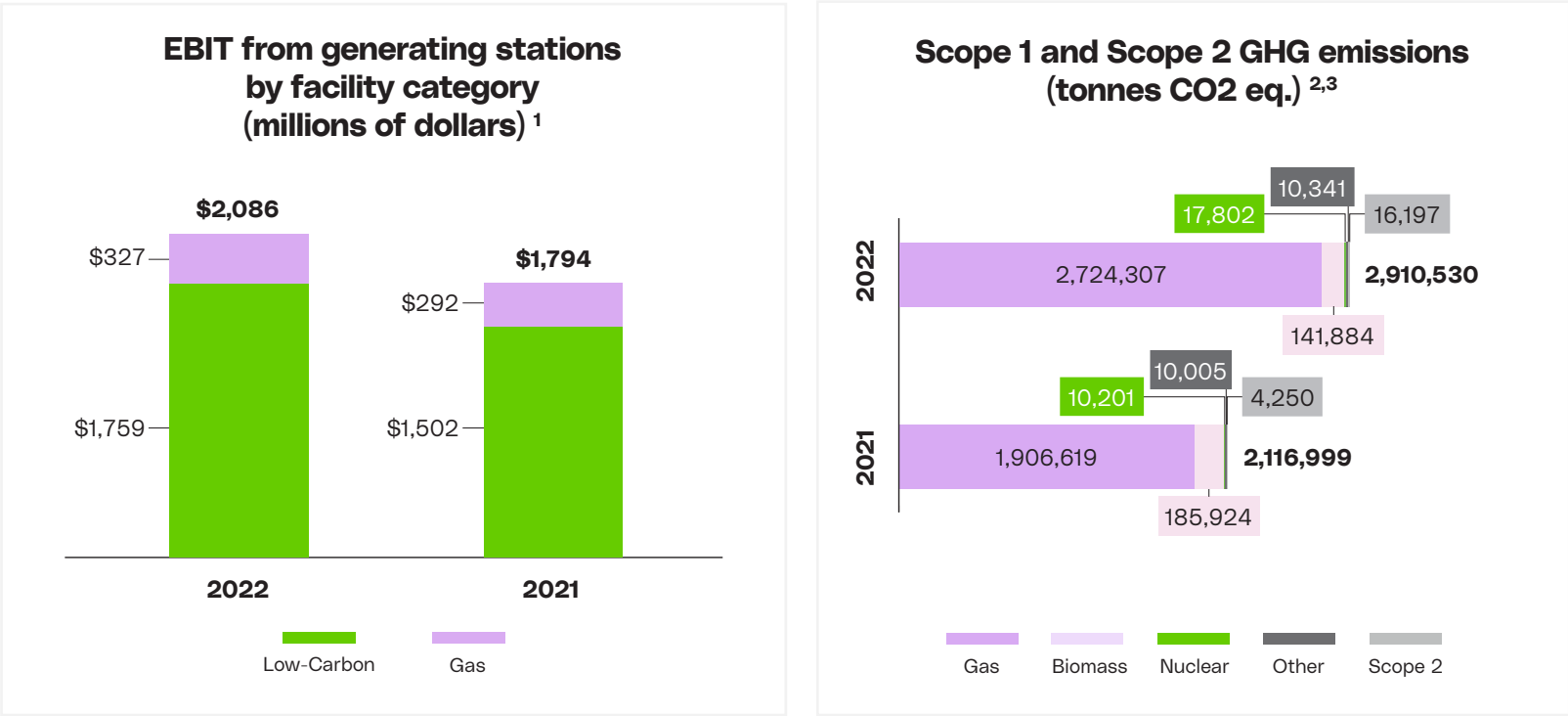
Natural gas electricity generation also plays a critical role in the stability of Ontario's grid system largely because of its flexibility: the units can easily add power to the grid in times when it's needed. For example, natural gas provides about 10% of Ontario's annual electricity, but during peak moments of demand in the summer, it can provide up to 30% of the province's power. This is why the Independent Electricity System Operator (IESO) has confirmed natural gas-fuelled generation is critical for system reliability out to 2040, as new low-carbon power sources are built and demand for electricity rises at a forecasted rate of 1.7% per year.

The energy transition and Ontario's shift to electrification is happening fast, but it will take time to build the larger pieces of low-carbon infrastructure. As we deploy these longer-term decarbonization initiatives, we must utilize interim solutions that can meet electricity demand during peak periods.

We have a proven track record across our generating fleet of strong environmental stewardship. This expertise, plus creative, innovative thinking to find new ways to reduce emissions further, such as by incorporating green hydrogen into the feedstock, is what makes our dual-fuelled Lennox GS and Atura Power stations a reliable, efficient, and affordable fit in OPG's portfolio.

Changes in our “Other” and Scope 2 emission categories are a result of our efforts to improve our GHG inventory for these categories.

In 2022, OPG engaged a third-party provider of business sustainability ratings. This work will help determine a baseline for, and then ultimately reduce, Scope 3 emissions. Pilot ESG evaluations have been conducted on a small sample of our value chain in 2022. Evaluations continue for our key suppliers, and we expect corrective actions assigned to vendors will encourage them to track and ultimately reduce their emissions.



¹ Includes OPG’s proportionate share of in-service generating capacity and electricity generation from co-owned and minority held facilities, as applicable. Gas category includes the dual-fueled Lennox GS and Atura Power’s combined cycle plants.

² Biomass uses pellets sourced from Ontario’s sustainably managed forests and are included in OPG’s GHG emissions inventory for completeness.

³ Scope 1 greenhouse gas emissions for Lennox and Atura Power Generating Stations are third-party verified annually. The verification for 2022 emissions was in progress as of publication date. Atura Power Generating Stations include Brighton Beach, Halton Hills, Napanee and Portlands.

Indicator	2022	2021	2020	2019	2018
Scope 1 Greenhouse Gas Emissions includes emissions from stations operating under the subsidiary Atura Power					
Total carbon dioxide equivalent (tonnes)	2,894,334	2,112,749	1,318,502	506,060	581,922
Thermal – Atikokan Generating Station	141,884	185,924	177,578	168,305	181,518
Thermal – Brighton Beach Generating Station	257,392	62,269	23,514	20,800	47,716
Thermal – Halton Hills Generating Station	956,351	740,815	255,043	-	-
Thermal – Lennox Generating Station	102,505	81,081	66,945	83,725	118,139
Thermal – Napanee Generating Station	794,783	404,196	481,194	-	-
Thermal – Portlands Energy Centre	613,275	618,258	303,966	224,256	219,738
Thermal – Thunder Bay Generating Station	-	-	-	1,102	2,697
Nuclear	17,802	10,201	8,606	7,872	12,115
Other facilities and sources	10,341	10,005	1,657	Not reported	Not reported
Scope 1 Greenhouse Gas Emission Rates includes emissions from stations operating under the subsidiary Atura Power					
Carbon dioxide equivalent (tonnes/GWh-net) – OPG includes generation from all OPG-owned stations	36.9	27.2	16.1	6.5	7.9
Carbon dioxide equivalent (tonnes/GWh-net) – Thermal	426	445	475	647	691
Scope 2 Greenhouse Gas Emissions includes emissions from stations operating under the subsidiary Atura Power					
Carbon dioxide equivalent (tonnes)	16,197	4,250	3,986	3,478	Not reported

Climate Change Plan

To underline our commitment to climate action, in November 2020, OPG launched our first-ever Climate Change Plan, which outlines our path to achieving two ambitious goals:

1. **OPG will be a net-zero carbon company by 2040.**
We will implement and invest in carbon reductions and offsets that achieve an overall balance between emissions produced and emissions removed or displaced from the atmosphere.
2. **OPG will be a catalyst to help the markets where we operate achieve net-zero carbon economies by 2050.**
We will be a leading energy innovation company, advancing clean technology solutions.

OPG’s Climate Change Plan includes more than 50 specific interim actions to be taken by 2025 in the areas of mitigation, adaptation, innovation, and leadership.

OPG has internal governance in place to help the company deliver its Climate Change Plan and associated actions. We have established roles and accountability for the plan as well as a structure to oversee and implement the plan’s actions.

Our efforts to progress our Climate Change Plan are aligned with the Pathways to Decarbonization Report that the IESO released in 2022. This report looked at the province’s options to reduce emissions using clean electricity. With the increasing electrification of transportation, home heating, and industrial processes, the IESO anticipates that by 2050, peak periods of demand may require more than double the amount of electricity generation capacity compared to the existing system. The Pathways to Decarbonization 2050 scenario identifies a number of technologies and approaches to increase clean generating capacity, many of which OPG is already beginning to pursue.

The following pages outline actions OPG is taking to achieve its net-zero goals.

A net-zero
carbon
company by
2040

Having delivered the world’s single largest climate action to date by closing our coal stations, OPG will continue to be a climate leader by investing in and implementing CO₂ reductions and offsets to achieve net-zero carbon emissions by 2040.

A net-zero
carbon
economy by
2050

OPG will be a leading energy innovation company, advancing clean technologies and solutions to help the markets where we operate achieve net-zero carbon economies by 2050.





A concept image of GE-Hitachi's BWRX-300 Small Modular Reactor.

SMRs and new nuclear development

Small Modular Reactors (SMRs) are used in grid-scale applications to provide electricity to homes and businesses or as an industrial co-generation application to provide steam/heat and electricity. Micro Modular Reactors (MMRs) are smaller and provide steam/heat and electricity to replace diesel engines in remote communities and mines. As the next generation of clean nuclear power technology, SMRs and MMRs offer the benefits of traditional nuclear reactors, but are smaller in size and output, and could facilitate efficient construction and assembly.

In December 2021, OPG announced it had selected GE Hitachi Nuclear Energy to help it deploy Canada's first commercial, grid-scale SMR at the Darlington Nuclear site within this decade, pending regulatory approvals. In 2022, OPG applied to the Canadian Nuclear Safety Commission (CNSC) for a Licence to Construct the reactor and began site preparation activities at the Darlington site. Also in 2022, the Canada Infrastructure Bank finalized an agreement with OPG to provide a \$970 million credit facility towards the project at a supportive interest rate.

Once built, the 300 MW SMR will be capable of powering about 300,000 homes. The project is estimated to create about 2,500 jobs and will serve as a blueprint for similar SMR developments that will advance global decarbonization efforts. The Darlington site will be designed to accommodate up to four SMR units.

In 2022, OPG entered into a framework agreement with X-energy to deploy and operate the XE-100 high-temperature gas reactor in Ontario for industrial co-generation options. This advanced reactor can reduce greenhouse gas emissions by replacing gas turbines currently in use to create steam for industrial applications, while also generating electricity for industrial consumers. OPG is evaluating deployment options of this reactor in Ontario.

Throughout 2022, Global First Power, a joint venture between OPG and Ultra Safe Nuclear Company, continued the project development of a full-scale MMR at the Chalk River Laboratories site. This reactor is on track to be in service by 2027 and will demonstrate how nuclear energy can be used to replace diesel generators in remote communities and mines, as well as in community energy hub settings such as a university campus.



A concept image of Global First Power's Micro Modular Reactor.



Asset renewal and development

OPG continues to invest in renewing its existing generating assets to make them more efficient and extend their operating lives. And we are developing more clean generating capacity to meet Ontario’s climate goals.

In 2022, OPG’s Renewable Generation division advanced several clean energy projects, including:

- ▶ Completing the replacement of two older and decommissioned generating units at our Sir Adam Beck I GS, adding about 115 MW of incremental peaking generation capacity to our hydroelectric fleet.
- ▶ Completed the redevelopment of the Calabogie GS in eastern Ontario, which was placed in-service in 2023. The new hydroelectric station more than doubles its predecessor’s output to 11 MW from 5 MW.
- ▶ Placing a new 10 MW unit into service at the Ranney Falls GS.
- ▶ Continuing ongoing overhauls of generating units across our hydro fleet through an extensive turbine/generator overhaul program, which will extend the lives of these durable assets.
- ▶ Exploring the addition of generation capacity at OPG’s control dams.

Renewing an asset by pivoting to renewable energy

Following the closure of OPG’s coal-fired generating stations in 2014, Atikokan GS was converted from coal to use biomass as its fuel. The station is now the largest 100% biomass-fuelled plant in North America, providing economic benefits to northwestern Ontario and providing renewable energy that can be dispatched whenever Ontario’s power system requires it. The biomass used as fuel at Atikokan is wood pellets that come from forestry by-products. OPG requires feedstock suppliers to have third-party chain of custody certification as well as be certified by the Forest Stewardship Council.

Northern Ontario Hydroelectric Opportunities Report

Both OPG and the IESO point to an electricity capacity shortfall that will begin to emerge later this decade and continue to grow due to the acceleration of transportation electrification and other actions to achieve carbon neutrality.

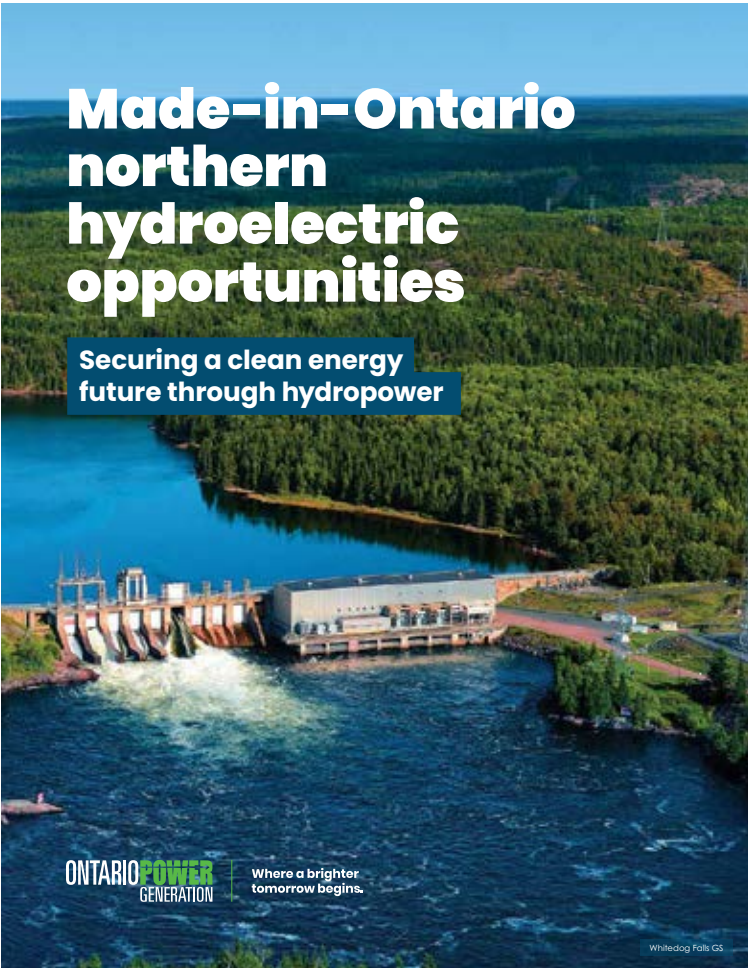
To help address this shortfall, in January 2022, OPG was asked by Ontario’s Energy Minister to provide a broad industry update on opportunities for new hydroelectric development in northern Ontario and to report findings by April 1, 2022, which OPG did.

Working with the Ontario Waterpower Association (OWA) and Indigenous communities, with the concurrence of the province, OPG released the Northern Ontario Hydroelectric Opportunities Report in early 2023.

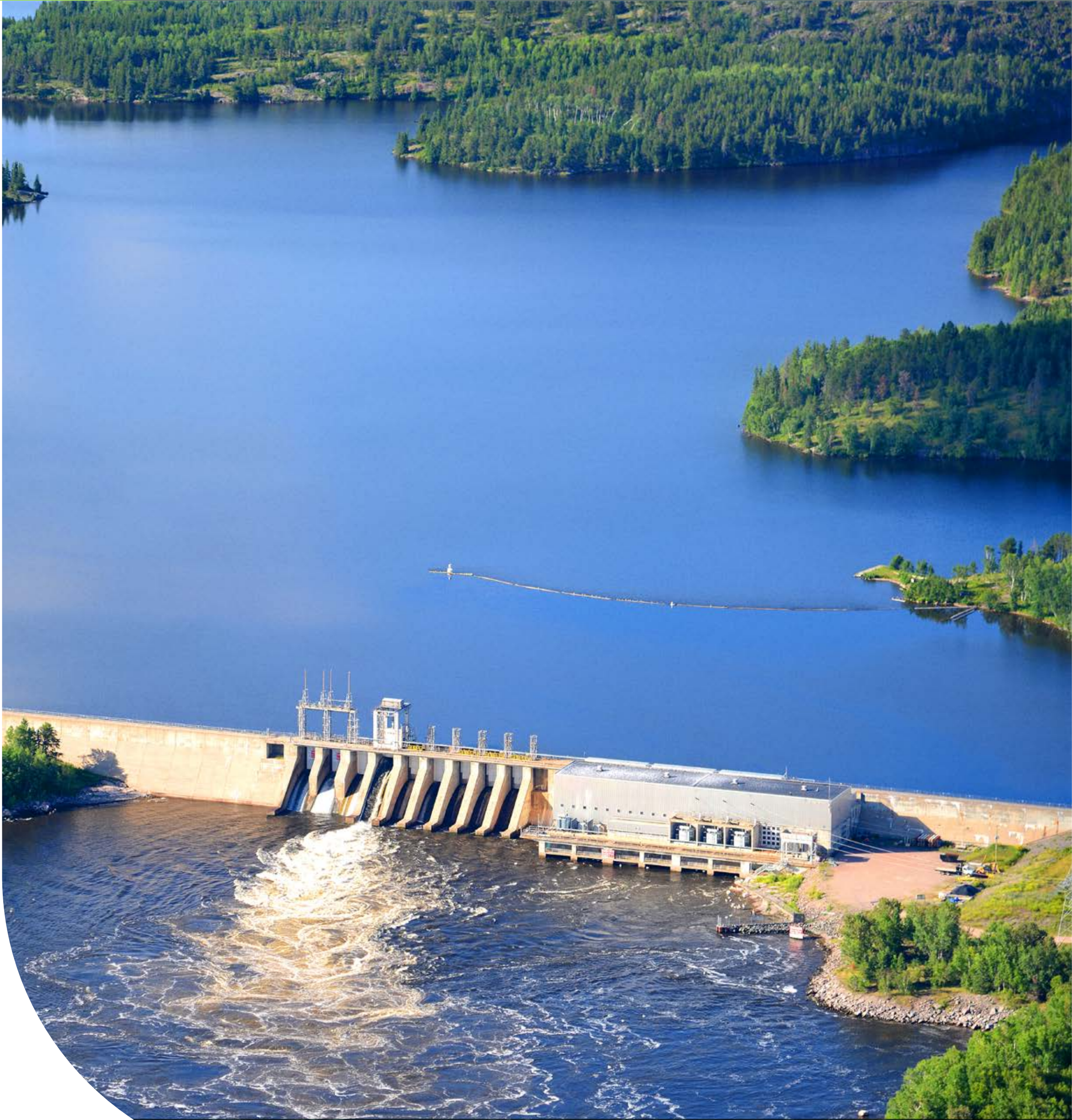
To complete this report, OPG and the OWA:

- ▶ Updated previous evaluations of hydroelectric potential in northern Ontario.
- ▶ Worked with the IESO on analyzing the role that new hydroelectric generation could play in servicing supply needs.
- ▶ Leveraged existing relationships to engage in initial discussions with Indigenous communities located within high-potential development areas.

