



Building a Sustainable Future

**2021 Ontario Power Generation
ESG Report**

ONTARIO **POWER**
GENERATION

Where a brighter
tomorrow begins.

Table of contents

1	Who we are.....	5
2	Message from the Board Chair and President	9
3	About this report	13
4	What ESG Means to OPG	17
5	Environmental Pillar.....	25
6	Social Pillar.....	59
7	Governance Pillar	89
8	Appendices	99

T O C



Who we are

Ontario Power Generation (OPG) is a climate change leader with one of the most diverse generating portfolios in North America, meeting about half of Ontario's power needs. We invest millions in local economies and employ thousands of people to operate and maintain a modern, sophisticated energy fleet. Over the past five years, the company has returned approximately \$5.9 billion in net income to the Province of Ontario, our sole Shareholder, for the benefit of its residents. We partner with local and environmental groups to improve the well-being of our many site communities. And our ground-breaking development partnerships with Indigenous partners are creating lasting economic benefits for First Nations communities.

Having delivered one of the world's single largest climate change actions by closing our coal stations, OPG is now focused on becoming a net-zero company by 2040, and enabling a net-zero economy by 2050. We're investing in new technologies to grow this clean economy through transportation electrification, Small Modular Reactors (SMRs), energy storage, hydrogen production, and hydroelectric projects.

We aim to achieve all these initiatives while prioritizing people and partnerships. This includes continuing to make progress on our Reconciliation Action Plan, as well as our Equity, Diversity, and Inclusion (ED&I) strategy.

OPG at a glance

- 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.
- 18,958 MW generating capacity
- 66 hydroelectric stations on 24 river systems in Ontario
- \$61 billion in assets
- 2 nuclear stations
- 2 other nuclear stations leased to Bruce Power
- 1 biomass station
- 1 dual-fueled oil and gas station
- 4 combined-cycle gas stations (operated by subsidiary Atura Power)
- 1 solar facility (First Nations partnership)
- 87 U.S. hydroelectric stations (operated by subsidiary Eagle Creek Renewable Energy)
- Developing Canada's first Small Modular Reactor (SMR)
- Leading producer of nuclear and medical isotopes, first harvested at Pickering Nuclear.



2

Nuclear
Generating Stations



66

Hydroelectric
Generating Stations
in Canada



2

Thermal
Stations



1

Solar
Facility



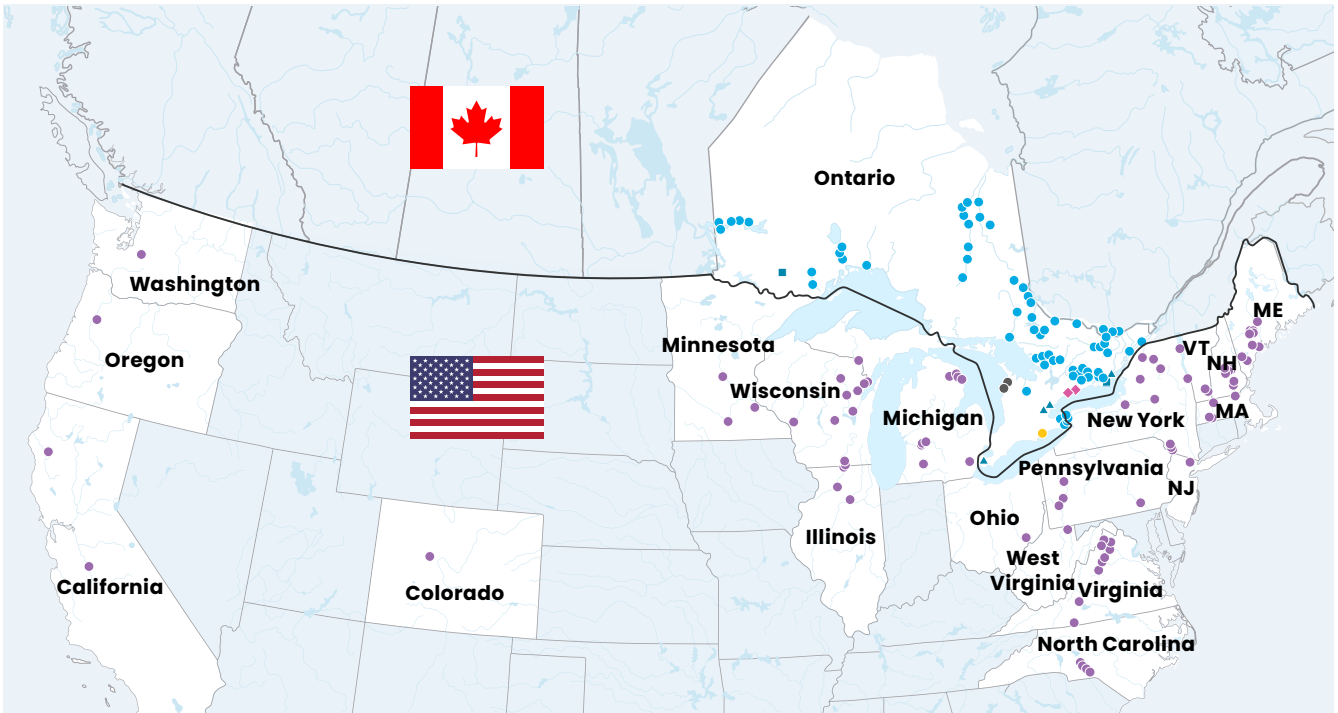
87








Eagle Creek Renewable Energy Hydroelectric
Generating Stations in the U.S.



4

Atura Power Combined-Cycle
Generating Stations



 2	 2	 2	 1	 66	 87	 4
Nuclear Stations	Leased Nuclear Stations	Thermal Stations	Solar Facility	Canada Hydroelectric Stations	US Hydroelectric Stations	Atura Power Combined Cycle Stations





Message from the Board Chair and President

At OPG, we believe our power can help change the world. As the province's largest clean power generator, we take great pride in producing reliable, clean, and low-cost electricity in a safe and sustainable manner.

We also strive to be a good neighbour and partner to our host communities and the Indigenous communities whose land we operate on, while being a responsible corporate citizen, an ED&I champion, and a transformational leader in the fight against climate change.

For our approximately 9,500 employees across Ontario and the United States, these are the points of pride of working at OPG.

Since our company's inception more than 20 years ago, we have committed to setting out and meeting key sustainability goals for our operations and managing our impacts. In past years, we reported on our progress through various performance documents and reports.

In this, our first-ever annual Environmental, Social, and Governance (ESG) Report, we take the same approach in reporting on our sustainability efforts, while also detailing our journey to become a more equitable, inclusive, diverse, and socially responsible company. In a quickly changing world, OPG believes operating sustainably and with good governance is not just good business, it is the foundation to building a brighter tomorrow for everyone.

At the centre of our efforts is our goal to help decarbonize the broader economy and be a leader in climate change action.

We know the severe consequences of climate change are already being felt around the world. We also know that on a global scale, it will take significant new investments and much more clean energy to meet the demands of electrification and achieve net zero.

Tackling this existential issue requires bold action and leadership, both of which OPG is accustomed to demonstrating.

Less than a decade ago, we helped largely decarbonize Ontario's electricity system by eliminating more than 7,500 megawatts of coal-fired power generation, closing the last of our coal plants in 2014. Since then, we have invested in our low-emission nuclear power assets, expanded our hydroelectric production, and established a diverse generating fleet, including solar and biomass.

In 2020, we took another decisive step by releasing our Climate Change Plan, an ambitious blueprint that sets out two goals: to become a net-zero company by 2040 and to help the economies in which we operate achieve net zero by 2050.

In setting our goals, we intend to contribute to the prosperity of Ontarians and Indigenous communities, while delivering more clean energy to ensure the province's electricity grid remains among the least carbon-intensive grids in the world. We believe our efforts can provide a blueprint for others to follow and achieve similar goals across the energy sector.

Since our Climate Change Plan's launch, we have made significant advances, including our ongoing work to develop and deploy Canada's first commercial, grid-scale Small Modular Reactor at our Darlington site, which represents the next generation of safe, carbon-free nuclear power. We are also investing in our clean hydroelectric fleets in Ontario and the U.S., advancing the production of hydrogen, supporting the electrification of transportation across Ontario, and continuing to execute our Darlington Refurbishment project, which will secure 30 more years of clean power and significant economic benefits.

We know to achieve our sustainability and climate change goals, we will need to rely on the dedication, experience, and innovative thinking of our people. To build a strong workforce fit for the future, we are accelerating efforts to be an equitable, diverse, and inclusive company. Our 10-year ED&I Strategy outlines OPG's goal to become one of Canada's best diversity employers by 2023 and a global leader in ED&I best practices by 2030. While much more work remains, we are making progress across the organization, including at our leadership tables; currently more than 60 per cent of our Board of Directors and 50 per cent of our executive team are made up of leaders representing designated groups, including women and racialized people. These numbers are significantly higher than labour-market availability for women in our industry.

We know building a more equitable, diverse, and inclusive company is critical to our success. It will take a wide variety of engaged voices from all



Peter Sutherland Sr. GS development partnership

backgrounds to help us reach our goals – from operations, to project excellence, to climate change. More than this, we know this is just the right thing to do to ensure everyone can work safely and to their full potential every day.

In 2021, OPG also furthered our commitment to be a leader in Indigenous relations with the release of our Reconciliation Action Plan, which will guide our work with Indigenous communities, businesses and organizations to advance Reconciliation in a meaningful way. Through the plan, we intend to grow economic benefits for Indigenous communities and businesses, while increasing Indigenous representation across OPG.

These and many other initiatives will help our company play a major role in helping solve the challenge of our lifetime – climate change – while ensuring we

remain a sustainable, socially responsible, and beneficial company for communities and Indigenous partners.

All the while, we will continue to deliver low-cost, clean power efficiently, reliably and safely for Ontario and beyond.

Together, we will help secure a brighter, cleaner future for all.



Wendy Kei
Board Chair



Ken Hartwick
President and
Chief Executive
Officer



Darlington Nuclear turbine hall



About this report

Although this is our first, official Environmental, Social, and Governance Report, OPG has been publicly reporting on our performance in these areas for many years and in a variety of published and web-based formats. Our main information hub – opg.com – features a comprehensive array of stories and reports detailing our efforts to generate clean, reliable power, while helping build a sustainable future for Ontarians, Indigenous communities and all the communities where we operate in Ontario and the U.S.

This report is a snapshot in time, covering ESG performance for the 2021 calendar year. We've synthesized the information based on what we have heard is most important to our diverse audience, which includes residents in our site communities, Indigenous Peoples and communities, electricity customers, investors, employees, union partners, OPG's shareholder and our many stakeholders. Given the breadth of our operations and initiatives, we've also included links to additional information on our website should you wish to learn more.

OPG's Board of Directors has reviewed and approved this report.

OPG has a number of operating subsidiaries in Ontario and the United States. While the scope of this report focuses on OPG, the parent company's businesses and assets, we've also included, and noted accordingly, relevant subsidiary information.

For additional information on initiatives and performance by our subsidiary companies, please visit the links below:

- [Eagle Creek Renewable Energy \(ECRE\)](#)
- [Laurentis Energy Partners \(LEP\)](#)
- [PowerON Energy Solutions](#)
- [Atura Power](#)

Standards and frameworks

In 2018, we began to formally report on our performance in alignment with the Task Force on Climate-related Financial Disclosures (TCFD) framework. The TCFD provides 11 recommendations across the four pillars of governance, strategy, risk management, and metrics and targets. OPG also aligns our ESG performance with Global Reporting Initiative (GRI) standards, which includes disclosures of socially and environmentally material topics that impact stakeholders and rights holders.