The report points to an estimated 3,000 to 4,000 MW of untapped hydropower potential in the province’s north that could help Ontario meet its forecasted electricity needs and support future growth. Unlocking new hydroelectric generation in northern Ontario is a clean, low-emission, made-in-Ontario solution to the province’s impending electricity shortfall. By increasing Ontario’s hydroelectric capacity, the province reduces risk associated with importing power from jurisdictions with less clean grids and keeps good, high-skilled jobs in Ontario.



OPG and the OWA’s report –
Made-in-Ontario Northern Hydroelectric Opportunities



Nuclear asset refurbishment

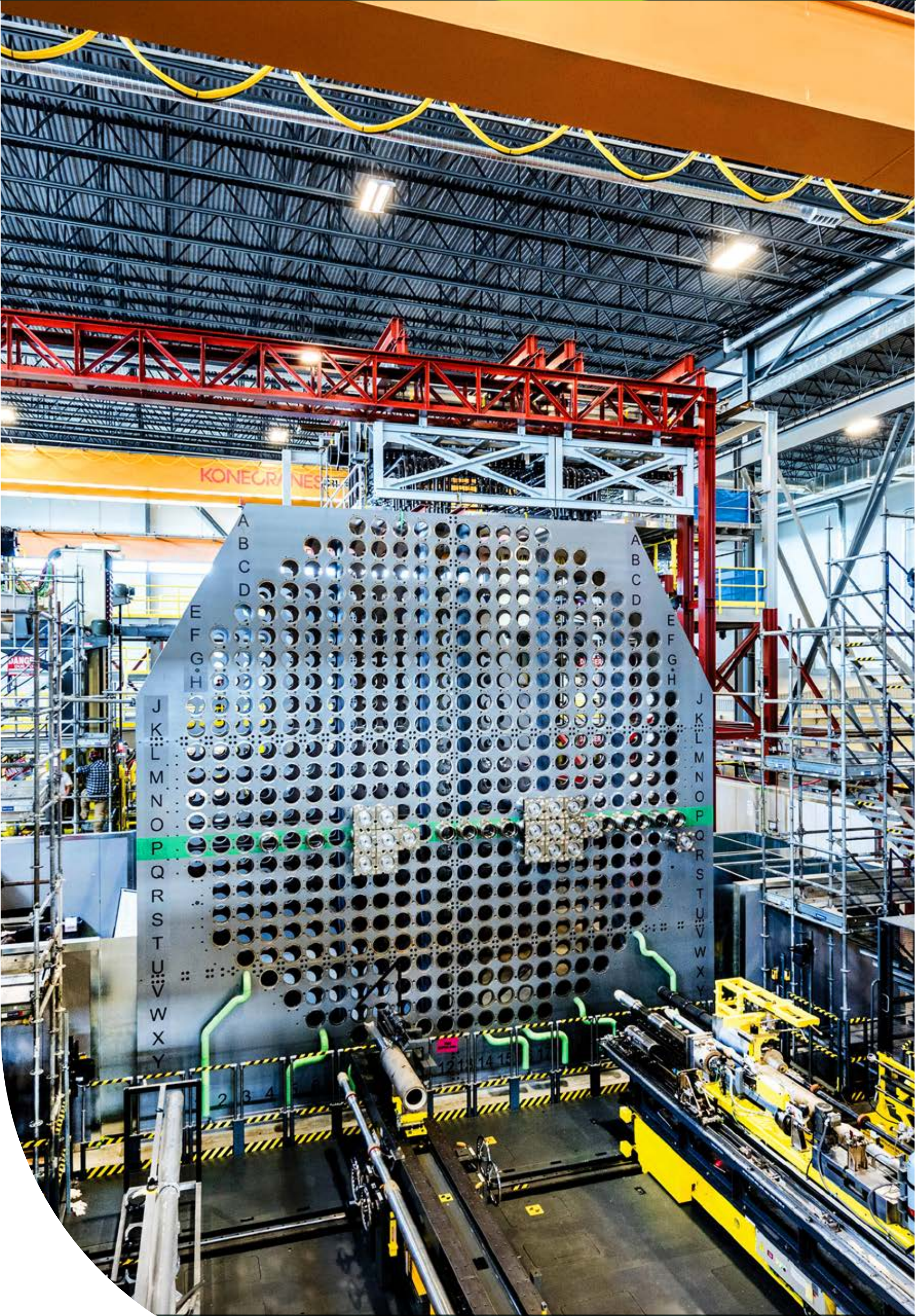
To ensure our low-carbon energy footprint, OPG continues to invest in our nuclear operations. This includes progressing the Darlington Refurbishment project, one of Canada’s largest clean energy infrastructure projects. In 2022, the project remained ahead of schedule and on budget. Once completed by the end of 2026, the four-unit refurbishment will extend Darlington’s operating life by at least 30 years and have the same impact as removing two million cars per year from Ontario’s roads.

Refurbishment of the first unit – Unit 2 – was completed in June 2020. The second unit – Unit 3 – is currently undergoing reassembly and is expected to be complete in the second half of 2023. The third unit to be refurbished – Unit 1 – began refurbishment in February 2022 and is set to be completed by 2025. The fourth unit – Unit 4 – will begin refurbishment mid-2023 and is set to be completed by 2026.

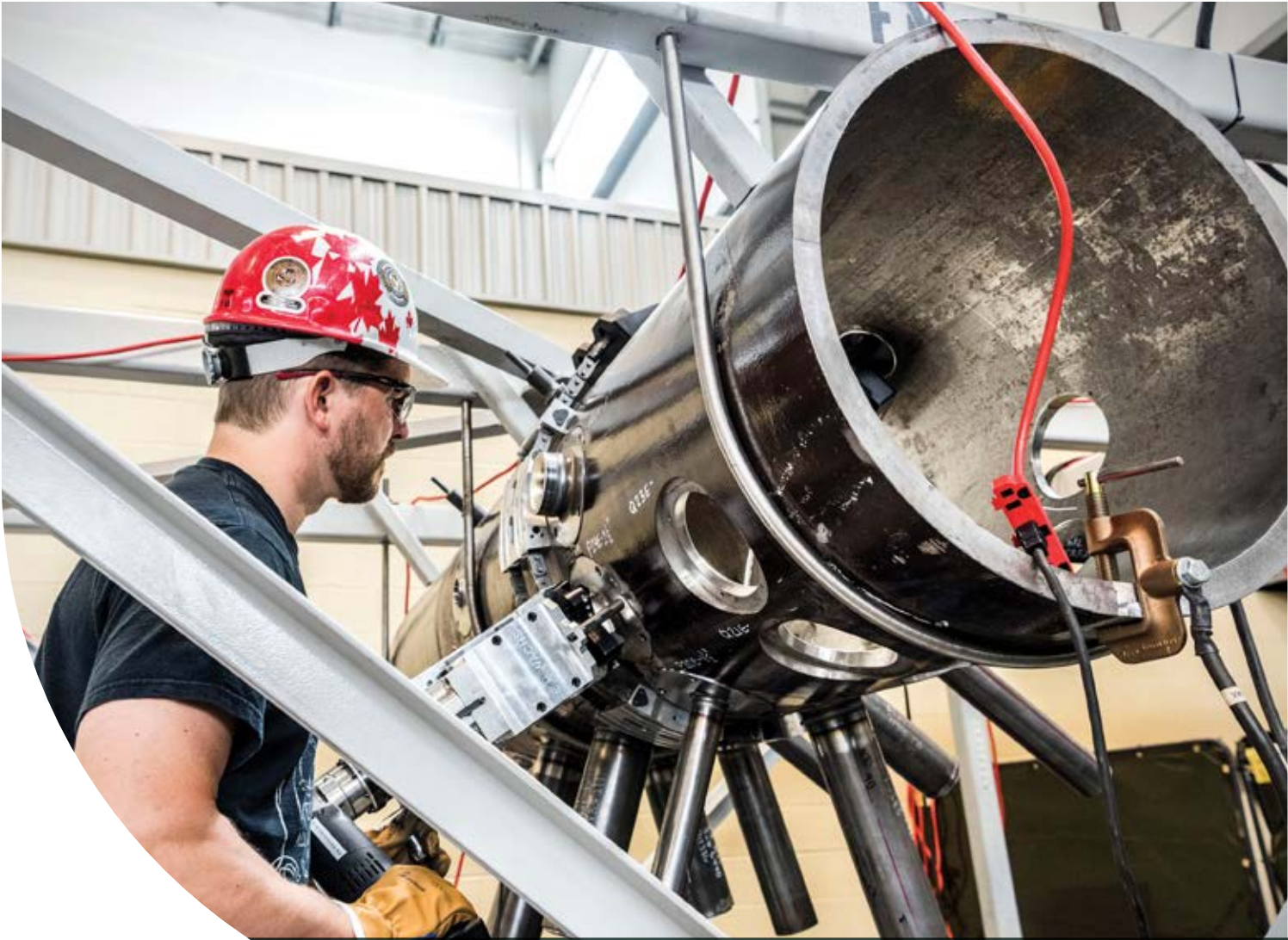
In September 2022, the Province requested that OPG continue to operate Pickering Nuclear’s Units 5-8 through September 2026 (subject to approval from the CNSC). This request helps the IESO and province meet near-term generation needs as refurbishment work temporarily reduces the electricity output at the Darlington and Bruce Power nuclear sites.

In parallel to the above request, the Province also asked OPG to update the refurbishment feasibility study for Pickering’s Units 5-8 that was initiated a little over a decade ago. This request is in support of the IESO’s Pathways to Decarbonization Report and will help Ontario achieve long-term climate change targets, including decarbonization of the economy by 2050.

The update to the feasibility study is in progress. Technical, regulatory, and economic impacts of the study are being examined – both for the refurbishment project itself and the long-term operation of the plant. OPG has been asked to report the outcome of the feasibility study to the Province in 2023.



The full-scale reactor mock-up at OPG’s Darlington Nuclear station.



OPG’s Darlington Refurbishment project remains on track to be completed by 2026.

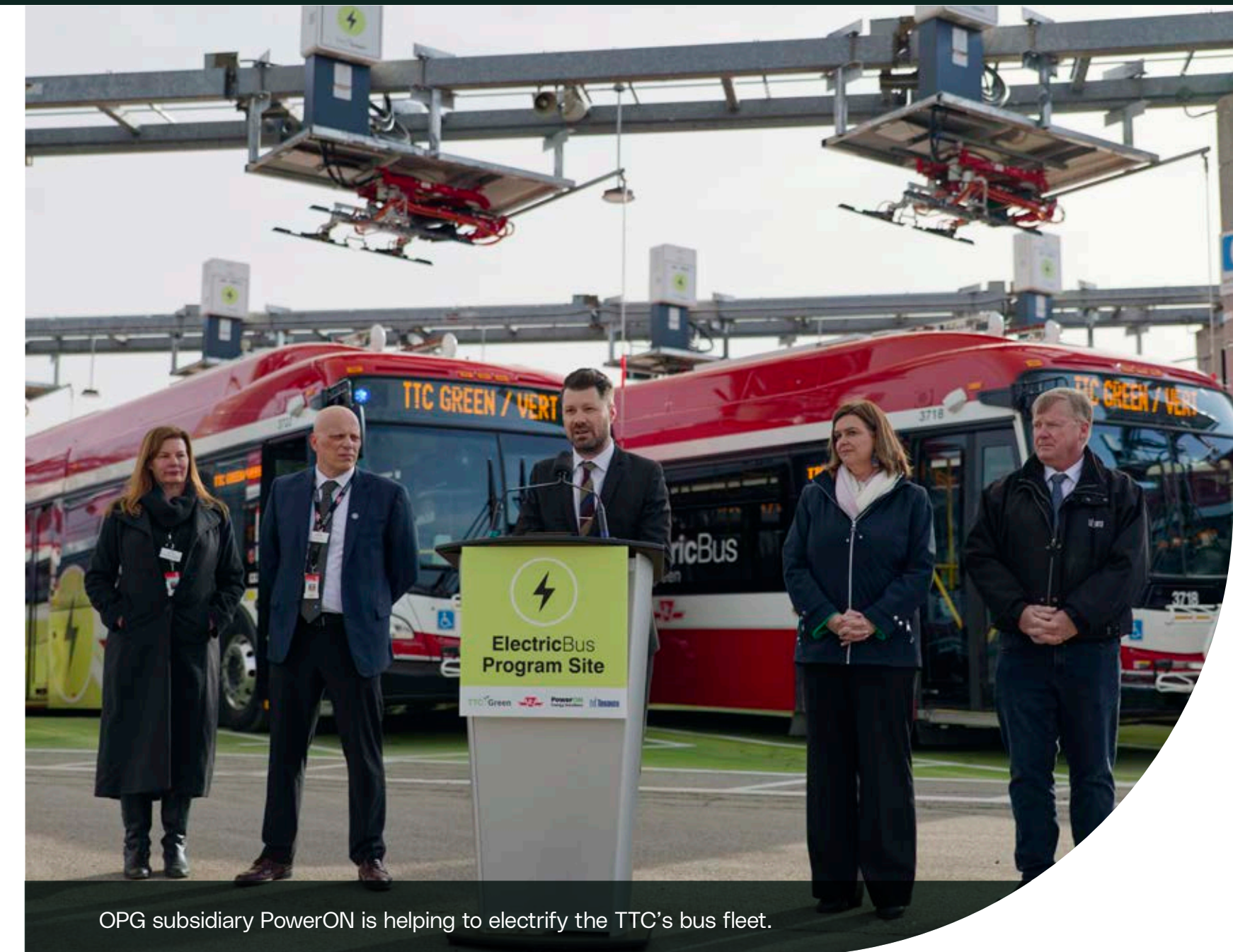
Electrification

Electrification describes the process of switching from powering technologies using fuel types such as gas, diesel, natural gas, or propane to using electricity. With Ontario's electricity grid among the cleanest in the world, electrification creates a huge opportunity to drive down the province's greenhouse gas emissions from other sectors. In 2022, OPG was focused on using its clean electricity to decarbonize Ontario's transportation sector, which is responsible for more than 30% of the province's carbon emissions.

OPG's leadership in the push for electrification began 13 years ago with the launch of Plug'n Drive. Since that time, we have launched our subsidiary, PowerON Energy Solutions, to provide electrification and charging infrastructure for municipal transit agencies and corporate fleets. In 2022, PowerON continued its work with the Toronto Transit Commission (TTC) to electrify the TTC's bus fleet – North America's largest transit electrification project to date.

In partnership with Hydro One, OPG continues to expand its Ivy Charging Network, which is one of the largest EV fast-charging networks in Ontario. "Ivy Park & Charge," the destination-based Level 2 charging service for EV drivers offered through partnerships with municipal and business partners, had a total of 63 charging ports in operation across 26 locations within seven municipalities in the province, as of the end of 2022. Ivy's deployed Level 2 chargers with two charging ports can charge two vehicles simultaneously. Additionally, Ivy's Level 3 fast-charging service, "Ivy Charge & Go," had a total of 140 fast chargers in operation across 20 ONroute plaza locations along Highways 400 and 401 in Ontario as of the end of 2022. Overall, an additional 81 Level 2 charging ports and Level 3 chargers were installed during the year. Ivy has also recently launched Ivy Home, a holistic EV charging solution to help make charging at home hassle-free.

OPG is also partnering with the Ontario Ministry of Transportation to electrify the province's Amherst and Wolfe Island ferries.



OPG subsidiary PowerON is helping to electrify the TTC's bus fleet.



Electric TTC buses charge up at a station.