Our commitment to transparency means we will continue to enhance our annual disclosure and reporting efforts. In addition to using the TCFD and GRI, OPG also reports on several relevant, material topics under the United Nations Sustainable Development Goals (UN SDGs) and the Sustainability Accounting Standards Board (SASB). Although we do not currently fully conform to these standards, they do

include elements that are relevant to OPG and our key audiences. As these various standards evolve, we will strive to show a level of leadership in what we report that will allow our audiences to monitor our progress.

Materiality – determining what to report

Material topics represent the environmental, social, and governance issues that matter most to our company and key audiences. While there is no universal standard for determining material ESG topics, there are leading practices, such as conducting a materiality assessment, which points to key environmental, social, and governance issues that can impact an entity and/or its key audiences. These issues are then prioritized into the most important topics and integrated into the company's strategy along with corresponding targets and reports.

OPG undertook an initial materiality assessment in 2015, which it updated in 2018 and again in 2021. These assessments evaluated the impact and importance of environmental, social, and governance topics that matter most to OPG, our stakeholders and rights holders (Indigenous communities), and informed the content of this report. Through ongoing dialogue and engagement, we will keep our key audiences informed on how OPG is managing these ESG topics, and ensure we understand our impacts on the world at large. As we develop future annual ESG Reports, OPG will continue to engage with our key audiences.



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. For additional information on data assurance and quality, as well as the scope of reporting related to OPG and its subsidiary companies, please see Appendix 3.



Canadian Niagara Falls



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.

That's why we have integrated ESG principles into our corporate strategy, business model, risk management framework, policy requirements, and performance targets. This means our impacts on the world outside of OPG, and the outside world's impacts on our company, are identified and managed. We accomplish this through a robust governance system, including procedures and controls. ESG is directly overseen by our Board of Directors and senior management, explicitly linked to individual performance assessments, and ESG performance helps determine executive compensation.



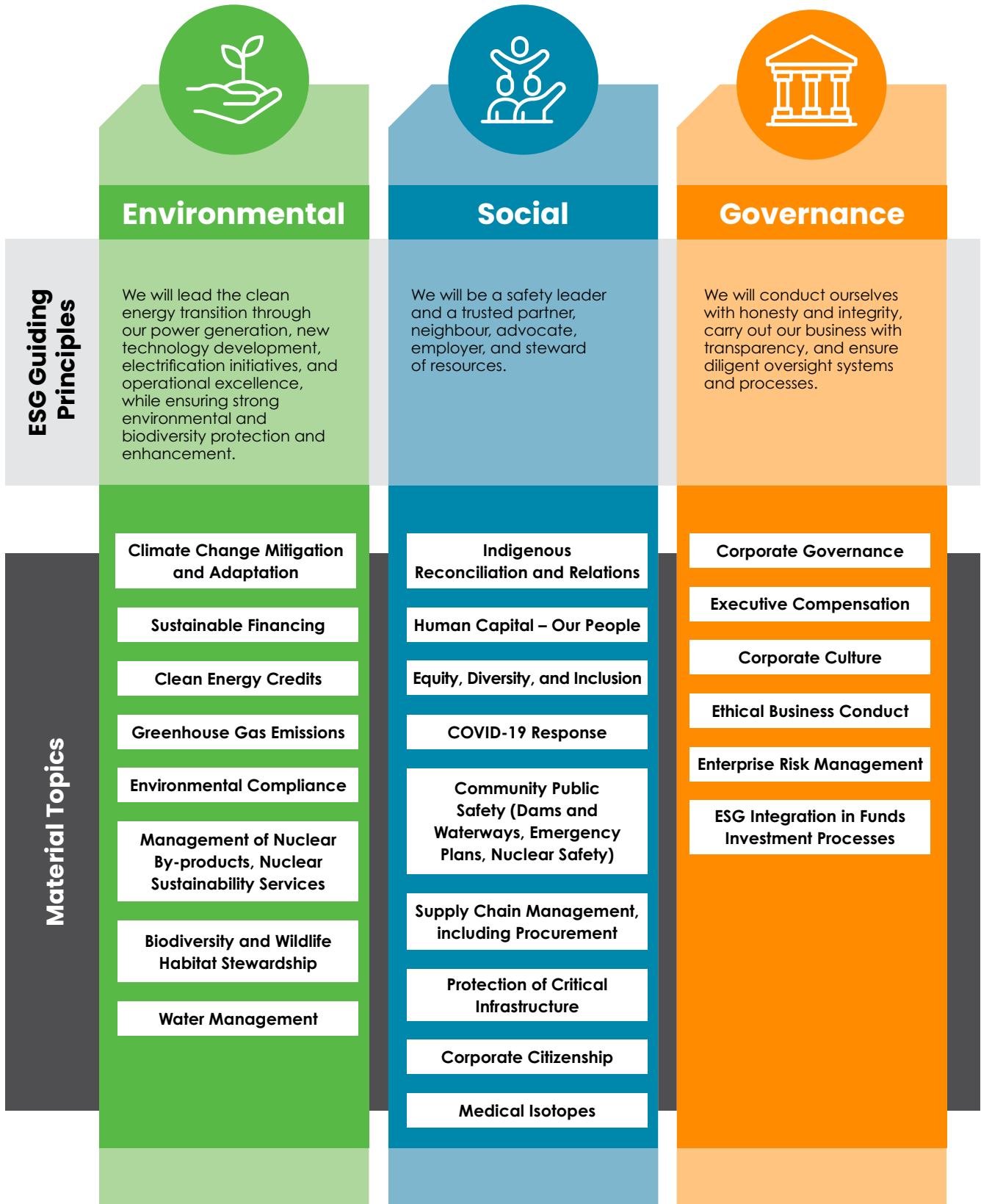
Environmental



Social



Governance



Our commitment to excellence

Thanks to our dedicated and talented employees, and their commitment to excellence, OPG is able to make many positive impacts through our power generating operations and initiatives in communities across the province. Sometimes these efforts are recognized with awards and achievements. We are grateful and remain motivated to continue to improve and seek excellence.

- Canadian Electricity Association (CEA): President's Award for Occupational Health and Safety, with a top ranking in safety performance compared to peers; Sustainable Electricity Award in recognition of our Climate Change Plan and commitment to continuous performance improvement; Centre of Excellence Net Zero by 2050 Award for our Darlington New Nuclear Project.
- 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 ninth year.
- Governance Professionals of Canada: Excellence in Governance Showcase in the category of Board, Management and Workforce Equity, Diversity, and Inclusion; Excellence in Governance Award in the category of Corporate Strategy.



2021 Performance highlights

Some of our ESG performance highlights from 2021 include:

- Launched our Reconciliation Action Plan to meaningfully advance Reconciliation with Indigenous Peoples. The Plan includes a commitment to grow our economic impact for Indigenous communities and businesses to \$1 billion over the next 10 years through our ongoing operations, projects, and initiatives.
- Launched our 10-year ED&I Strategy, which will serve as a roadmap to help us become one of Canada's Best Diversity Employers by 2023 and a global leader in ED&I best practices by 2030 per the Global Diversity, Equity & Inclusion Benchmarks.
- Continued leading the development of Small Modular Reactors (SMRs). In December 2021, we announced our selection of GE Hitachi Nuclear Energy as our technology partner on the Darlington New Nuclear Project, with the aim to build Canada's first commercial, grid-scale SMR at the site as early as 2028.
- The ongoing \$12.8-billion Darlington Nuclear Refurbishment project remains on time and budget. This project once completed will result in an approximate reduction of 297 megatonnes of carbon dioxide over the next 30 years of operation.
- Made strong progress on our extensive, \$2.5-billion turbine/generator overhaul of 174 generating units across our hydroelectric fleet to ensure clean hydro power can support the Province's and OPG's climate goals for decades to come.
- Advanced several clean energy projects, including the redevelopment of our Calabogie hydro station and the replacement of two previously decommissioned units at our flagship Sir Adam Beck I Generating Station, which is celebrating its 100th anniversary.
- Hydrogen production also progressed under our subsidiary, Atura Power, through the advancement of commercial low-carbon hydrogen demonstration projects at a variety of locations across the province.
- Expanded the Ivy Charging Network, in partnership with Hydro One, which will soon be the largest electric vehicle (EV) fast-charging network in Ontario with more than 150 fast chargers across more than 60 sites by 2022. This includes 69 level-3 fast-chargers at all ONroute locations, further easing battery charge range anxiety.
- Launched a new subsidiary, PowerON Energy Solutions, to provide electrification and charging infrastructure for municipal transit agencies and corporate fleets. PowerON is working with the Toronto Transit Commission (TTC) and Toronto Hydro to electrify more than 2,400 TTC buses – North America's largest transit electrification project to date.
- Another subsidiary, Laurentis Energy Partners, is working with BWXT Medical to produce the medical isotope Molybdenum-99 (Mo-99) for the first time ever in a power reactor. Molybdenum-99 is a much-needed medical isotope used in over 40 million

procedures each year, helping to detect illnesses like cancer and heart disease and diagnose various medical conditions.

- Delivered \$1.3 billion in net income to our Shareholder, the Province of Ontario, and generated 77.6 terawatt-hours (TWh) of electricity.

Supporting the United Nations Sustainable Development Goals (SDGs)

United Nations (UN) member countries have adopted a set of 17 universal SDGs designed to help achieve a better, more sustainable future for all by addressing the world's most pressing economic, social, and environmental issues. The SDGs were adopted in 2015 and are intended to be achieved by 2030.

While many of OPG's initiatives and practices support the SDGs, we can make significant contributions to the following key goals:

- Goal 7 – Affordable and Clean Energy
- Goal 8 – Decent Work and Economic Growth
- Goal 13 – Climate Action

Our alignment with these goals is described in the pages of this report.



7

Affordable and Clean Energy



8

Decent Work and Economic Growth



13

Climate Action

Our Social and Economic contributions

In addition to helping moderate Ontario's electricity rates with our power that costs on average 30 per cent less than other generators, OPG has significant direct and indirect impacts on the province's economy and social fabric. All of these activities contribute significantly to the UN Sustainable Development Goal #8 - Decent Work and Economic Growth.

- Our redevelopment, upgrades and refurbishment projects inject millions of dollars into the economy.
- In 2021, we generated \$1.3 billion in net income for the Province, and approximately \$5.9 billion over five years. These dollars benefit the people of Ontario and support essential programs and services.
- We directly employ about 9,500 skilled, dedicated people and put thousands more to work through our clean energy projects and supply chains.
- We spend almost \$3 billion annually to operate and maintain our fleet and operations, and we invest almost \$2 billion annually in our facilities and assets.
- To help finance some of our clean power initiatives, OPG uses green bonds, and we are currently Canada's largest corporate issuer.
- Through our investments and operations, we purchase goods and services from about 2,000 active suppliers and are proud to be a strong supporter of local and Indigenous businesses.
- Through our development partnerships with Indigenous communities, we provide jobs, skills training, and lasting economic benefits.
- And, as part of our commitment to building a clean energy future, OPG is investing in our hydroelectric and nuclear fleets, and developing SMRs, which will leverage Ontario's existing nuclear supply chain and create new jobs within the province.





TEM



Prince Edward County wetland



Environmental pillar

Across our generating sites and host communities, OPG is proud of our continuing and award-winning efforts to manage our environmental impacts and improve our natural and developed surroundings.

From ensuring environmental compliance throughout our operations, to nurturing biodiversity and wildlife, and to our efforts to combat climate change, OPG and our dedicated workforce are very serious about our commitment to environmental stewardship and leadership.