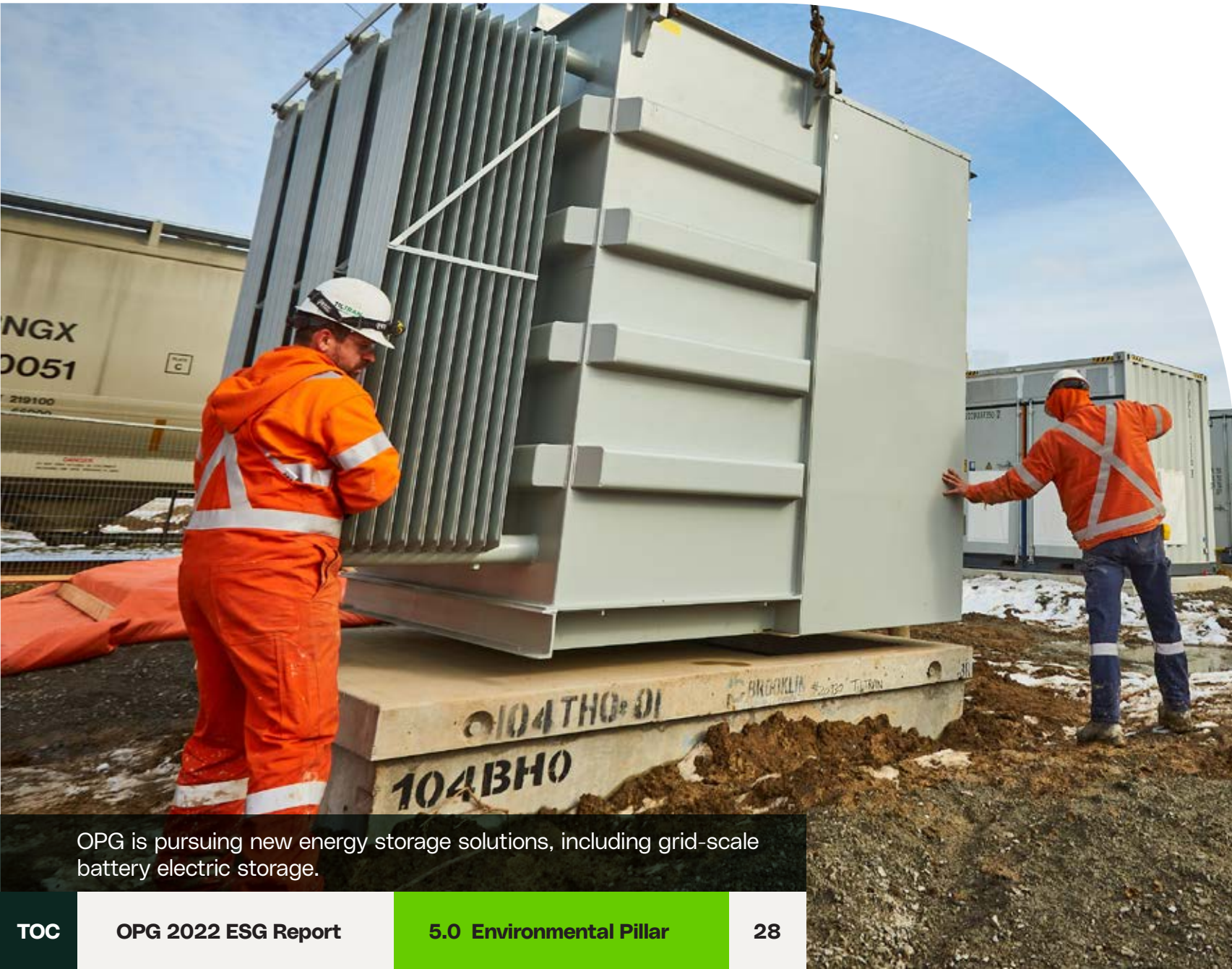


An electric vehicle charges up through the Ivy Charging Network.

Hydrogen

Hydrogen shows great promise for reducing greenhouse gas emissions by acting as a low-emission substitute fuel for gas and diesel to power heavy-duty vehicles or to power currently carbon-intensive industries like steel and cement production. Hydrogen can also be blended with natural gas to reduce the carbon intensity of natural gas electricity generation.

Atura Power, a wholly-owned OPG subsidiary, continued to lead the development of low-carbon hydrogen production in Ontario in 2022 by advancing detailed design and critical path procurement for its Niagara Hydrogen Centre project. The facility is anticipated to be in operation in the second half of 2024. Additionally, in 2022, Atura advanced other hydrogen projects that are in various stages of development, including in the regions of Halton Hills, Nanticoke, Brighton Beach, and Lambton.



OPG is pursuing new energy storage solutions, including grid-scale battery electric storage.

Energy storage

Energy storage technologies allow more power to be used from clean and renewable sources, as they enable power to be stored when renewable sources like hydroelectric, wind, and solar are abundant, and released when electricity demand is high, reducing the need for peak generating capacity to come from GHG-emitting sources. To encourage the development of storage solutions, Atura Power is currently exploring the development of grid-scale battery electric storage that will support further integration of renewable generation sources in the Ontario market.

OPG has a long history with energy storage, beginning with the Sir Adam Beck Pump GS in Niagara. Built in 1957 and a one-of-a-kind for Canada, this unique pumped storage station can generate 174 MW of clean power by pumping its 750-acre reservoir full of water overnight when electricity demand is low and release this water for electricity generation when demand is high. OPG is currently exploring the development of a closed-loop pumped hydro storage facility at a decommissioned mine site in Marmora, in partnership with Northland Power Inc.

Closed-loop pumped hydro means the same water flows between the upper and lower reservoirs, which minimizes environmental impacts to waterways and fisheries. With the conversion of an inactive open-pit iron-ore mine into a low-carbon energy asset, which would be a first-of-a-kind project in Canada, the Marmora project is environmentally positive.

Other climate change initiatives

As part of our Climate Change Plan, OPG is also investigating negative emissions technologies, and continuing to support nature-based solutions like tree-planting and biodiversity initiatives. OPG is also monitoring developments in electric utility carbon capture and sequestration, as well as early-stage developments of a regulatory framework to permit carbon sequestration in Ontario. All of these current and future actions will help OPG meet its climate goals and position Ontario for success in the post-carbon future.

Climate change adaptation

Climate change adaptation focuses on adjusting to observed or expected changes in climate in order to achieve resiliency in the face of these changes. OPG is committed to ensuring that our operations are resilient, that the power we provide to Ontarians is reliable, and that our host communities are safe.

OPG’s adaptation priorities are organized under five pillars: Existing Assets, Investments, Projects, Communication, and Leadership.

In 2022, and within the first quarter of 2023, OPG undertook the following actions to adapt and enhance the resilience of our operations, including:

- ▶ Development and issuance of an internal climate change strategy and roadmap of deliverables.
- ▶ Establishment of an internal climate change adaptation working group, with cross-functional business unit representation and senior leadership endorsement.
- ▶ Initiation of climate risk and vulnerability assessments for existing generation assets and for specific Nuclear and Renewable Generation projects.
- ▶ Active participation in external collaboration, benchmarking, and research opportunities with expert consortiums and industry groups in order to advance the development of industry-specific adaptation strategies and frameworks.
- ▶ Continued prioritization of infrastructure improvements to minimize climate-related impacts, including the Little Long and Smoky Falls dam safety projects.

Management of nuclear by-products, waste, and Nuclear Sustainability Services

Nuclear Sustainability Services

As Canada’s largest generator of clean, low-carbon electricity from nuclear energy, OPG has a critical role to play in Canada’s work to mitigate climate change. This is because nuclear power is an essential component in achieving low-carbon electrification and sustainable electricity systems.

Every form of energy produces by-products and/or waste materials. Nuclear energy, which generates electricity from uranium, creates three classifications of radioactive materials: low-level materials, intermediate-level materials, and used fuel. Low-level materials include protective clothing, floor sweepings, mops, and rags that have been contaminated with low-level radioactivity through use in nuclear power plants. Intermediate-level materials can include resins, filters, and used reactor components.

Many nuclear by-products are beneficial, such as valuable isotopes used in healthcare, food and border security, and nuclear fusion advancements. Some other nuclear by-products can be diverted away from storage and can be safely re-used, even if they are radioactive. For instance, metals can be recycled for reuse within the industry. The nuclear industry is the only energy industry that accounts for all of its by-products, which are small in volume, safely stored, closely tracked, and rigorously regulated.

Nuclear Sustainability Services (NSS) is the division of OPG responsible for the safe management of nuclear by-products from nuclear electricity generation, plant refurbishments, and future decommissioning projects.



A look at the spent fuel pool at Pickering Nuclear Generating Station, where Cobalt-60 isotopes are stored and harvested.



Low-level nuclear materials are stored in above-ground concrete warehouses at OPG’s Nuclear Sustainability Services Western facility in Bruce County.

We leverage more than 50 years of operational experience and expertise to minimize and store all nuclear by-products and plan for their effective permanent disposal. OPG is a leader in the safe, environmentally sound management of nuclear by-products and materials produced from nuclear power generation.

OPG’s NSS locations are based in Kincardine, Pickering, and Darlington. Low- and intermediate-level waste from OPG-owned nuclear plants are safely transported and stored at the NSS facility located at the Bruce Power nuclear site in Kincardine. Used fuel bundles are removed from the reactors and stored in water-filled pools at each nuclear station until residual heat and radioactivity gradually decline. Afterwards, they are transferred to dry storage containers made of concrete and steel. Used fuel is currently safely stored at Kincardine, Pickering, and Darlington facilities.

NSS does far more than just safely handle waste. Formerly the Nuclear Waste Management Division, we changed our name to Nuclear Sustainability Services to better reflect the full extent of the work that we do. Our name now reflects our evolving strategic direction, with a continued emphasis on the three Rs – Reduce, Reuse, and Recycle. This is also aligned with OPG’s Climate Change Plan.



Since the beginning of OPG’s reactor operations, we have reduced our low-level waste (LLW) volumes by 58% through various processing methods, such as incineration and compaction, and we know we can reduce even more. We have a goal to reduce LLW volumes at our Western waste management facility in Kincardine by 50% in 10 years and we are investing in our people, new technology, and research to hit that target.

NSS accomplished a tremendous amount in 2022 to support OPG’s waste minimization goals. Some highlights of our waste minimization and diversion achievements include:

- ▶ Met all station waste diversion targets.
- ▶ Advanced measures to further reduce waste at stations such as increasing staffing levels at peak times.
- ▶ Released Request for More Information and Request for Proposal to advance metal-processing options, with the plan to work with industry experts to develop a strategy to decontaminate, recycle, and process metal components.
- ▶ Launched pilot project with two vendors to reduce intermediate-level waste spent resin with innovative technology that will also extract valuable radioisotopes to support cutting-edge medical research.
- ▶ Participated in numerous speaking engagements, including the House of Commons Standing Committee on Environment and Sustainable Development.
- ▶ Continued construction of the Western Clean Energy and Sorting Facility, which will enhance repacking, sorting, and segregation of LLW from OPG nuclear operations to reduce volumes, with operations expected to begin in Q3 2023.
- ▶ Repurposed existing structures on-site for LLW interim storage, rather than building new structures.
- ▶ Completed the construction of our used fuel storage buildings 5 and 6 at our NSS-Western waste management facility.
- ▶ Opened our doors after the pandemic with more than 30 tours of NSS sites; attendees included industry, community, and government officials, as well as Indigenous Nations and community members.



Intermediate-level nuclear materials from station operations are stored in steel-lined concrete containers and set in the ground.

Lasting solutions

For the permanent disposal of used fuel, OPG supports the used-fuel Deep Geological Repository (DGR) being developed by the Nuclear Waste Management Organization (NWMO), for all of Canada, as outlined in the Nuclear Fuel Waste Act passed by Parliament in 2002.

The NWMO has developed a process for moving forward with Canada’s plan for the long-term solution for Canada’s used nuclear fuel. The adaptive phase management (APM) plan contemplates the eventual long-term permanent disposal of used nuclear fuel in the DGR. The NWMO is currently undertaking a site selection process and, in August 2022, announced that due to the impacts of the COVID-19 pandemic, it now anticipates completing the process by fall of 2024. This shift in timing is not expected to impact the overall schedule for the APM plan.

For low- and intermediate-level waste, OPG is exploring solutions for safe long-term management, which will be informed by the federal government’s ongoing review of Canada’s Radioactive Waste Policy framework and the NWMO’s development of an integrated strategy for the long-term management of radioactive wastes in Canada at the federal government’s request.

Dedicated nuclear funds

As required by the Ontario Nuclear Funds Agreement between OPG and the Province of Ontario, OPG has both a Used Fuel Segregated Fund and a Decommissioning Segregated Fund. The funds are set aside for the future costs associated with the management of low- and intermediate-level by-products, used nuclear fuel, and the eventual decommissioning of OPG’s nuclear stations and waste management facilities, including the stations leased to Bruce Power.

OPG maintains these funds in third-party custodial and trust accounts that are segregated from the rest of the company’s assets. The approximate current value of the funds at the end of 2022 was \$27 billion. The funds are growing annually through regular contributions and prudent management.



A uranium fuel rod for use in a CANDU reactor.



Centre for Canadian Nuclear Sustainability

Located in the heart of Pickering, the Centre for Canadian Nuclear Sustainability (CCNS) is made up of approximately 40 industry and community members. The CCNS is leading collaboration on education, engagement, innovation, and research for the clean energy industry supporting Canada's climate change goals. A main focus for the CCNS is building relationships with local communities as well as Indigenous communities on whose territories we operate.

With that in mind, in 2022, the CCNS continued its work partnering on feasibility studies, Indigenous Knowledge sharing webinars, and community programming to help OPG reach a net-zero carbon economy.

Fourteen technology feasibility studies were completed in 2022 to support the clean energy transition and reduction of waste materials. Areas of focus included:

- ▶ **Material decontamination:** reduction of radiological waste during decommissioning to allow for recycling of materials.
- ▶ **Material processing:** separation and processing of materials to reduce the volume of waste produced.
- ▶ **Innovation:** finding new ways to reduce costs and shorten the timeframe of decommissioning.



The Centre for Canadian Nuclear Sustainability (CCNS) engages with OPG's communities by presenting at local community meetings and sharing information about OPG's nuclear energy assets.

Biodiversity and wildlife habitat stewardship

For several decades, OPG has been a champion of biodiversity in Ontario, working to protect and nurture the ecosystems that Ontarians rely on. At our generation sites, in our communities, and in the wilderness, we work to enhance biodiversity and wildlife conservation with a focus on the four Rs of biodiversity stewardship:

- **Retain** what is ecologically significant.
- **Restore** habitats that have been degraded.
- **Replace** habitats that have been lost, where ecologically and economically feasible.
- **Recover** species that are at risk.

Some of OPG’s key achievements over the years include planting more than 8.7 million native trees and shrubs and stocking more than seven million Atlantic salmon in local waterways.

Our ongoing on-site and regional biodiversity programs also support our Climate Change Plan and Reconciliation Action Plan. The focus areas of these programs include land stewardship, measuring and monitoring OPG’s ecological features, including native and invasive species, and preserving, restoring, and creating habitat for Ontario’s native flora and fauna.



A worker installs a camera on the osprey platform at OPG’s Chats Falls Generating Station.

On-site biodiversity programs

Our on-site programs are those which we operate on or around our generating facilities, where we aim to prevent or mitigate any adverse effects that OPG’s operations could have on biodiversity. Our aim is to manage our sites in a way that maintains or enhances significant natural areas and protects associated species of concern.

In 2022, OPG continued to receive certification and recognition from the Wildlife Habitat Council (WHC) for the on-site biodiversity programs at many of our sites. The WHC is an international non-profit group dedicated to restoring and enhancing wildlife habitat. The WHC’s certification process helps ensure OPG’s biodiversity programs remain flexible and demonstrate continual improvement.

In 2022, OPG recertified the following sites with the WHC: Lennox GS, R.H. Saunders GS, Wesleyville, and Darlington and Pickering Nuclear. In 2023, OPG will recertify Nuclear Sustainability Services - Western, and a group of stations in OPG’s Southeast region.

Other highlights from our on-site biodiversity programs include:

- Increased the number of nest boxes and repaired older nest boxes to provide additional habitat for tree swallows and Eastern bluebirds.
- Installed a new turtle basking platform at Darlington’s Coots pond (along the waterfront trail), that was built in partnership with the students at Courtice Secondary School.
- Continued to remove extensive invasive species from OPG sites (phragmites, dog strangling vine, buckthorn, etc.), including through the use of weed-eating goats.
- Planted pollinator-friendly gardens and meadows at the Pickering Learning Centre and Darlington Energy Complex.



OPG environment staff at the company’s Wesleyville site.

Regional Biodiversity Program

OPG’s Regional Biodiversity Program complements our on-site work by helping to fund and promote efforts that contribute to the protection and restoration of sensitive habitat and habitat corridors across Ontario. As a member of the Ontario Biodiversity Council, OPG supports Ontario’s Biodiversity Strategy. The Strategy outlines the framework for the conservation of Ontario’s biodiversity by reducing threats, enhancing resilience, engaging people, and improving knowledge.

Qualified conservation partners receive funding for projects that address key biodiversity issues in the areas of reforestation, wetlands, grasslands, and lakes and rivers. Our conservation partners also work with local Indigenous communities to ensure Traditional Ecological Knowledge is incorporated into restoration projects.

OPG also supports initiatives that contribute to biodiversity education, awareness, and ecological land stewardship. Our partners include the Bruce Trail Conservancy, Earth Rangers, Local Enhancement and Appreciation of Forests (LEAF), Ontario Nature, and the Toronto Wildlife Centre. OPG continues to partner with the Lake Ontario Atlantic Salmon Restoration Program, also known as Bring Back the Salmon, to help restore a self-sustaining Atlantic salmon population to Lake Ontario and its tributaries.

In 2022, OPG’s Regional Biodiversity Program also:

- ▶ Planted 342,736 trees.
- ▶ Restored over 600 acres of woodlands/forests.
- ▶ Restored over 64 acres of grasslands.
- ▶ Created 379 acres of wetlands.

Success story

In 2022, OPG partnered with South Nation Conservation Authority to plant rows of trees and shrubs that act as an edible buffer along a streambank flowing through Jessup’s Falls Conservation Area, located in Plantagenet, Ont.

The land is part of the unceded traditional territory of the Algonquin people. The Falls have been an extremely important place for the First Nation people to gather and catch fish and eel throughout the spring and fall.

In addition to supporting food sovereignty efforts by the Algonquin people, the edible shoreline buffer acts as a windbreak within the park. Due to high water levels and ice in the spring, plants were placed along the top crest of the high-water mark with hardy shrubs that can withstand the spring freshet and larger caliper trees further inland where potential for damage from ice and flood waters is minimal. In spring of 2023, some of the mature trees were already producing fruits and nuts.



OPG partnered with South Nation Conservation Authority to plant this edible buffer along a streambank in Plantagenet, Ont.