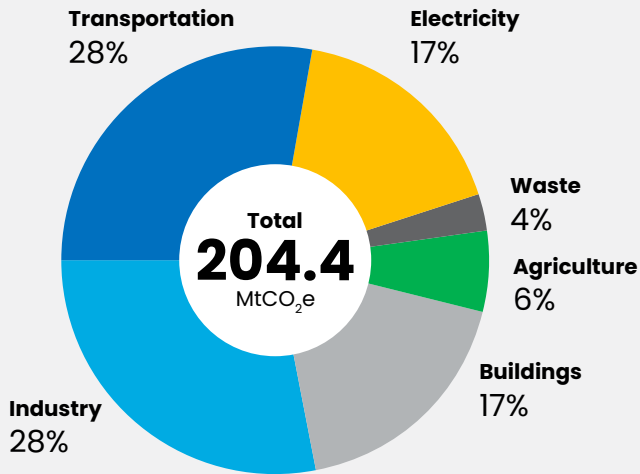
The company has an ISO 14001-registered Environmental Management System (EMS) to manage its environmental responsibilities. The EMS provides OPG with a framework to meet our compliance obligations, establish environmental objectives, and maintain operational control through programs that manage the significant environmental aspects of its operations.



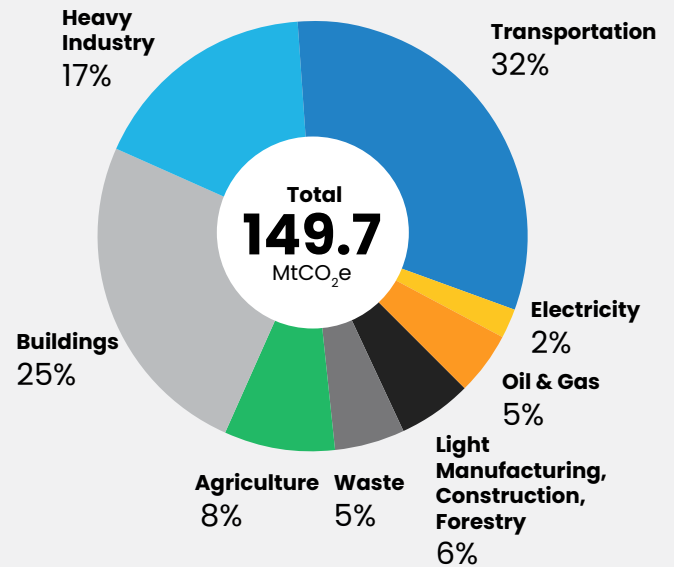
Ontario's low carbon electricity grid

Ontario CO₂ emissions by sector

2005 emissions by sector



2020 emissions by sector

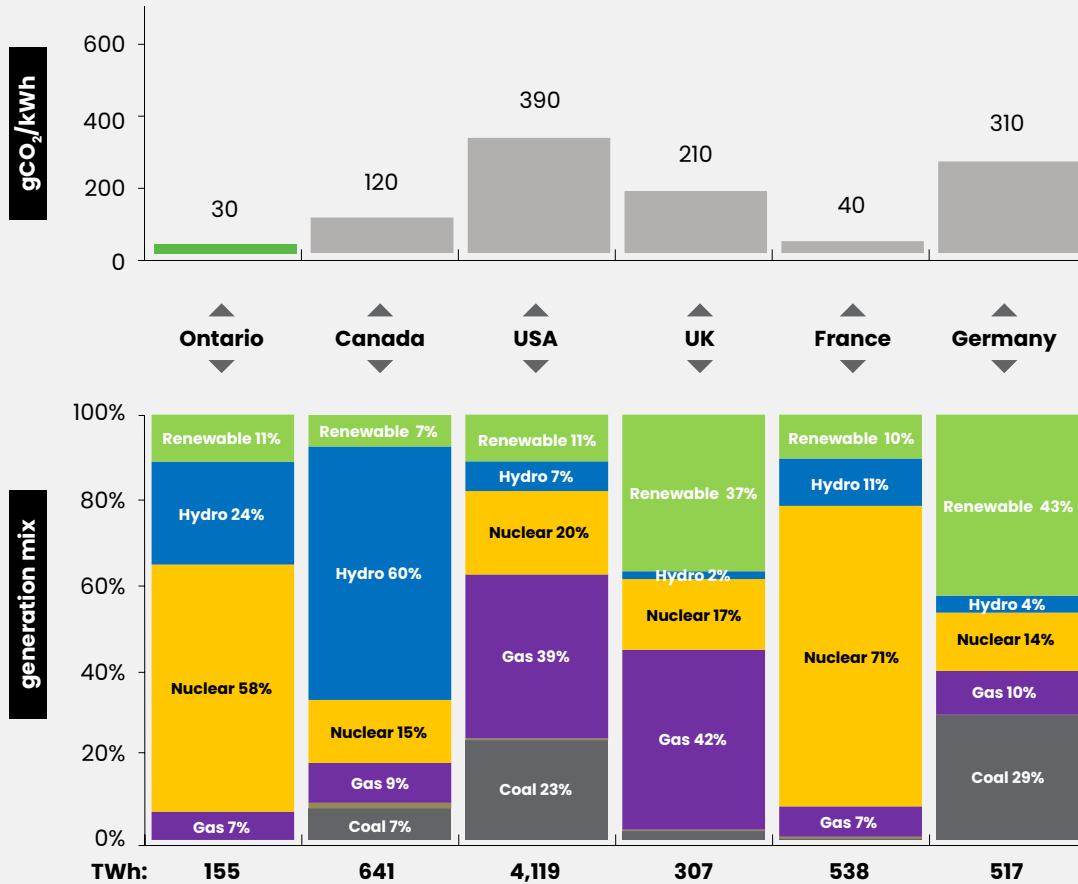


Sources:

- Greenhouse Gas Progress Report of the Environmental Commissioner of Ontario
- Canada's 2022 National Inventory Report

- Over the last two decades, OPG has shut down 7,560 megawatts of coal-fired generation in the province.
- To this day, our closure of coal remains one of the world's single largest climate change-specific actions.
- Ontario's electricity sector went from contributing 17% of the provincial carbon output to only 2%.
- The transportation sector is now the province's largest source of carbon emissions at more than 30%.

CO₂ emissions intensity – Ontario vs. world



Notes:

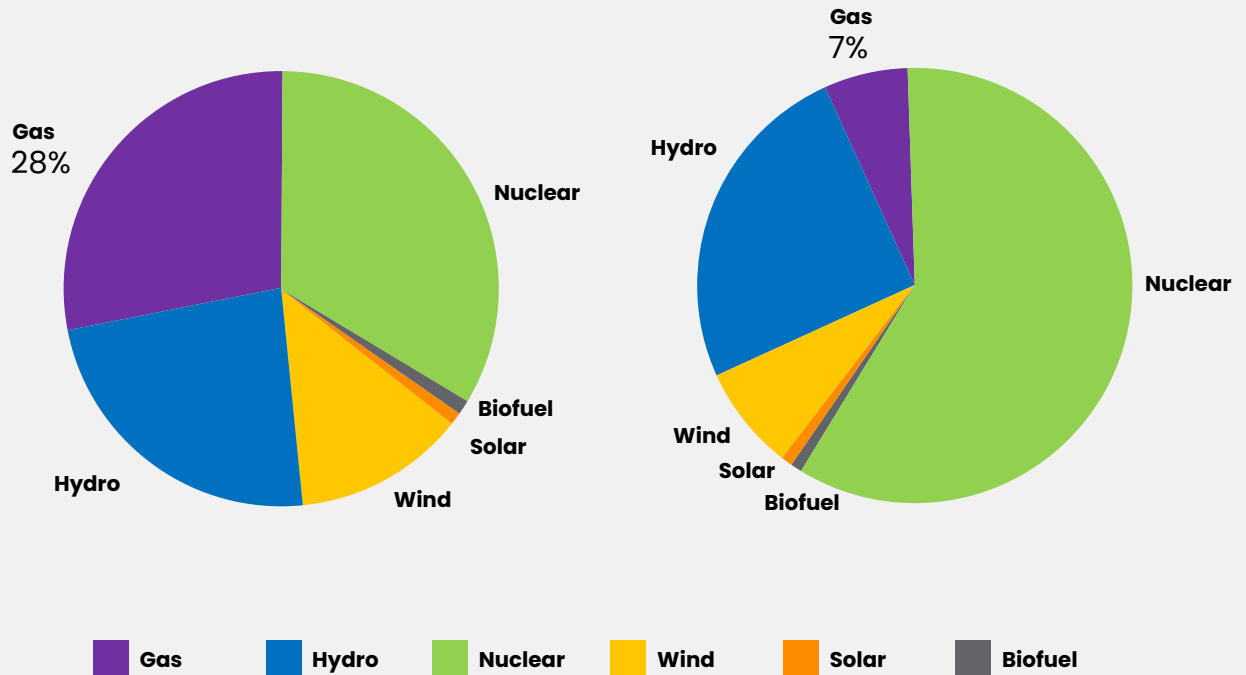
- Based on actual 2019 generation for Ontario, USA, UK, France & Germany, and 2018 generation for Canada.
- CO₂ emissions intensity estimates are for in-region generation only; CO₂ from imports and life-cycle emissions are not included.
- Renewable excludes hydro and includes wind, solar, biofuels and geothermal; small brown portion is oil.
- CO₂ emissions intensity estimates calculated assuming emissions of 450 gCO₂/kWh for gas, 800 gCO₂/kWh for oil and 900 g/kWh for coal.

- Today, Ontario's electricity sector has one of the lowest carbon intensity rates in the world.
- The carbon intensity rate for Ontario's electricity sector in 2018 and 2019 was about 30 g/kWh. During the same period, Germany's carbon intensity was 12 times greater.
- Nuclear remains the largest contributor of GHG-free power in the province.
- Even during the nuclear refurbishment period, when gas generation will see an increase, Ontario's grid will continue to have a low carbon intensity rate.



Ontario's low carbon electricity grid (continued)

2020 Ontario capacity vs. output (grid-connected)



Sources:

- IESO Gas Phase-out Impact Assessment

- Reliable operation of Ontario's electricity system depends on continually balancing supply and demand in real time.
- Gas generation plays a critical role in maintaining reliability because it's flexible and can be dispatched easily when it's needed most.
- Gas in Ontario is only used during periods of high demand or when intermittent sources like wind and solar are not available.
- As part of our commitment to achieving net zero by 2040, OPG is leading the development of SMRs, examining new hydro potential, and our subsidiary, Atura Power is looking to develop hydrogen at our generating sites.
- Refurbishment of Ontario's nuclear fleet will allow for decades of additional GHG-free power.
- A recent study by Ontario's Independent Electricity System Operator (IESO) found that



Nanticoke Coal Generating Station demolition

- completely phasing out natural gas generation by 2030 would lead to blackouts, and required system changes would increase residential electricity bills by 60 per cent.
- Ontario's electricity grid is only responsible for roughly three per cent of the province's total GHG emissions and is well positioned to support the electrification of other sectors.
- Ontario's electricity system is constantly evolving and integrating emerging technologies that have the potential to meet Ontario's long-term needs.





The plan aims to address climate change in a way that will help create new jobs and support new industries that protect the environment and make our economy stronger for current and future generations.

Climate change mitigation and adaptation

OPG is uniquely positioned to be a climate change leader, now and in the future, through our diverse mix of generating assets, years of experience, and track record of innovation and project success.

In 2014, the company closed the last of its coal generating stations, still one of the world's single-largest climate change actions to date. Building on this success, we launched our first-ever *Climate Change Plan* in November 2020, which outlines two ambitious goals:

- First, OPG commits to being a net-zero carbon company by 2040: this means implementing and investing in carbon reductions and offsets that achieve an overall balance between emissions produced and emissions removed or displaced from the atmosphere.
- Second, OPG commits to being a catalyst to help the markets where we operate achieve net-zero carbon economies by 2050: this means we will be a leading energy innovation company, advancing clean technologies and solutions like small modular nuclear reactors (SMRs).