Protecting fish

As the operator of dozens of dams on rivers systems throughout the province, OPG takes a proactive approach to protect fish and fish habitat that may be impacted by the company's activities. Measures include trap and transport programs, fish ladders, stocking programs, barriers and deterring structures, water flow alterations, habitat protection and creation, water quality monitoring, and station effluent temperature limits to manage and mitigate impacts to fish.

OPG also works cooperatively with our regulators, the scientific community, and partner utilities to protect fish and fish habitat. Some highlights from 2022 include:

- ▶ Installation and maintenance of a 600-metre-long barrier net at Pickering Nuclear GS to protect Lake Ontario fish communities.
- ▶ Supporting the spawning migration of lake sturgeon on the Kaministiquia River in northwestern Ontario by maintaining minimum ecological flows over Kakabeka Falls.
- ▶ Using a fish alarm at our Peter Sutherland Sr. GS during non-generating periods, when the tailrace has the potential to become disconnected from the main Abitibi River.
- ▶ Implementing fisheries offset and restoration measures, such as the Big Island Wetland Fish Habitat Bank, to counterbalance residual impacts and achieve net gains in fisheries productivity.
- ▶ Conducting fish and fish habitat monitoring programs to support OPG's offset programs.
- ▶ Operation of an eel ladder at R.H. Saunders GS for the upstream passage of young American eels on the St. Lawrence River.
- ▶ Organization of a trap and transfer program to move mature migratory American eel down the St. Lawrence River, past OPG's R.H. Saunders and Hydro-Quebec's Beauharnois GS.



OPG and its employees take a proactive approach to protecting fish and fish habitat.

Water and wastewater management

Water is an essential resource to OPG – and to the places we operate in. This is why OPG is actively engaged with government agencies, scientists, and municipalities to predict conditions and manage our river systems for the safety of the community and the environment. OPG also carefully manages the quality of all wastewater discharged from its generating stations to the environment.



An OPG employee performs a snow survey in preparation of spring freshet.

Water levels and flows

In Ontario, OPG’s water-related operations are vast: 66 hydroelectric stations and 241 dams are spread across 24 river systems. At each one, OPG controls or adjusts water levels and flows in accordance with provincial and federal laws, as well as water management plans, commitments, and treaties.

In the United States, through our subsidiary, Eagle Creek Renewable Energy, OPG owns and operates 85 hydroelectric stations on 49 river systems in 19 states. All but one of these projects have a licence or licence exemption issued by the Federal Energy Regulatory Commission, with specific operating requirements related to reservoir elevations and minimum flows.

Regulating levels and flows at our hydro operations helps to:

- ▶ Maintain water levels for recreational, commercial, or other water-based activities.
- ▶ Ensure sufficient water levels for drinking water, irrigation, and other civil uses.
- ▶ Mitigate flooding in many watersheds.
- ▶ Reduce the effects of shoreline erosion and damage to infrastructure.
- ▶ Support the life cycles of various fish species.
- ▶ Manage impacts to aquatic and terrestrial habitats, including temperature, sediment, and dissolved oxygen impacts to waterbodies.

To manage these water resources, OPG uses hydrological models, weather forecasts, satellite imagery, weather station data, and other tools to manage water levels, flows, and water storage. OPG is always investing in new data management and forecasting systems to help adapt our water management strategies as the climate changes and to optimize hydroelectricity production.

Partners in managing water levels and flows across Ontario include municipalities, the Ontario Ministry of Natural Resources and Forestry, the Ottawa River Regulation Planning Board, the Lake of the Woods Control Board, and International Joint Commission appointed boards such as the International



An OPG employee surveys the rushing Ottawa River.

Lake Ontario-St. Lawrence Board and the Niagara River Board of Control. During periods of high or low flow, OPG uses the capacity of its reservoirs to minimize the impacts to communities and the environment to the greatest extent possible within legal obligations.

We are increasingly seeing localized, temporary variations in water levels: in 2021 we experienced drought conditions, while in 2019 and 2022, we experienced flooding. For this reason, OPG remains focused on increasing the resilience of our fleet of assets to manage within these extremes.

Wastewater management

In addition to using water as a direct means to generate electricity, OPG uses water at its stations for cooling and various processing applications. All station wastewater effluent to the environment is required to meet strict site-specific compliance obligations.

Nearly all water used by OPG’s nuclear and thermal generating stations is for cooling purposes. Surface water is withdrawn directly from the environment, and it passes through the station once and is returned to its source at a slightly higher temperature. Cooling water discharges must conform to temperature limitations to protect aquatic life.

Water used by OPG for maintenance purposes and steam production is also taken from the environment but may be treated to ensure the protection of station assets and safe operation of facilities. For example, chlorine is added as a biocide in certain station water systems to control zebra mussel infestations, and hydrazine and ammonia are used to prevent corrosion of metals. OPG has implemented rigorous programs to closely monitor, control, and minimize releases of hazardous substances and to demonstrate that operations are in compliance with environmental standards.

OPG regularly reports its wastewater monitoring results to various regulators such as Environment and Climate Change Canada, the Ontario Ministry of Environment, Conservation and Parks, and the Canadian Nuclear Safety Commission.

Spotlight: Sustainable financing

OPG has incorporated ESG targets into its corporate financing needs through sustainability-linked bank credit facilities.

OPG maintains a 364-day revolving credit facility of \$750 million USD and a multi-year credit facility of \$1 billion CAD. Both facilities contain a “sustainability-linked” feature, with four sustainability performance measures in alignment with OPG’s strategic objectives, as shown to the right. In 2020, OPG became the first Canadian company in the utilities sector to establish a sustainability-linked credit facility. OPG’s performance in these sustainability metrics against the corresponding targets could result in lower or higher cost of maintaining or using the credit facilities.



Generating units at an OPG hydroelectric station.

Indicator

Strategic Objective	Sustainability Performance Measure	2022 Performance
People Powering the Future		
A diverse, committed, healthy and agile workforce that thrives in a dynamic and changing industry	Serious Injury Incidence Rate	0.02
Value Through Innovation and Efficiency		
An industry leading sustainable electricity producer, providing exceptional value to our customers and Shareholder	*Renewable Facilities Capacity Increase (MW)	135
Energy Industry Leader		
A transformational North American clean energy leader that drives economic growth and prosperity for Ontario	Tree Planting Level	343,000
	Electric Chargers Installation Level	81**

* relates to increase in the in-service capacity of OPG’s existing renewable generation facilities only

**includes level 2 charging ports and level 3 chargers installed by Ivy Charging Network (Ivy), a partnership formed by OPG and a subsidiary of Hydro One Limited (Hydro One). Ivy’s deployed level 2 chargers with two ports can charge two vehicles simultaneously.

Green bonds

In 2018, OPG became the first Canadian utility to issue green bonds. OPG’s green bond framework allows for the use of proceeds to finance and/or refinance projects that offer tangible environmental benefits. As of the end of 2022, OPG was Canada’s largest corporate issuer of green bonds with total green bond issuances of more than \$3 billion (including \$625 million issuance by its subsidiary, the Lower Mattagami Energy Limited Partnership).

OPG updates investors annually on the use of green bond proceeds by OPG and its subsidiaries. OPG issues an annual green bond impact report outlining the environmental benefits of new issuances and projects approaching completion from previous issuances. The report includes qualitative and quantitative environmental performance indicators such as GHG emissions reduced/avoided, renewable energy generation, and capacity of renewable energy plants constructed or rehabilitated.

In July 2022, OPG released an update to its green bond framework to include eligible nuclear projects, in recognition of the critical role the technology plays in fighting climate change and in achieving OPG’s own climate change goals. The details of OPG’s green bond program, including green bond framework, use of proceeds reports, and green bond impact reports are available on the company’s webpage.

 Link

Spotlight: Clean Energy Credits

Clean Energy Credits (CECs) provide customers with assurances that the power they consume comes from clean energy sources – an increasingly important corporate objective.

CECs act as tradable, non-tangible commodities that represent the environmental, social, and premium economic attributes associated with the generation of one megawatt-hour (MWh) from clean or low-emitting electricity generation sources.

CECs play an important role in corporate Scope 2 emissions reporting and are playing an increasingly important role in incentivizing development of new clean generation. Given Ontario’s position as a clean energy leader, CECs represent an opportunity to attract new investments and economic activity to the province.

OPG offers CECs from its portfolio of clean, low-emitting assets, including hydroelectric and nuclear, to customers seeking CECs on a voluntary basis.

In September 2022, OPG announced a first-in-Canada strategic partnership with Microsoft Canada Inc. aimed at addressing climate change and driving sustainable growth across Ontario. As part of the agreement, Microsoft will purchase CECs for its electricity consumption in Ontario from OPG’s hydroelectric and nuclear facilities. The two companies will also collaborate on sustainability initiatives, including co-developing an hourly energy matching platform that utilizes Microsoft technology and digital innovation opportunities to accelerate OPG’s SMR program.

Beyond the CEC agreement, the two companies signed a Memorandum of Understanding (MOU) to evaluate procurement of CECs associated with the clean energy that will be produced by the future SMR at the Darlington site.

In March 2023, the Ontario Government launched the Ontario CEC registry which will track the transfer and retirement of credits from electricity generated and consumed in Ontario. OPG will be using the Ontario CEC registry going forward.

More information on OPG’s CEC program can be found here:

 Link



Pictured from left, Microsoft Canada President, Chris Barry, OPG Senior Vice President of Enterprise Strategy and Energy Markets, Kim Lauritsen, and OPG President and CEO, Ken Hartwick.



6.0

Social pillar



7.0 Social pillar

As a company wholly owned by the Province, with operations all over Ontario, OPG’s licence to operate depends on maintaining strong relationships based on respect, trust, and transparency.

With this report, we are pleased to share publicly the efforts we are undertaking to meet the expectations of OPG employees, partners, and both Indigenous and non-Indigenous communities in and around the sites we operate. With every committee, policy, action, and interaction, we aim to be a good neighbour, partner, employer, and corporate citizen. Our goal is to become a global leader in equity, diversity, and inclusion, and to foster positive and mutually beneficial relations with Indigenous communities as we build a company that is a catalyst for Ontario’s net-zero future. To do this, we are creating a healthy, safe, and diverse workplace that is the foundation of a better OPG and a brighter, electrified future for Ontario.

Indigenous Reconciliation and relations

OPG’s electricity generation assets are located within the treaty and traditional territories of Indigenous Peoples from across Ontario. OPG is committed to building relationships with Indigenous communities based on a foundation of respect, transparency, partnership, and collaboration as we work to create lasting social and economic benefits for Indigenous communities. OPG’s Indigenous Relations Policy, our equity partnerships, and Reconciliation Action Plan (RAP) formalize our commitment.

Since launching in October 2021, our RAP has been guiding our work with Indigenous communities, businesses, and organizations to grow economic benefits, increase Indigenous representation across OPG, and meaningfully advance Reconciliation.

As part of OPG’s RAP, OPG committed to growing our economic impact for Indigenous communities and businesses to \$1 billion over 10 years through our ongoing operations, projects, and initiatives, and by enhancing Indigenous procurement. We are also increasing Indigenous representation throughout the business, strengthening environmental stewardship, and improving understanding of Indigenous culture, history, and perspectives within OPG.





OPG was a leading sponsor of the Indigenous Ingenuity exhibit at the Ontario Science Centre.

Indigenous Relations highlights

In 2022, OPG made significant progress towards our RAP goals by:

- ▶ Delivering approximately \$77 million in economic benefits to Indigenous communities and businesses, with \$56 million in Indigenous procurement and \$21 million in distributions from our equity partnerships with Indigenous partners.
- ▶ Hiring skilled Indigenous employees through our Indigenous Opportunities Network (ION).
- ▶ Establishing a Reconciliation Knowledge Hub to increase knowledge, understanding, and learning among OPG employees.
- ▶ OPG's Centre for Canadian Nuclear Sustainability (CCNS) hosted bi-annual Indigenous Advisory Council meetings to ensure Indigenous voices are amplified within the CCNS, and hired an Indigenous advisor.
- ▶ The CCNS also welcomed more than 200 guests, including partners, community members, and representatives from Indigenous communities, for an innovation event linking angel investors, industry, and community to entrepreneurs advancing sustainable technologies and businesses.

OPG's RAP is comprised of five pillars (Leadership, Relationships, People, Economic Empowerment, Environmental Stewardship) each of which contains specific actions and initiatives that OPG is undertaking.

For more details on the RAP and OPG's 2022 progress, visit opg.com/reconciliation.



Leading through partnerships

OPG has developed equity partnerships with five First Nations on four clean generation projects, which provide stable, long-term revenue streams for Indigenous communities, as well as education, training, employment, and contract opportunities.

These commercial partnerships include:

- ▶ Obishikokaang Waasiganikewigamig/Lac Seul GS project (2009) with the Lac Seul First Nation, owner of 25% interest.
- ▶ Lower Mattagami River Hydroelectric Project (2010) with the Moose Cree First Nation, owner of 25% interest.
- ▶ Peter Sutherland Sr. Hydroelectric GS development (2015) with the Taykwa Tagamou Nation.
- ▶ Nanticoke Solar Facility (2016) with the Six Nations of the Grand River Development Corporation and the Mississaugas of the Credit First Nation, owners of 15% and 5% interests, respectively.

Additionally, in 2019, OPG completed a renewable micro grid in partnership with the Kiashke Zaaging Anishinaabek, also known as the Gull Bay First Nation, to help the community reduce its use of diesel generation.

For many years now, OPG has also worked to develop and finalize settlement agreements with 21 First Nation communities for past grievances related to historic hydropower projects.



Congratulations to the 2022 *Indspire Awards* laureates and presenters (pictured above). Photo courtesy of Indspire.

Making a positive impact

In 2022, OPG invested a total of almost \$420,000 in 80 Indigenous initiatives. Highlights include:

- ▶ Indspire’s 29th Annual *Indspire Awards* ceremony was held in Ottawa on May 12, 2022. The Awards represent the highest honour the Indigenous community bestows upon its own people. Since inception, the *Indspire Awards* have honoured 396 Indigenous individuals and youth recipients who demonstrate outstanding achievement across Turtle Island and beyond. Awards are presented in a variety of fields, including the arts, business, community service and development, culture, heritage and spirituality, education, environment, health, law, and other areas. Three youth recipients are honoured each year for their accomplishments, serving as role models to other First Nations, Inuit, and Métis youth. The laureates’ stories are shared in a nationally broadcast celebration which showcases the incredible diversity, achievements, and contributions of Indigenous peoples in Canada. OPG is honoured to be an annual Supporting Sponsor at \$25,000 of these Awards recognizing Indigenous excellence.
- ▶ In 2022, the Lieutenant Governor of Ontario’s Indigenous Youth Summer Literacy Program operated by United for Literacy (formerly Frontier College), with support of \$23,000 from OPG, was able to provide 500 kits to students in Kindergarten to Grade 9 from Whitesand, Wabaseemoong, Moose Cree, and Mattagami First Nations. The kits included a new book, workbooks, crafts, and other fun learning activities to build reading, writing, and math skills.

- ▶ OPG was a leading sponsor for the Ontario Science Centre’s new exhibit, Indigenous Ingenuity, which ran from October 2022 to April 2023. This interactive exhibit shone a light on the many scientific contributions that Indigenous peoples have made to society, and celebrated culture and history.
- ▶ Ontario Tech University’s 2022 Turtle Island Summer Camp hosted more than 35 Indigenous and non-Indigenous youth ages 9-13. This Science, Technology, Engineering, Art, and Math (STEAM) based camp is designed to uncover and explore the relationship between STEAM, Indigenous peoples, and the land. Campers participated in a weeklong journey exploring STEAM while making connections between STEAM and Indigenous knowledge, to better understand their responsibility as stewards of the environment. OPG was proud to co-sponsor at \$5,000 this innovative camp program.
- ▶ The Métis Nation of Ontario’s 2022 Annual General Assembly (AGA) was held in Toronto from August 19-21. This was the first in-person AGA since the start of the COVID-19 pandemic and OPG recognized the importance of lending support to the AGA as a Silver Sponsor at \$5,000. MNO leadership and citizens from Métis communities across Ontario gathered to make their voices heard, review the successes of the past year, and set a course for the coming year. OPG representatives attended the AGA and hosted an ION career exhibit.
- ▶ On July 2 about 500 visitors attended a traditional Sunrise Ceremony and programming at the Giche Namewikwedong Reconciliation Garden at Kelso Beach in Nawash Park during “The Sound Waterfront Festival” in Owen Sound. OPG was privileged to provide support of \$2,000 to the Sunrise Ceremony which is one of the oldest Indigenous traditions.

- ▶ In 2022, OPG provided \$2,000 to assist The Madadjiwan Economic Development Corporation / Mattawa North Bay Algonquin First Nation in hosting a National Indigenous Peoples Day celebration on June 21 in Mattawa. Attendees included all area schools and the community. The celebration included cultural traditions and teachings by Elders.

OPG is continuing to support promising Indigenous students through the John Wesley Beaver Memorial Scholarships (JWBMS). In January 2021, OPG signed a three-year agreement with Indspire to assume administration of the annual scholarships. As part of this agreement, we committed to contribute \$100,000 for the scholarships, an investment that was matched by the Government of Canada to raise the scholarship fund to a total of \$200,000.

In 2022, a total of six JWBMS were awarded with a scholarship value of \$10,000 each in support of Indigenous students studying in the areas of administration, computer programming, computer, chemical and civil engineering, as well as law. Since 2021, a total of 12 JWBMS have been awarded.

Beyond these efforts, OPG has more than 50 formal agreements with Indigenous communities and organizations to help Indigenous candidates find employment at OPG and across the industry.

This includes the ION program, which recruits job-ready Indigenous peoples and connects them to skilled trades, project management, and administrative jobs within the energy sector. OPG continues to work with Kagita Mikam Aboriginal Employment and Training, based in Tyendinaga Mohawk Territory, to help identify and assess recruits for ION. The agency also helps candidates overcome barriers to employment, which include transportation costs, additional training, union dues, and childcare.