The plan aims to address climate change in a way that will help create new jobs and support new industries that protect the environment and make our economy stronger for current and future generations.

The plan has 45 specific interim actions to be taken by 2025 in the areas of

mitigation, adaptation, innovation and leadership. Some of the key actions already underway to fulfill our climate goals include:

Small Modular Reactors

OPG is making significant advancements on the development of low-carbon SMRs, the next generation of clean nuclear power technology. SMRs offer the benefits of traditional nuclear reactors, but are smaller in size and output, more versatile, and will be easier to build.


In December 2021, OPG announced it will work with GE Hitachi Nuclear Energy to deploy Canada's first commercial, grid-scale SMR at the Darlington Nuclear site within this decade, pending regulatory approvals. In October 2021, the Canadian Nuclear Safety Commission (CNSC) renewed the Darlington New Nuclear Project's site preparation licence.

Once built, the 300 MW reactor could power about 300,000 homes, create about 2,500 jobs, and serve as a blueprint for similar SMR developments across Canada and other jurisdictions to advance global decarbonization efforts. The advancement of nuclear energy is a significant element in the fight against climate change on a world-wide basis.

Asset renewal and development

In addition to our work on SMRs, we continue to invest in renewing our existing generating assets and developing more clean generating capacity to meet our climate goals.





Ontario's electricity grid has among the lowest carbon intensity rates in the world. That's why using this clean electricity to decarbonize the transportation sector, which is responsible for about 35 per cent of Ontario's carbon emissions, is the next big climate change opportunity for the province.

Like many aspects of our ESG work and undertakings, our renewal and development of assets is good not just for the “E” but for “S” too, contributing to decent work and economic growth in Ontario and beyond.

Our Renewable Generation division is currently advancing several clean energy projects, including:

- Redevelopment of the Calabogie Generating Station (GS) in eastern Ontario will more than double the hydroelectric station's output to 11 MW from five MW.
- Replacement of two older and decommissioned units at OPG's Sir Adam Beck I GS will add about 125 MW of incremental peaking generation capacity.
- And ongoing overhauls of generating units across our hydro fleet, through an extensive \$2.5-billion turbine/generator overhaul program, will extend the lives of these durable assets.

OPG is also making efforts to grow our hydro portfolio in the U.S. and exploring opportunities for new hydro development in northern Ontario. All of these projects will ensure clean hydro power can support the province and our climate goals for decades to come.

Meanwhile, we are investing in our nuclear operations to ensure our continued low-carbon energy footprint. This includes:

- Advancing the Darlington Refurbishment project, one of Canada's largest clean energy infrastructure projects. 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 expected to be in service early 2024. The third unit, Unit 1, began refurbishment in Feb. 2022 and is set to be completed by 2025. Planning is continuing for the refurbishment of the final unit, Unit 4.
- OPG also continues to execute work required to maximize the operating life of its Pickering Nuclear GS, which continues to deliver clean, reliable power for Ontario with strong performance. OPG is planning for Pickering Nuclear's end of commercial operations by the middle of this decade.

Electrification

Ontario's electricity grid has among the lowest carbon intensity rates in the world. That's why using this clean electricity to decarbonize the transportation sector, which is responsible for about 35 per cent of Ontario's carbon emissions, is the next big climate change opportunity for the province.

Since we started the organization now known as Plug'n Drive more than 12 years ago, OPG has been leading the push for electrification. This includes launching our subsidiary PowerON Energy Solutions to provide electrification and charging infrastructure for municipal transit agencies and corporate fleets. PowerON is working with the TTC and



Toronto Hydro to electrify more than 2,400 TTC buses – 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, expected to have over 150 chargers across nearly 60 sites by the end of 2022. This includes 69 level-3 fast-chargers at all ONroute locations, further easing battery charge range anxiety.

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

Hydrogen, storage, and other climate change initiatives

Another wholly-owned OPG subsidiary, Atura Power, is leading the development of low-carbon hydrogen production in Ontario. In 2021, Atura completed feasibility studies and preliminary designs on two potential commercial hydrogen facilities. Hydrogen could reduce or offset carbon emissions by powering heavy-duty vehicles and industries like steel and cement production, and by blending with natural gas to reduce the carbon intensity of natural gas electricity generation.

OPG currently operates 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 megawatts of clean power by pumping its 750-acre reservoir full of water overnight when electricity demand is low, and releasing





Hydrogen concept image



this water for electricity generation when demand is high. We're currently exploring the development of a pumped hydro storage facility at a decommissioned mine site in Marmora, in collaboration with another Ontario company. Converting an open pit mine into an energy asset would be another first-of-a-kind project in Canada.

As part of our Climate Change Plan, we're investigating negative emissions technologies, and continuing to support nature-based solutions like tree-planting and biodiversity initiatives. All of these current and future actions will help OPG meet its climate goals and position Ontario for success in the post-carbon future.

In 2021, new governance was introduced to help OPG deliver its Climate Change Plan. It includes the Management of Climate Change standard, which establishes roles and accountability for the plan. And we established the Climate Change Working Group and Climate Plan Steering Committee to oversee and implement the Plan's actions.

Climate change adaptation

In the face of extreme and unpredictable weather events caused by climate change, OPG is increasing our resilience and adapting our operations to ensure the ongoing reliability of our generating facilities.



Smoky Falls Dam Safety Project

Changes in precipitation patterns and intensity, and water and air temperatures, could pose physical risks to our operations. Potential impacts could include sub-optimal power production at our hydroelectric stations, as well as potentially affecting the reliability and life expectancy of major equipment.

We are taking a number of actions to adapt and enhance resilience in our operations, including:

- Continuing to evaluate potential risks, increasing data collection, and developing modelling to better understand the range of potential climate impacts on our business and identifying opportunities to increase resilience.
- Upgrading important infrastructure, including through the Little Long and

Smoky Falls dam safety projects, which will help OPG comply with updated requirements by the Province and protect our generating assets and host communities against climate impacts.