In 2022, ION surpassed its annual goal of placing 20 candidates per year by completing 22 successful job placements. Since its launch in 2018, ION has placed more than 80 Indigenous candidates in job roles within OPG along with its partner vendors and unions.

Success story

Tired of being stuck at a desk all day, **Amanda Bailey** sought out something different for her career.

Bailey spent seven years as a health and safety coordinator at an industrial racking company, wearing many hats in her role. But she eventually grew weary of the long days and nights spent working at the office and at home.

“Over time, it took a toll on me and I got to the point where I needed a change,” she said. “I was not happy or satisfied.”

One night, while doing a Google search for jobs, she came across an OPG ad for the company’s Indigenous Opportunities Network (ION) program. ION recruits job-ready individuals and connects them to skilled trades, project management, and administrative jobs within the energy sector.

Having experienced and enjoyed a brief stint welding in an automotive shop years before, Bailey decided to take the plunge and reply to the ad.

“I thought, ‘What have I got to lose?’” said Bailey, who hails from the Tyendinaga Mohawk Territory in the Bay of Quinte. She got a reply the next morning and began the process of joining ION. Before long, she found herself enrolled in the Introduction to Millwrighting program, a paid training course created by the Millwright Regional Council of Ontario and ION.

After graduating in the fall of 2021, she immediately began her journey as a millwright apprentice with CanAtom, working on OPG’s Darlington Refurbishment project.

Since then, Bailey has been learning on the job from experienced millwrights and other skilled trades, such as boilermakers, while helping to replace key components in Darlington’s Unit 3 to extend its life by another 30 years.



“It’s been an amazing experience working with different trades people,” she said. “Coming into this experience, I had my own doubts and fears, but that all went away very quickly. Everyone here is super helpful, open, and they make sure I’m safe and making the right choices.”



Amanda Bailey, pictured at lower right in the above photo, was among eight Indigenous candidates who graduated the Introduction to Millwrighting training program in 2021.



Equity, diversity, and inclusion

OPG is committed to workplace equity, diversity, and inclusion (ED&I) as part of a culture in which all employees, contractors, and business partners are treated with fairness and respect. OPG recognizes that ED&I is integral to building a diverse, committed, and agile workforce in a dynamic and ever-changing industry, and is therefore fundamental to achieving our strategic goals.

OPG’s 10-year ED&I Strategy (the Strategy), launched internally in 2021 and publicly in 2022, builds on the company’s ED&I promise to accelerate equity, celebrate diversity, and foster a culture of inclusion. The Strategy provides a roadmap to guide the company’s journey towards ED&I excellence by embedding ED&I practices and measuring outcomes in the short, medium, and long-term. In 2022, OPG established an ED&I Strategy Council to oversee implementation and tracking of the Strategy’s progress. Council working groups are advancing the Strategy’s alignment, assessment, reporting and 2022-2025 Broader Employment Equity Plan, which sets out employment equity targets to ensure OPG’s workforce reflects the company’s host communities.

In 2022, dozens of actions were added to the Strategy in response to a 2021 enterprise-wide employment systems review (ESR), which involved an end-to-end assessment of employment policies and practices, as well as employee experiences. The ESR focused on identifying potential obstacles to hiring, advancement, and full inclusion of Indigenous and racialized employees, employees with disabilities, and women. In 2022, a comprehensive plan was launched to action the ESR’s findings.

OPG also advanced its corporate commitment to ED&I at the enterprise and site levels through comprehensive programming, local ED&I committees, and province-wide employee resource groups. These structures provide ongoing support for ED&I policies, programs, and initiatives, and facilitate employee engagement and feedback, including networking opportunities, peer-to-peer discussion, and promotion of ED&I awareness. In 2022, employees formed OPG’s inaugural Women’s Employee Resource Group and the company hosted its largest Women’s Leadership Forum to date.



Throughout 2022, additional ED&I training was introduced, including an expansion of OPG’s microlearning library and the launch of comprehensive anti-racism training for all employees. In 2023, in-person and virtual discussion sessions will be offered to leaders and racialized staff to provide additional learning opportunities and support. A library of anti-racism resources has also been added to OPG’s ED&I intranet page.

OPG continues to take active steps to support ED&I within and beyond the energy sector, including in host communities. In 2022, OPG created a specialized recruitment team to focus on building and maintaining partnerships with community organizations that support equity-seeking individuals. Similarly, the company continues to invest with partners to build long-term candidate pools and pipelines, such as in the case of continued investments in education programs at Ontario Tech University and Durham College, and with community partner, the BlackNorth Initiative.



Our ED&I results

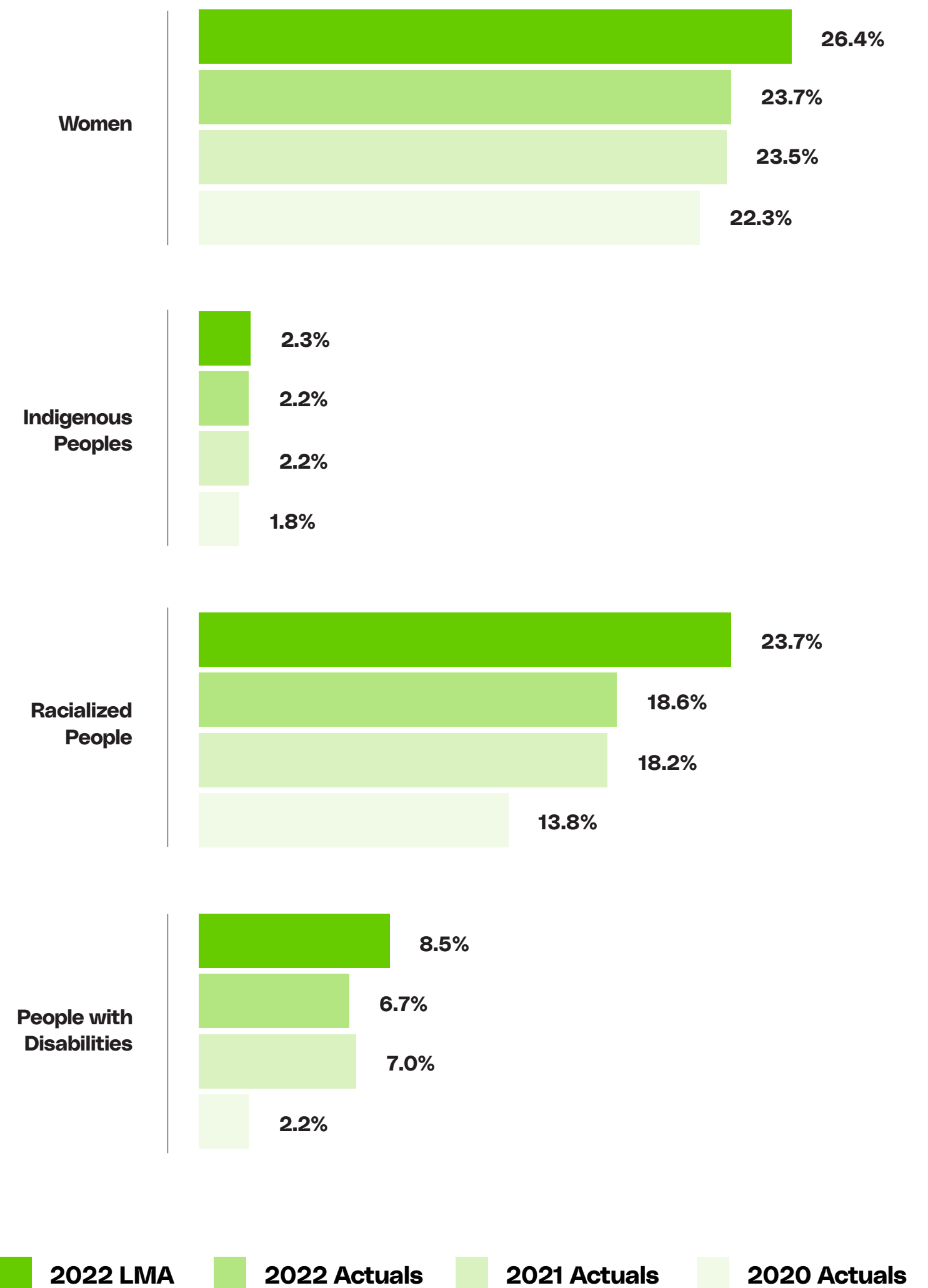
High employee participation with OPG's relaunched employment equity workforce census and information campaign resulted in a corresponding increase in demographic data disclosure from employees. In 2022, OPG launched a dashboard that aggregates, displays, and filters the employee demographic data, collected through the revised census, for stakeholders and leaders to better understand their organizations and equity goals. This data is used to analyze OPG's demographic landscape, embed ED&I in recruitment and succession planning, as well as target areas where women, Indigenous Peoples, racialized people, and people with disabilities are underrepresented.

At the highest levels of the company, OPG's Board of Directors continues to be one of the most diverse in the industry and more than half of the company's executive team members are women. Female representation across OPG's workforce now stands at almost 24%, less than three percentage points below the number of qualified women in the marketplace for OPG's industry and jobs.

In 2022, in recognition of the company's leading programs and practices, OPG was named one of Canada's Best Diversity Employers for 2023 by Mediacorp Inc. This award marks the achievement of OPG's short-term ED&I Strategy goal set in 2020 and reflects the work done to build a strong foundation for long-term ED&I excellence. After two years of Strategy implementation, OPG is undertaking more advanced work and is well on the way towards its goal of becoming a global leader in ED&I by 2030.



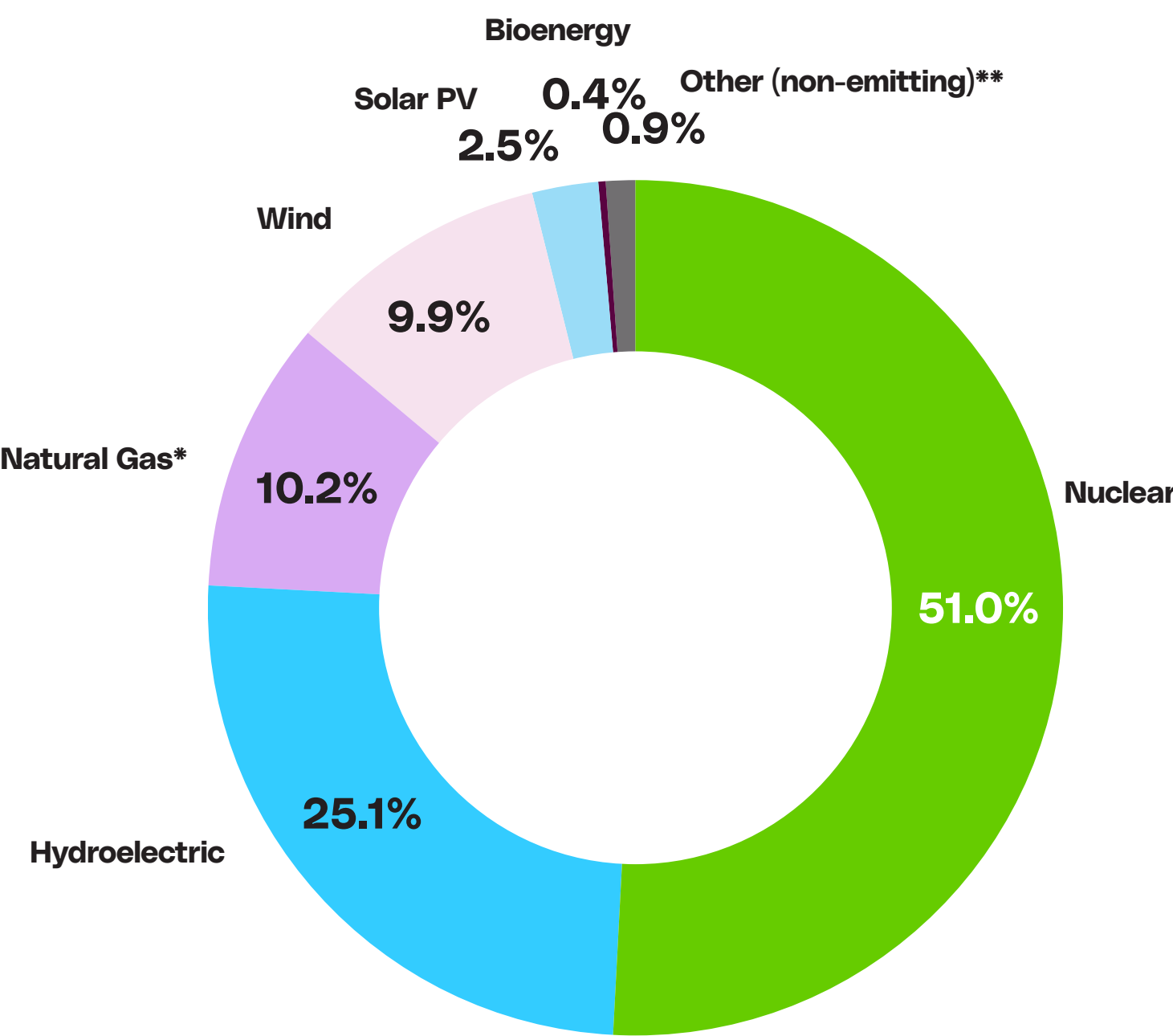
Changes in OPG demographics - 2020 to 2022



Reliability

Reliability of electricity generation is a critical aspect of society. A well-functioning and reliable electricity system like the one Ontario has exhibits a diverse mix of generating assets that can provide up-to-the-minute balancing of supply with demand.

Ontario’s 2022 supply mix is shown below.



Source: Ontario Energy Board

* Includes Lennox, dual fuel (natural gas/bioenergy), and non-contracted emitting generation consistent with IESO.

** Other represents a variety of non-contracted fuel types that the IESO is unable to categorize due to a lack of information from Local Distribution Companies.

With our ample supplies of clean, reliable nuclear and hydroelectric power, OPG has a robust baseload of reliable low-carbon electricity and ensures system-wide reliability by supplementing these assets with natural gas generation to meet peaking needs.

Natural gas plays an important role in the transition to a reliable clean energy future. It is a flexible power source that can be ramped up and down quickly to meet peak demand. During periods when renewable sources like wind and solar cannot create power due to low winds or cloud cover, natural gas generation can step in to meet demand. Practically speaking, this means that natural gas is only used to generate power in Ontario during periods when it is needed most to maintain system reliability. In 2022, natural gas generation facilities were counted on for about 10% of Ontario’s energy needs.

OPG’s investments in and management of its diverse mix of generating assets all contributed to Ontario’s overall system reliability. In 2022, hydro availability of 87.1% was above target due to fewer planned outages than expected across the hydro fleet, while Atura’s fleet of natural gas generating units had a favourable 98.5% start availability.

In OPG’s nuclear fleet, the unit capability factor increased at both Pickering and Darlington stations to 80.0% and 87.0%, respectively. The strong unit capability results in 2022 were driven by the early return to service of Pickering Nuclear’s Units 5 and 7 from maintenance outages, and by the better-than-expected performance of Darlington Nuclear’s Unit 2, which reached a record run of 529 days of continuous service in 2022. The Darlington station was once again recognized for performing to exceptionally high levels of safety, operational performance, and equipment reliability – an accomplishment that reflects our focus on safety and execution, and a level of performance that has been sustained for 12 consecutive years. OPG’s investments in Darlington are ensuring the station’s ongoing safe and reliable operation and positioning it for industry-leading operating and cost performance in the long term.



OPG employees control a drone to inspect Pickering Nuclear’s vacuum building.

OPG also continues to make strategic investments in the performance of Pickering Nuclear. In 2022, we completed the shortest Vacuum Building Outage in company history, which required the shutdown of all six operating units and was completed safely from Oct. 6, 2022, to Nov. 5, 2022. Investments in Pickering Nuclear focus on improving equipment reliability and maximizing electricity generation output.

Public health and safety

Nuclear safety

OPG’s impeccable track record of nuclear safety is the result of a strong culture of safety and a commitment to continuous improvement. Our nuclear safety and emergency preparedness program ensures OPG will not be caught off-guard in the very unlikely event of an emergency. We are prepared to manage such an event in a timely and effective manner that protects employees and the public, the environment, property, and assets, all while ensuring operational continuity.

Nuclear emergency preparedness highlights from 2022 include:

- ▶ OPG’s Emergency Services staff continued to provide 24/7 emergency response coverage at the Darlington and Pickering nuclear stations.
- ▶ OPG Fire and Security Operations participated in OPG’s 2022 Open House at the Darlington Energy Complex, where they interacted with many of the 2,000+ residents, community partners, and local elected officials in attendance to build awareness about OPG Emergency Services operations.
- ▶ OPG facilitated the distribution of approximately 650,000 potassium iodide (KI) pills to qualifying residents and businesses around both Darlington and Pickering nuclear stations through the KI Program, which amounted to approximately twice the annual average through [preparetobesafe.ca](#).
- ▶ In February 2022, OPG and its partner organizations participated in a three-day nuclear emergency response exercise at the Darlington Nuclear station to test the response plans of OPG and various government agencies.



A nuclear security officer on the job.

At OPG’s Darlington and Pickering nuclear stations, we employ many lines of defense to reduce the likelihood of an accident. Oversight of these systems is provided by the CNSC.

OPG executes emergency preparedness drills and exercises, ensuring that responses to a range of emergency scenarios are tested on a regular basis. This includes close collaboration with federal, provincial, and local government emergency management offices, whose pre-established and well-rehearsed plans to protect the public are demonstrated during OPG’s full-scale exercises.

Ensuring public and employee safety is OPG’s number one priority. The Canadian approach to reactor safety is “Defense in Depth”. This approach applies to the design of nuclear stations, which are built and operated to be robust in guarding against a wide range of risks and hazards. This means reactors use both technological and operational safety measures to lessen the chance of an accident and, should an accident occur, reduce the possibility of impact on employees, the public, and the environment. Some key safety features in OPG’s nuclear fleet include:

- ▶ Every OPG station features rapid shutdown systems to stop a chain reaction in seconds.
- ▶ OPG’s safety systems can function independently from the rest of the plant.
- ▶ Each key safety component has multiple backups.
- ▶ Containment systems are designed to lock harmful radiation within the facility.
- ▶ Our Probabilistic Safety Assessment (PSA) models, which assess the full range of risks including internal events, floods, fires, high winds, malevolent acts, and seismic events, meet the CNSC Standard and consistently demonstrate the overall risk to the public is very low.

With these robust safety and emergency preparedness systems in place, OPG continues to meet industry best practices through periodic updates to account for operating experience and changes at the station.



An OPG employee dons protective gear.



The Little Long Dam Safety project.

Dam safety

OPG has worked hard to earn its reputation as a leader in dam safety. Our hydro stations and dams are diligently inspected, assessed, monitored, and maintained according to the Canadian Dam Association’s stringent standards. As a result, neither OPG nor its predecessor company, Ontario Hydro, have ever experienced a dam failure. This is achieved by:

- ▶ Routinely investing in major rehabilitation works to ensure our dams and hydro facilities will continue to be safely operated and maintained into the future.
- ▶ In our host communities, working closely with local stakeholders, including conservation authorities, provincial agencies, and first responders, on watershed management, emergency planning, and flood response.
- ▶ Meeting regularly with these stakeholders and emergency responders to ensure they’re familiar with our facilities and the emergency procedures we would follow in the event of a flood or dam failure.
- ▶ Including emergency responders in drills to practice those procedures.

Water safety

OPG’s hydroelectric operations in Ontario include 66 hydroelectric stations and 241 dams spanning 24 river systems. With such a dynamic, geographically dispersed resource, water levels and flows near hydro stations and dams can change rapidly, creating dangerous flowing waterways and currents.

To mitigate the risk this poses to the environment and the public, OPG has developed an industry leading waterways public safety program to identify hazards associated with our operations and ensure the appropriate barriers and warning systems are in place. In addition to operating controls, OPG has installed physical measures such as safety booms, navigational buoys, fencing, and warning signs to keep people safe.

Educating the public to stay clear of the hazards is a cornerstone to the safety program. OPG has made significant inroads to promote public safety around our dams and hydroelectric stations through our multi-platform social and print media campaigns and on-the-ground efforts of staff who work closely with partners in site communities and stakeholder groups. We regularly research, measure, and hone our campaigns to ensure the message is reaching our target audience.



OPG’s new water safety campaign warns of the dangers of fishing near dams.

Nuclear medicine and isotopes

Nuclear stations are best known for their ability to generate abundant quantities of clean and reliable energy for millions of homes and businesses. A lesser-known function of Ontario’s nuclear reactors is their ability to produce many isotopes, including critical medical isotopes, that directly result in millions of people around the world enjoying a healthier and safer quality of life.

Cobalt-60

For more than 50 years, OPG’s Pickering Nuclear GS has supplied the world with Cobalt-60 (Co-60), an isotope used to sterilize about 40% of all single-use medical devices, such as syringes, gloves, implants, and surgical instruments. It is also used to sterilize perishable foods such as fruits, meats, and spices.

Today, Pickering Nuclear’s Units 5 to 8 provide about 20% of the world’s supply of Co-60, making Ontario one of the leading sources of this important product. On Sept. 29, 2022, the Province announced its support for the continued safe operation of Pickering GS. Subject to regulatory approval from the CNSC, this would see Units 5 to 8 continue operating to the end of September 2026. The Province also asked OPG to update its feasibility assessment for refurbishing Pickering Nuclear’s Units 5 to 8, based on the latest information, as a prudent due diligence measure to support future electricity planning decisions. While a comprehensive technical examination remains ongoing, OPG is assessing continued Co-60 production at Pickering and exploring further isotope opportunities across our nuclear fleet.

In addition to the existing work being done on Co-60 at the Pickering GS, OPG has started work on installing Co-60 capabilities in all four units at Darlington Nuclear GS. The first Co-60 harvest out of Darlington is expected in the late 2020s, with average annual yields expected to be close to double that of Pickering, helping to address a growing global need for sterilization.

Deuterium and tritium

In addition to Co-60, nuclear generation also produces heavy water, or deuterium oxide, as well as tritium, a by-product of CANDU reactor operation. Deuterium oxide is an isotopic form of water that can be used to enhance medical imaging and help pharmaceuticals last longer in the bloodstream. It is essential for the continued CANDU fission process, and it is also a component used in every smartphone.

Tritium was once considered waste, but scientists discovered it has many valuable applications, including medical research and self-powered lighting. Tritium naturally decays into Helium-3 (He-3), another valuable by-product used in medical imaging, quantum computing, border security, and neutron and fission research. While we have known for years that tritium is the critical fuel for nuclear fusion, recent advancements in this area have made the idea of fusion power more realistic, meaning the tritium OPG produces has the potential to have even more valuable applications in supporting the development of this new and potentially game-changing energy technology.



Cobalt-60 is used to sterilize medical devices, such as surgical instruments.

Laurentis Energy Partners

OPG’s subsidiary, Laurentis Energy Partners (LEP), is leading the way in isotope innovation. In 2022, LEP increased production of high-purity Helium-3 (He-3) to meet global demand. The He-3 is extracted from tritium stored at OPG’s Darlington station.

LEP is also working with BWXT Medical Ltd. to harvest Molybdenum-99 (Mo-99) from Darlington’s Unit 2, making Darlington the only commercial-scale reactor in the world to produce this critical product. Mo-99 is a parent isotope of Technetium-99m, one of the most prevalent diagnostic imaging agents in nuclear medicine. Technetium-99m is used on skeletal, brain, and organ imaging to detect and diagnose cancer and various diseases.

In 2022, the major milestone of system energization at Darlington was achieved, enabling preliminary testing of the partially installed system. Installation continued in Q4 2022 and in 2023, the team will progress with planned commissioning and preparation activities for commercial production of Mo-99, pending completion of validation runs and approval from the U.S. Food and Drug Administration (FDA) and Health Canada. Once operational, the arrangement between LEP and BWXT will be capable of producing enough Mo-99 to supply a significant portion of the current and future North American demand for this important diagnostic imaging radioisotope.



A Laurentis Energy Partners employee at work.

Affordability

OPG prioritizes providing cost-competitive power by routinely reinvesting in the efficiency of our generating assets, some of which have been creating power for many decades, and by working diligently to keep operating costs low. OPG helps moderate Ontario’s electricity rates by providing power that costs less than other generators,

We’re also the only rate-regulated electricity generator in the province. In practice, this means that rates for most of our generating assets are set through public hearings with the Ontario Energy Board (OEB). As mandated by the OEB Act, these rate application proceedings are conducted in an open and transparent manner and OPG’s application documents are publicly disclosed on our website.

During OPG’s rate application process, individual consumers or groups of electricity ratepayers may request to participate directly in the public hearings and inform the OEB’s decision on rates, which helps ensure OPG is accountable to Ontario’s consumers for our electricity rates. In 2021, OPG’s regulated rates were set for the 2022-2026 period.

Spotlight: Corporate citizenship and community engagement

As Ontario’s largest provider of clean, affordable power, OPG generates power in communities all over Ontario. These are places where our employees are raising their families and where OPG is actively invested in the success of the community. As good corporate citizens, we are committed to being a reliable community partner and good neighbour by contributing to community strength and well-being. It is in this spirit that OPG’s Corporate Citizenship Program (CCP) was created in 1999.

Over more than 20 years, the CCP has provided community investment through both donations and sponsorships to support charitable and non-profit grassroots initiatives in the host communities where we operate.

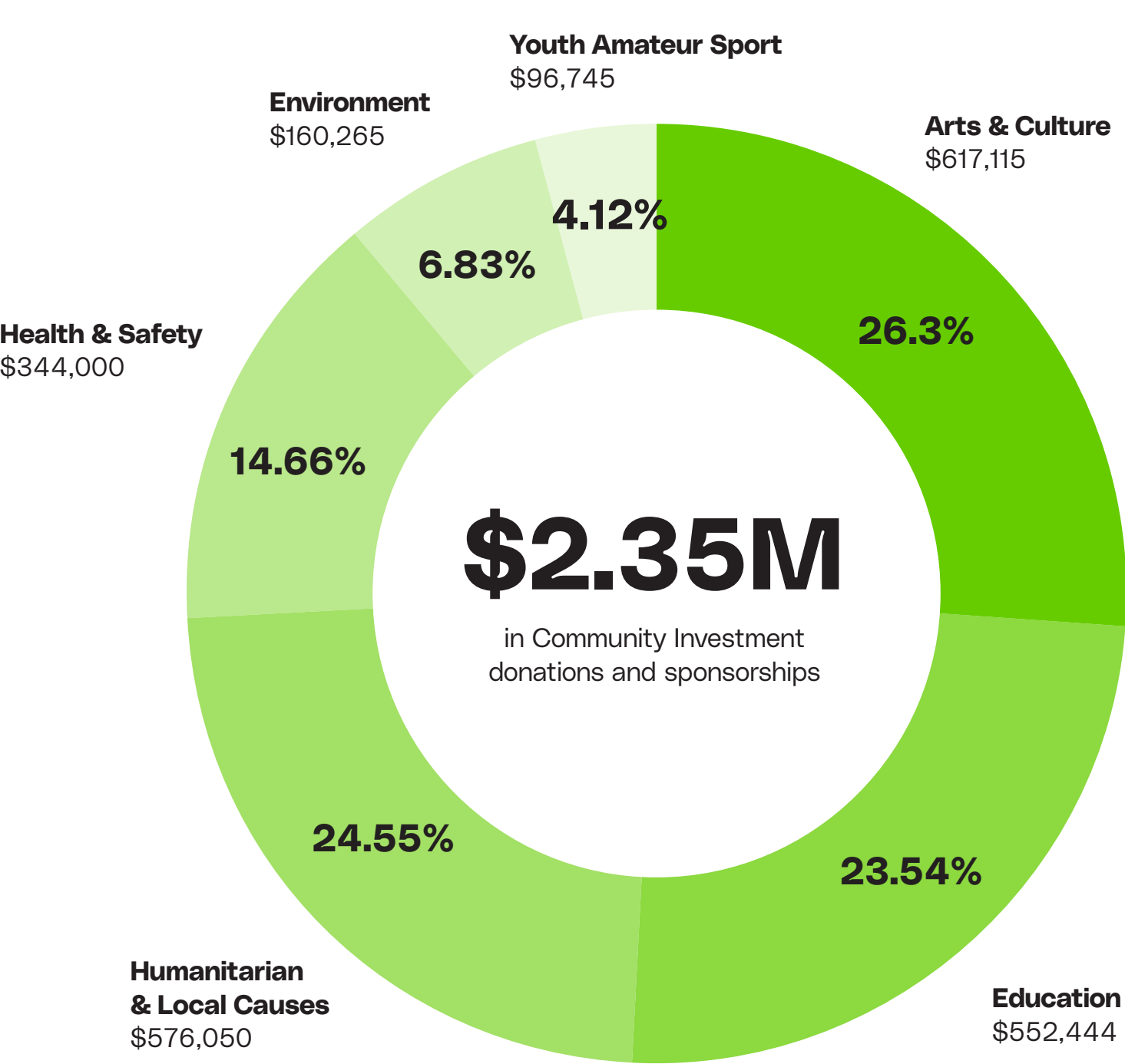
The CCP is focused on giving in several focus areas: education, environment, arts and culture, youth amateur sport, health and safety, humanitarian and local community causes, including Indigenous initiatives.

In 2022, the CCP provided \$2.35 million in support to almost 600 initiatives. All told, over the past six years, the CCP has contributed more than \$17 million to host and Indigenous communities.

Some CCP community investment highlights from 2022 include:

- ▶ 80 Indigenous initiatives (for more information, see Indigenous Reconciliation and relations).
- ▶ 243 student awards/scholarships.
- ▶ 41 STEM initiatives.

2022 community investment contributions by focus area:



CCP Highlights

FIRST Robotics Canada

Since 2001, FIRST Robotics Canada (FRC) has been engaging with young people in exciting mentor-based Science, Technology, Engineering, and Math (STEM) programs, including the FIRST Robotics Competition for students in Grades 9 to 12. Student teams design, program, and build a robot starting with a standard kit of parts and common set of rules to play in a themed head-to-head robotics challenge competition. Teams also build a brand, develop community partnerships for mentoring and financial support, and work to promote STEM in their local communities. OPG is proud of its founding and on-going annual partnership with FRC. This includes mentoring and sponsorship support of Secondary School Robotics Teams in our host communities, along with being a Gold Sponsor at \$15,000 of the annual Ontario Regional Competitions and Provincial Championship. We believe it is important to partner with organizations like FRC that are inspiring young people to build STEM skills and foster well-rounded life capabilities to become the leaders and innovators we need in Ontario and around the world. Of note, 78% of FRC alumni are in a STEM field as a student or professional.



OPG sponsored Team 6859 from Bracebridge and Muskoka Lakes Secondary School put finishing touches on their robot during FIRST Robotics Canada's 2022-23 Season Ontario Regional Competition at Georgian College. (Photo courtesy of FIRST Robotics Canada)

Niagara Health Foundation's Kids Ultimate Challenge

On June 18, 2022, Niagara Health Foundation held their 10th annual Kids Ultimate Challenge (KUC) fundraiser with hundreds of families participating at Burgoyne Woods in St. Catharines. Modelled after the popular mud run races, this event offers a unique experience for children ages 4 to 12 by helping them to build endurance, strength, and ability as they participate in an exciting obstacle course while their family and friends cheer them on. The event encourages teamwork and community spirit. To date, the KUC has raised over \$700,000 for vital patient care equipment for the Children's Health Unit. OPG is proud to be a Stamina Sponsor at \$5,000 of the annual KUC which not only promotes healthy living but also provides an opportunity for kids to help kids.



Participants in the 2022 Kids Ultimate Challenge cross the finish line in support of Niagara Health's Children's Health Unit. (Photo courtesy of Niagara Health Foundation)

Canadian Peregrine Foundation

OPG has a long history of supporting the Canadian Peregrine Foundation (CPF) and their education and recovery efforts for the peregrine falcon, a migratory bird which is a species of special concern. The bird has been in recovery, with their population steadily increasing since the 1960s when the species was classified as extirpated in Ontario. In 2022, OPG sites across Ontario committed a total of \$40,000 in support of the CPF's Project School Visit environmental education program for primary students. The program is designed to tie in with the Ontario science curriculum, with an emphasis on habitats, ecosystems, the diversity of living things, and flight. It promotes an understanding of the peregrine falcon and other birds of prey, and the importance of environmental stewardship, wildlife, and habitat conservation, helping to inspire the next generation of environmental guardians. With OPG's support, more than 70 schools and 14,000 students in our host communities benefitted from learning about and seeing a peregrine falcon. The peregrine falcon is best known for its speed during flight, which can reach more than 300 km during a dive, making it not only the world's fastest bird but also the world's fastest animal.



The Canadian Peregrine Foundation's Project School Visit program is helping to inspire the next generation of environmental guardians. (Photo courtesy of the Canadian Peregrine Foundation)

Spotlight: Human capital

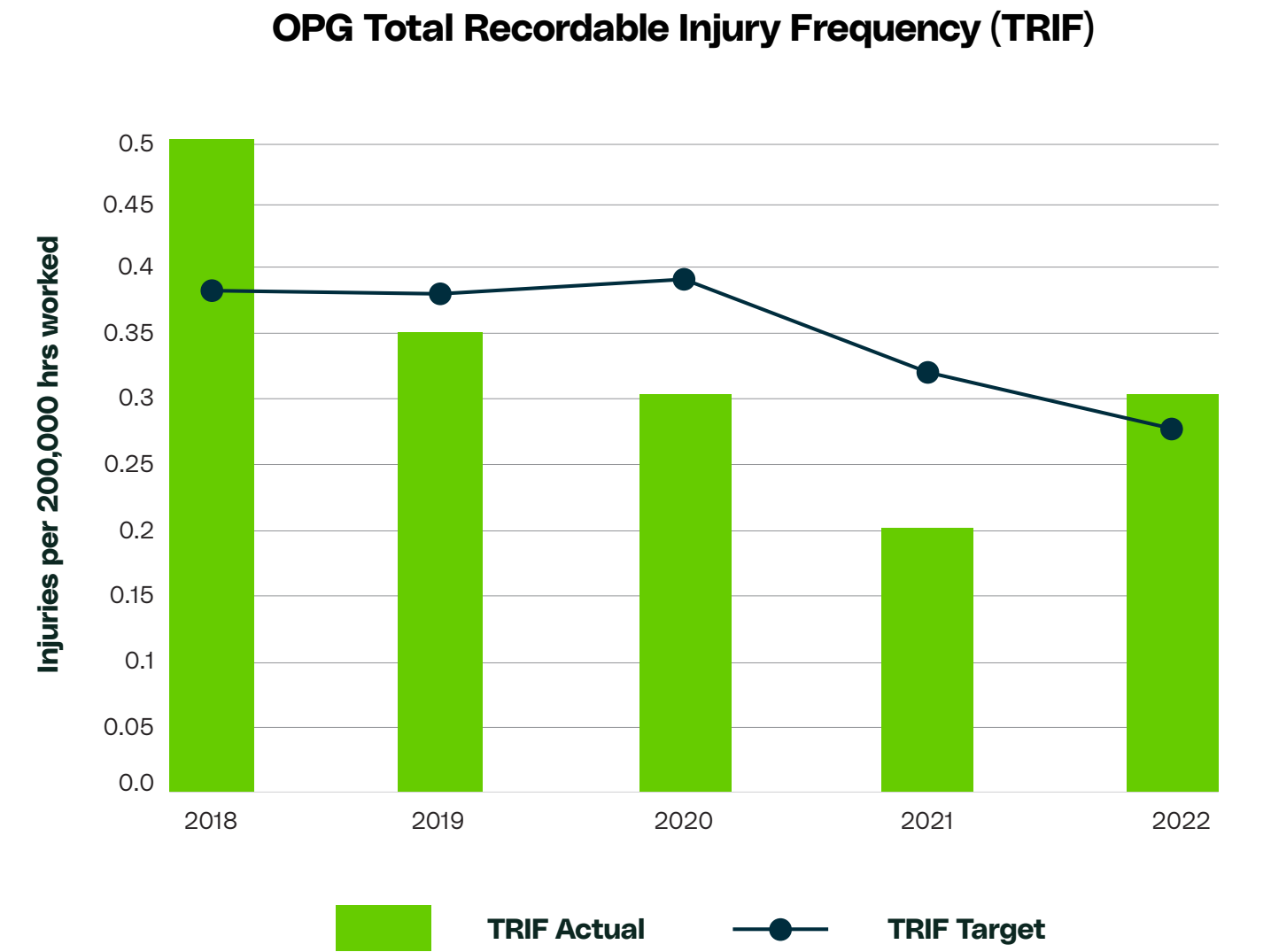
OPG’s people are the foundation of our success and are valued for their dedication, commitment, skills, and abilities. They are the key to our present and future success as a company. Our number one priority remains the health and safety of all our employees, and our goal is to build a healthy, engaged, inclusive, and safety-minded workforce. To achieve this, OPG is focused on fostering the right skills and abilities within our workforce to enable operational and project excellence, and to meet the needs of our future.

Employee health and safety

OPG puts the health and safety of its employees first and foremost. Pursuing safety excellence starts with our strong health and safety culture, which has been recognized with a number of industry awards over the years.

In 2022, our strong health and safety culture was recognized with an Electricity Canada President’s Award of Excellence for Employee Safety, with a top ranking in safety performance compared to peers, and OPG was named to Canadian Occupational Safety’s 2022 5-Star Safety Cultures list. Our commitment to health and safety excellence includes a framework of standards and procedures, mechanisms for continual improvement, and a team-oriented approach. Our workplace safety performance is measured using two primary metrics:

- **Total Recordable Injury Frequency (TRIF):** In 2022, there were 28 injuries, which corresponds to a TRIF of 0.31 injuries per 200,000 hours worked. While this result did not meet the challenging 2022 target of 0.27 that we set for ourselves, it was tied for OPG’s second-best performance since the company’s inception in 1999. A similar TRIF performance of 0.32 is observed when Atura Power and Eagle Creek subsidiaries are included.



- **Serious Injury Incidence Rate (SIIR):** Captures a more serious sub-set of injuries, ensuring OPG maintains sufficient focus on high consequence hazards that can have life-changing impacts for our employees. In 2022, OPG’s SIIR was 0.02 serious injuries per 200,000 hours worked against a target of 0.02.

To build stronger safety defences, OPG has implemented a “Fail Safe” strategy. This involves the continuous strengthening of approaches to safe work planning, learning from events, employee engagement, field observations and coaching, and education. Additionally, as discussed earlier, employee safety has been included as a key element of OPG’s sustainability-linked credit facilities, demonstrating our commitment to employee safety.

Mental health support

Mental health concerns are a growing issue in Canada. According to Telus Health, in 2022, 32% of Canadians had a high mental health risk, 43% had a moderate mental health risk, and 25% had a low mental health risk. Comparatively, only 14% of Canadians were at high mental health risk pre-pandemic.

In 2022, OPG conducted focus groups and engagement surveys to identify risks that may impact the psychological health and safety of employees and developed strategies to support employees and their families as they navigate these challenging times.

2022 initiatives included:

- A new Employee Family Assistance Plan contract with enhancements such as unlimited counselling, telemedicine support, expanded video resources, dedicated phone line for immediate and confidential advice and support, and Indigenous-specific supports.
- A new absence services contract with enhancements such as increased mental health supports, employee experience improvements, and increased rehabilitation supports.
- Conducted focus groups to evaluate psychosocial hazards in the workplace and developed a working committee to develop an action plan to eliminate gaps.
- Partnership with Centennial College (Workplace Wellness and Health Promotion Program) to provide internship opportunities.
- Partnership with Construction Safety Research Alliance and Construction Industry Institute on a mental health research project.
- Provided mindfulness sessions weekly throughout the year.
- New contract with Addiction Treatment Services to provide all employees and their families access to enhanced addictions counselling and access to specialized services.
- Continued to offer Mental Health First Aid training for all employees.
- Launched an initiative with #ConvoPlate for the full year, where a conversation plate travelled to each part of the province to prompt conversations around mental health, sparking more than 800 conversations over the year.

Employee development

OPG strives to be a place where employees can envision a long-term career with many potential career paths that meet their aspirations and goals; a company where employees at all levels have opportunities to grow and thrive by expanding their skills, abilities, knowledge, and experience. In aspiring to this, we want our people to feel engaged, valued, and proud of the work they do.

Employee development is a shared responsibility between each employee and their leader, supported by OPG’s programs and policies. We have an active and robust employee development program and succession planning process, rooted in individual development planning and organizational training and development programs.

Through individual development plans, employees can focus on advancing many skills, behaviours, abilities, or areas of knowledge that are important to both the employee and the organization. The plan can focus on developing for both short-term learning actions and longer-term career goals. Development is achieved through a blend of on-the-job work experience, feedback, mentorship, network relationships, education, and training.



OPG’s Christine John, Senior Manager of Indigenous Relations.



Internal development is enhanced by on-demand digital learning, on-the-job learning, as well as training for different careers and opportunities. New and responsive development programs are part of OPG’s Beyond25 program, which seeks to help employees build new in-demand skills for the future and to provide training opportunities for new career paths.

OPG provides internal learning programs to help employees who are new to supervisory or mid-level leadership positions to develop their managerial and leadership skills. Additional programs are in place to help more experienced leaders further develop their skills to ultimately step into progressive positions across the company. Leadership development provides an enriching and effective learning experience that includes training delivered by internal OPG facilitators and external facilitators who are experts in their field.

OPG also partners with industry experts and peers to deliver award-winning training and development to leaders through international learning programs, which leverage leadership assessments, coaching, and on-site experiences. Simulations and industry mentors also help accelerate the development of high-potential leaders across OPG, alongside peers from the international community.

OPG’s adaptable leaders are encouraged to move across departments to develop their skills, experience, and knowledge of the business. These cross-business career opportunities also help OPG to become a stronger company, where employees have a more diverse and enriched career experience.

Corporate culture

At OPG, we believe that organizational culture is important to the well-being and success of employees and our organization in addition to impacting OPG’s relationships with numerous external stakeholders and Rights Holders. The right organizational culture is demonstrated in the daily decisions made by employees and experienced in the way we work together toward our shared vision and mission.

Our culture is built on a foundation of ESG considerations, including our work to mitigate climate change, our employee inclusivity programs, the steps we are taking towards Reconciliation, and how we prioritize the health and safety of employees.

OPG continues to work through a cultural transformation called “One OPG.” Through One OPG, a number of programs are now in place to enhance employee engagement, employee pride, and teamwork across the organization. This includes the One OPG Awards, our annual employee recognition program that celebrates individual and team achievements that demonstrate our values of Safety, Integrity, Excellence, Inclusion, and Innovation. Other initiatives include our annual charity campaign and numerous events that celebrate OPG’s cultural diversity and promote an inclusive workplace. In 2022, a renewed Culture Action Team made up of employees from across the organization helped promote these initiatives to strengthen our corporate culture.

While significant progress has been made, OPG continues to focus on assessing our culture and reinforcing areas in need of improvement. OPG conducted an engagement survey in 2022, measuring the level of engagement and employee sentiment towards the OPG work experience. In response, leadership actions and team engagement action plans have been implemented across the company to drive positive engagement and foster an enriched employee experience. With a focus on organization-wide actions along with local, team-oriented actions, OPG will continue to listen to employees and respond to their feedback in a continuous feedback cycle, including issues related to psychological safety and inclusion.

Given its fundamental importance to OPG’s ESG goals and Corporate Strategy, oversight of OPG’s organizational culture is included in the mandate of the Board’s Human Resources and Governance Committee.

Labour relations

Fostering positive labour relations is an important focus for OPG. As of December 31, 2022, 87.2% of OPG’s regular workforce was represented by a union, including the Power Workers’ Union (PWU), the Society of United Professionals (Society), and several building trades unions.

With the planned shut down of two generating units and the potential for approval to refurbish up to four generating units at Pickering Nuclear by the middle of this decade, OPG is preparing for our future beyond 2025 and our changing labour needs. We commit to sharing information as it becomes available and working with our union partners as we navigate this process.

OPG has always respected and continues to respect and support individuals’ rights to freedom of association as embodied in the collective bargaining process and our policies and practices are aligned with the labour standards of the International Labour Organization.



Spotlight: Supply chain management

The cost-effective acquisition and timely availability of materials and services supports OPG’s objectives of providing reliable, low-cost, and clean power to homes and businesses across Ontario. Within our supply chain management team, innovation from analysis to implementation ensures our supply chain processes are consistent with approved financial management and control standards, and all applicable legal requirements. In 2022, OPG procured approximately \$3.2 billion in materials and services for operations and projects.

OPG is committed to using its procurement to advance its corporate values and ESG principles. Our suppliers and contractors must demonstrate their ability to manage quality and health and safety targets, as well as meet technical and commercial requirements. In 2022, OPG continued work with a third-party service provider to evaluate key suppliers in several ESG areas. Suppliers are evaluated in the categories of environmental performance, labour and human rights, ethics, and sustainable procurement.

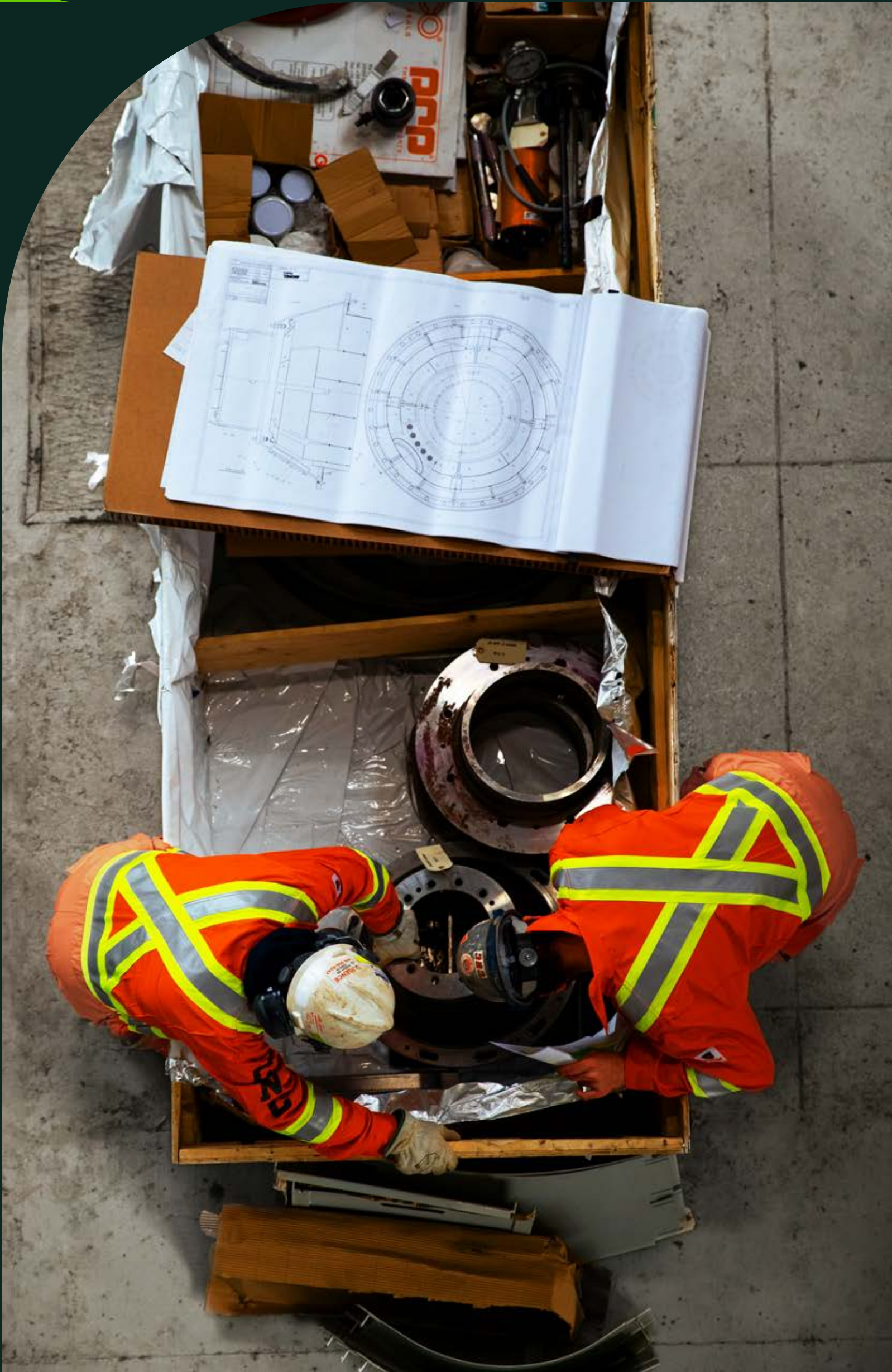
Evaluation criteria include global considerations such as customer health and safety, forced labour, anticompetitive practices, corruption, and environmental practices. In 2023, these ESG evaluations will continue, and corrective actions will be assigned to ultimately improve vendor performance, reduce emissions, and achieve sustainable outcomes. This work will also help determine a baseline for, and then ultimately reduce, OPG’s Scope 3 emissions.

In 2022, OPG awarded \$18.6 million worth of contracts to equity-seeking vendors and, in support of our RAP, added 15 new Indigenous vendors into our supply chain and achieved our target of awarding \$56 million in contracts to Indigenous vendors. For 2023, OPG has increased these targets. This aligns with OPG’s ED&I Strategy, Priority 15 (Responsible Sourcing), and RAP, Pillar #4 (Economic Empowerment). Aligning our supply chain procurement with OPG’s ED&I Strategy and RAP are important building blocks in the development of a sustainable, diverse supply chain with direct impact on economic empowerment for marginalized people.

OPG procurement contracts are awarded following OPG’s established procurement activity procedures, with suppliers expected to ensure full compliance with OPG’s Supplier Code of Conduct and Code of Business Conduct in their business dealings with OPG. These requirements are part of commercial terms in our Agreements. Code of Conduct concerns are managed and investigated through our Ethics Department. Certain suppliers are subject to OPG audits and assessments, which are commensurate with their approved scope of work and specified quality requirements. OPG has approximately 2,000 active suppliers and is a proud supporter of local businesses.



A powerhouse crane at one of OPG’s stations.



In 2022, OPG procured approximately \$3.2 billion in materials and services for operations and projects.



7.0

Governance pillar



7.0 Governance pillar

Corporate governance

OPG’s corporate governance structure ensures the highest standards of ethical business conduct and helps to identify and assess opportunities and risks in relation to OPG’s corporate strategy and business objectives.

OPG’s work to become a diverse, inclusive, and innovative clean energy leader starts at the top: strong governance structures ensure that actions to reach our goals are taken throughout the company, with robust oversight from the Board, executives, and managers.

Board of Directors

OPG’s Board of Directors has the direct mandate to oversee the company’s approach to environmental, social, and governance matters under the Charter of the Board of Directors.

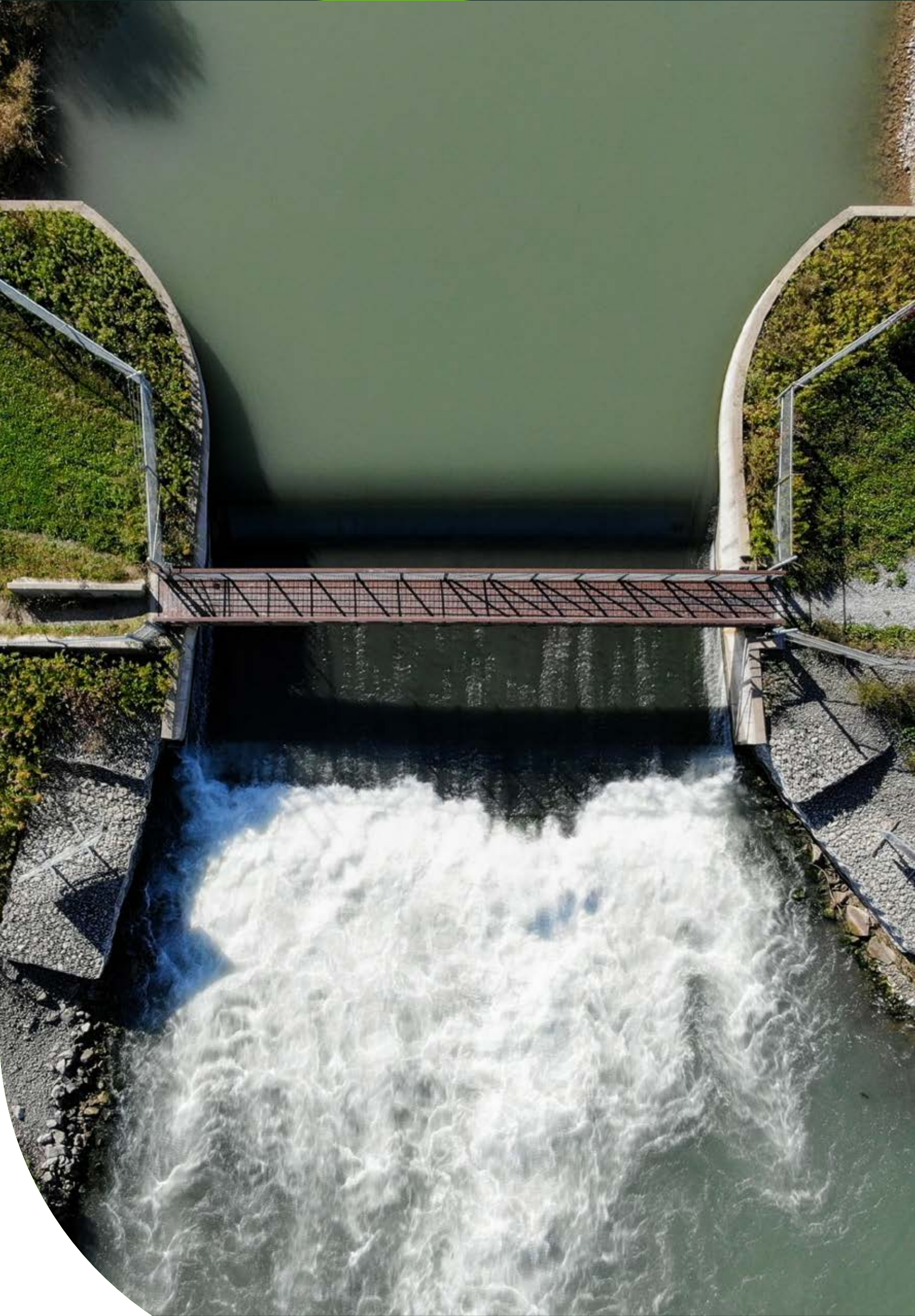
Direct responsibility for a range of ESG topics is divided among the Board’s committees, who report back to the full Board. Some topics go directly to the full Board. The combination of these topics includes environmental performance and compliance, health and safety, corporate culture, Indigenous relations, climate change and decarbonization, workforce strategies, equity, diversity, and inclusion, social licence, stakeholder relations, and executive compensation.

Through its oversight role in setting OPG’s Corporate Strategy, the Board is directly responsible for approving numerous ESG-related policies and is provided regular updates on the company’s progress. These policies include:

- ▶ The Enterprise Risk Management Policy
- ▶ The Employee Health and Safety Policy
- ▶ The Code of Business Conduct Policy
- ▶ The Board’s Conflict of Interest Policy
- ▶ The Cyber Security Policy
- ▶ The Environmental Policy
- ▶ The Nuclear Safety Policy
- ▶ The Safe Operations Policy
- ▶ The Indigenous Relations Policy
- ▶ The Board’s Diversity and Inclusion Policy
- ▶ The Disclosure Policy

In 2022, the Board prioritized environmental and social issues that present significant strategic opportunities, impacts, or risks to the company. These issues are reflected in the Annual Corporate Strategic Plan, which was approved by the Board and is overseen by the Board. Through OPG’s Enterprise Risk Management (ERM) program, the Board oversees management’s ability to identify and assess material environmental, social, and governance risks.

Apart from OPG’s President and CEO, the Board is comprised entirely of independent members. Director term-limits ensure renewal is embedded in the Board’s governance structure. The OPG Board itself is a leader in respect of the diversity of its members. The Board is greater than 50% gender diverse and overall diversity is also over 50%.



The view from above at an OPG hydroelectric station.

CEO

At OPG, leadership matters: the CEO sets a high standard on ESG principles and is accountable to the Board for ensuring a culture of integrity and ethical conduct in implementing these standards.

The CEO is the primary lead on defining and executing OPG’s Corporate Strategy. OPG’s Corporate Strategy aims to deliver a sustainable business model that can service the province’s long-term power generation needs, increase Shareholder value, and help the company remain an industry leader when it comes to safety, operations, financial performance, asset reliability, stakeholder and Indigenous relationships, and environmental and regulatory compliance.

Executive team

OPG’s executive team shares responsibility for meeting the company’s ESG targets and objectives. Executive team member responsibilities include setting standards and key performance indicators related to the environment, health and safety, ethics, stakeholder and Rights Holder engagement, employee development and wellbeing, and financial stewardship. A Corporate Balanced Scorecard includes annual priorities and targets that help track the company’s overall performance. Within each individual operating unit, performance objectives are established, and key performance results are reported monthly. Performance targets are reinforced with management employees through the annual Stakeholder Return Program (SRP) that links compensation to performance.

Responsibility for OPG’s ESG reporting is led by OPG’s Chief Legal, ESG, and Governance Officer, who reports directly to the CEO and works closely with the Board of Directors.





OPG's corporate office in Toronto.

Executive compensation

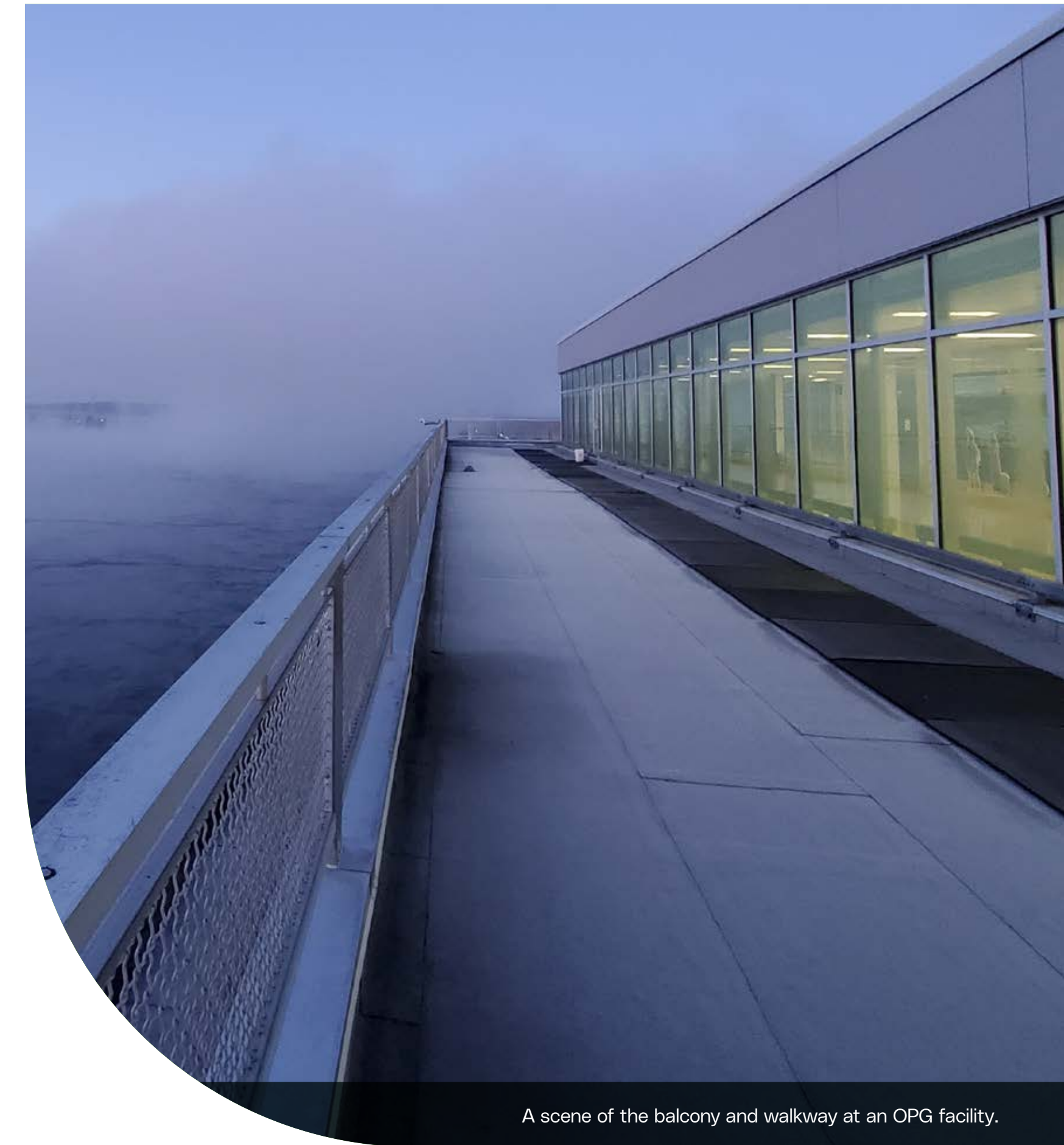
OPG's executive compensation programs are designed to foster and recognize employee performance and effectiveness, resulting in successful outcomes for the company, the province, and ratepayers. In addition to a base salary, executive compensation consists of "pay for performance" elements in which variable compensation is based on the achievement of individual and corporate performance goals. These programs encourage employees to meet performance targets that support OPG's Corporate Strategy.

The Board of Directors, through the Human Resources and Governance Committee, approves OPG's Corporate Balanced Scorecard, which is an element of management's SRP, or annual short-term pay for performance incentive program. The Board also approves corporate performance targets and payments under OPG's medium-term pay for performance program called the Medium-Term Incentive Plan (MTIP) for eligible employees.

To help drive exceptional performance on ESG, both the annual Corporate Balanced Scorecard and the MTIP require the Board to evaluate management and executive compensation against key ESG performance indicators. ESG metrics in the Corporate Balanced Scorecard include targets for the Serious Injury Incidence Rate and delivery of clean energy infrastructure projects on time and on budget. Beginning in 2022, additional ESG performance indicators were added to OPG's Corporate Balanced Scorecard: the Supply Chain Diversity Program and Procurement from Indigenous Businesses targets. New ESG performance indicators were also added to the MTIP cycle starting in 2022: ED&I succession planning targets and execution on OPG's Climate Change Plan. The Board of Directors also has the inherent discretion to adjust the Corporate Score based specifically on an overall assessment of ESG considerations.

Tax management

Being wholly owned by the Province of Ontario, OPG is not required to pay income tax, but it is required to make payments in lieu of taxes (PILs), which are computed as if it were subject to income tax. OPG's Tax Group is responsible for Canadian PILs and Canadian commodity tax compliance. OPG's processes and controls are meant to ensure that OPG complies with these tax requirements. In 2022, OPG continued to be in compliance with its obligations.



A scene of the balcony and walkway at an OPG facility.

Business model resilience

Businesses and people across Ontario rely on the resilience of OPG’s business model. With increasingly extreme weather and the evolving threat of climate change, and the ever-changing nature of cybercrime and other maliciously motivated attacks, OPG works hard to stay ahead of these threats. We do this by embedding resilience as a core value of the company’s culture and through various safeguards and training activities.

OPG’s electricity is an essential component of a properly functioning Ontario. Should any of our generating assets or critical infrastructure be notably disrupted, it could carry high social, economic, and environmental costs. Disruptions of this nature could originate from extreme weather events or other natural disasters, or from more nefarious sources such as cyber-attacks.

OPG is focused on the resilience of its facilities. For example, OPG guards its hydroelectric infrastructure against extreme weather or equipment failure by using hydrological models, weather forecasts, satellite imagery, weather station data, and other tools to manage water levels, flows, and water storage. OPG is always investing in new data management and forecasting systems to help adapt our water management strategies as the climate changes and to optimize hydroelectricity production. Our nuclear assets are protected by robust, redundant safety systems and meticulous emergency preparedness, as outlined in this report, and by a physical security presence that ensures the continuous, safe operation of each one of our sites.

With cyber security growing as a threat around the world, OPG’s Cyber Security Policy and risk management approach begins at the Board level. The aim of the Board policy is for OPG to operate our information technology and our critical infrastructure generating facility technologies securely, vigilantly, and resiliently. To achieve this outcome, OPG maintains a wide-ranging cyber security program that includes continuous monitoring, testing, and benchmarking, and carries out this program in collaboration with external partners and experts.



One of OPG’s nuclear security officers.

Cyber risks are an ever-evolving, dynamic, and increasingly complex challenge to the safety and integrity of OPG systems. As such, all employees are required to take regular training. We are continuously investing in cyber security protection resources and expertise, implementing best practices and standards, and advancing overall cyber security management capabilities.

Ethical business conduct

OPG’s Code of Business Conduct (the “Code”) and corresponding programs are essential to maintaining safe, healthy, and equitable workplaces. The Code aligns with the UN Guiding Principles on Business and Human Rights.

In 2022, OPG continued to demonstrate commitment to our Code, ensuring the highest standards of ethical conduct across the company. OPG’s Ethics Office operates a best-in-class ethics program by applying global benchmarks and leading practices to OPG’s business needs and practices.

To ensure the Code remains responsive to the company’s needs, the Ethics Office reviews, revises, and re-issues governance and related training on a three-year cycle and requires compliance attestations from management staff on an annual basis. Accordingly, in 2022, the Ethics Office engaged stakeholders and further aligned the Code with other guiding documents, including OPG’s Climate Change Plan, Reconciliation Action Plan, and ED&I Strategy, to further ESG at OPG. To this end, the following Code changes will be launched in 2023:

- ▶ Enhanced definitions and direction around anti-bribery and corruption
- ▶ Enhanced whistleblower program
- ▶ Enhanced direction on political involvement
- ▶ Improved language on roles and responsibilities, including launch of new guide
- ▶ Increased detail on reporting, including anonymous reporting
- ▶ Increased accountabilities for officers, directors, and employees
- ▶ Increased detail on consequences for violating the Code
- ▶ Additional information relating to benefits fraud and misuse

OPG maintains an Anti-Bribery and Corruption (AB&C) Compliance Program for managing risks that may arise when pursuing opportunities or conducting business with foreign public officials. The program includes a framework to identify, assess, control, and monitor foreign corruption risks through AB&C provisions in our governance and relevant OPG legal contracts, and through training and awareness. The Code of Business Conduct and Supplier Code of Conduct are aligned with the aims of this program.

Whistleblowers are protected and the company is prohibited from taking any disciplinary measure against an employee who reports an offence against a federal or provincial act or regulation. To this end, a new anonymous reporting portal for employees and members of the public to report known or suspected Code violations was launched in 2022, enhancing OPG’s whistleblower program and strengthening OPG’s retaliation and reprisal policy. Further, additional language was added to the Code to increase employee awareness regarding OPG’s zero tolerance approach to reprisal and retaliation.

In 2022, the Ethics Office launched OPG’s 2022-2027 Accessibility Plan, building on more than a decade of continuous work to make OPG more accessible and to further advance equity, diversity, and inclusion, and exceed legal requirements.

Ethical behaviour builds trust, inspires confidence, attracts and retains talent, and drives financial performance. Maintaining OPG’s values and setting high ethical standards for employee behaviour are central to the company’s business, and as such remain a cornerstone of the company’s performance review processes.

Systematic risk management

To promote risk-informed decision making and support effective execution of OPG’s strategic and business plans, OPG’s Board of Directors has established an Enterprise Risk Management (ERM) Policy, which is enacted through a company-wide risk management framework.

Oversight of OPG’s ERM framework is led by the Board’s Audit & Risk Committee, which receives quarterly risk reports and updates to the company’s risk profile, which is validated by an Executive Risk Committee comprised of OPG senior management. Every quarter, management reviews each business unit and function to identify any new risks and mitigation actions, assess any change in the severity of existing risks, and remove matters that no longer present a risk to the company.



A view of the sunset at an OPG generating site.

8.0 Appendices



OPG's Saunders Hydro Dam Visitor Centre.

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Appendix 2 – GRI Standards Index

Statement of use	Ontario Power Generation has reported the information cited in this GRI content index for the period January 1, 2022 to December 31, 2022 with reference to the GRI Standards.
GRI 1 used	GRI 1: Foundation 2021

GRI Standard	Disclosure	Location
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GRI 205: Anti-corruption 2016			
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GRI 302: Energy 2016			
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GRI 303: Water and Effluents 2018			
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GRI 305: Emissions 2016		
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	305-7 Nitrogen oxides (NOx), sulfur oxides (SOx), and other significant air emissions	Sustainability Performance Data, p. 1-2
GRI 306: Waste 2020		
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	306-2 Management of significant waste-related impacts	29-32
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GRI 401: Employment 2016		
	401-1 New employee hires and employee turnover	Sustainability Performance Data, p. 3
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	408-1 Operations and suppliers at significant risk for incidents of child labor	55, 61
GRI 409: Forced or Compulsory Labor 2016		
	409-1 Operations and suppliers at significant risk for incidents of forced or compulsory labor	55, 61
GRI 413: Local Communities 2016		
	413-1 Operations with local community engagement, impact assessments, and development programs	13, 34, 47-48, 50-51
GRI 414: Supplier Social Assessment 2016		
	414-1 New suppliers that were screened using social criteria	55
	414-2 Negative social impacts in the supply chain and actions taken	55
GRI 417: Marketing and Labeling 2016		
	417-1 Requirements for product and service information and labeling	Sustainability Performance Data, p. 4



Rushing waters at an OPG hydroelectric station.

Appendix 3 - Data Assurance and Quality

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.

Scope 1 greenhouse gas emissions associated with Atura and Lennox generating stations are externally verified by an independent auditor.⁴

Sustainability data and practices are verified by an independent auditor periodically as part of Electricity Canada’s Sustainable Electricity Program. OPG underwent a program verification review in 2019. This review included the verification of OPG’s sustainability performance data, ISO 14001 certification, and implementation of sustainability practices and principles.

Beyond issuing this annual ESG Report, we maintain transparency with the public through our dynamic and interactive digital and social media platforms, where we provide the latest information, stories, videos, and announcements about our sustainability initiatives.

This report presents information about sites operated by OPG (unless otherwise noted) and contains forward-looking statements that reflect our company’s current views regarding future events and circumstances. Certain material factors or assumptions are applied in making forward-looking statements and actual results may differ materially from what is stated. The reporting period is from Jan. 1 to Dec. 31, 2022.

In conjunction with this report, OPG provides information about its ESG and other performance in its Annual Report, Annual Information Form, Management’s Discussion and Analysis reports, consolidated financial statements, news articles, regular environmental reports and station performance reports, which are all available on **opg.com**.

The reporting boundaries of the ESG Report are summarized in the table below:

Topic	Reporting Boundary
Climate Change Mitigation & Adaptation	OPG and all subsidiaries
Greenhouse Gas Emissions	OPG and Atura
Management of Nuclear By-products, Nuclear Sustainability Services	OPG and all subsidiaries
Equity, Diversity & Inclusion	OPG
Health & Safety – TRIF and SIIR	OPG, Atura and Eagle Creek

⁴ Scope 1 greenhouse gas emissions for Lennox and Atura Power Generating Stations are third-party verified annually. The verification for 2022 emissions was in progress as of publication date. Atura Power Generating Stations include Brighton Beach, Halton Hills, Napanee and Portlands.



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