- Investigating nature-based protection measures like developing wetlands to help mitigate flooding.
- Integrating climate-related risks and modelling into our investment decision prioritization and engineering processes, particularly when considering future design and asset upgrades.

Managing and getting ahead of climate-related risks will strengthen the resiliency of our operations and the overall electricity system, which is the foundation for decarbonizing the broader economy.



Sustainable financing

Taking action on climate change, including the innovative initiatives described in the pages of this report, is capital-intensive. So as OPG strives to become a clean energy and ESG leader, the company has also 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 containing a third-party sustainability-linked feature. The sustainability targets for these credit facilities include: serious injury incidence rates; renewable facilities capacity increases; tree planting levels; and electric charger installation levels. In 2020, OPG became the first Canadian utility to establish a sustainability-linked credit facility. Our performance in these sustainability metrics could result in lower or higher costs of maintaining or using the credit facilities.

OPG is an industry leader in our use of green bonds to finance clean, low-cost power projects that offer tangible environmental benefits. In 2018, we became the first Canadian utility to issue certified green bonds, and we were Canada's largest corporate issuer of green bonds as of the end of 2021, with total issuance of \$2.5 billion.

Clean Energy Credits

Clean Energy Credits (CECs) are 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. They are essentially “proof” that a particular megawatt hour of electricity was generated from a particular generation source, giving the owner of the CECs a line of sight to the generation resource connected to the grid.

CECs play an important role in corporate emissions reporting, and creating signals to incent development of new clean generation and to attract new economic activity to the province.

OPG offers CECs from its portfolio of clean, low-emitting assets including hydroelectric and nuclear. Given the growing interest in environmental attribute products, in the fall of 2021, OPG launched a pilot program to gauge market interest in these voluntary products.

OPG recognizes and supports transparency in reporting environmental products and performance, and includes CECs in its ESG and Sustainability Performance Data on opg.com.



Decew Measuring Weir



Greenhouse gas emissions

Greenhouse gas emissions are categorised into three groups or ‘Scopes’ by the most widely-used international accounting tool, the Greenhouse Gas (GHG) 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

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, France, and Germany. In 2020, over 97 per cent of Ontario’s greenhouse gas (GHG) emissions came from other sectors.

In Ontario, natural gas generation plays an important role in the transition to a clean energy future. It is flexible and provides electricity system stability and reliability. It is 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. Reducing GHG emissions from our operations is central to our efforts to be a climate change leader.

OPG’s Scope 1 GHG emissions metric identifies direct carbon dioxide

equivalent (CO₂e) emissions from OPG’s thermal and nuclear 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. Figure XYZ below is a summary of OPG’s Scope 1 and Scope 2 emissions for 2021 and prior. Figure ZYX presents OPG’s GHG emissions intensity for 2021 and prior. OPG has recently engaged EcoVadis to conduct ESG evaluations throughout our value chain. This work will help determine a baseline for, and then ultimately reduce, Scope 3 emissions.

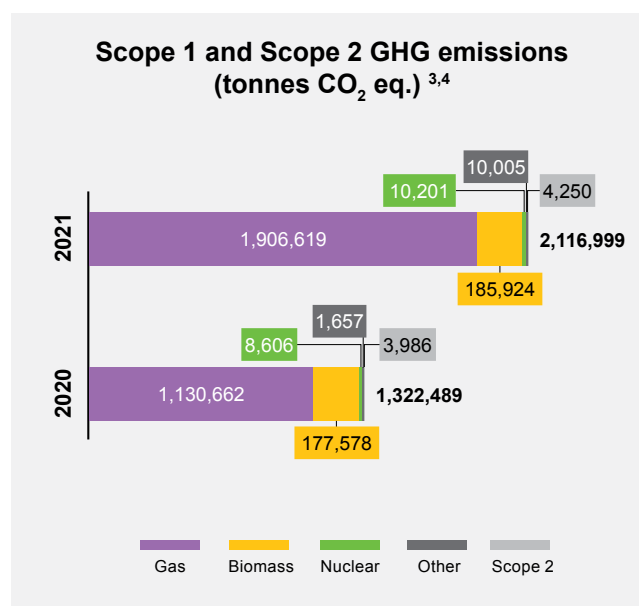
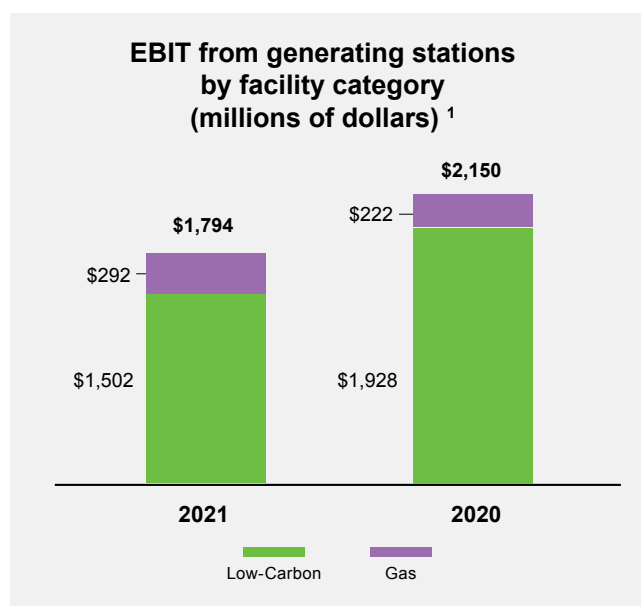
The increase in Scope 1 emissions and emission rate in 2021 was primarily due to a full year of commercial operations after the acquisition of combined-cycle plants in April 2020 by OPG’s subsidiary Atura Power, and year-over-year stronger market fundamentals resulting in an overall increase in gas generation supply. Atura Power is now pursuing opportunities to reduce GHG emissions at its facilities where technologically and economically feasible.

In 2021, our in-service generating capacity from low-carbon emitting sources (nuclear, renewable, and biomass generation) increased compared to 2020 due to the acquisition of the 48-megawatt Racine hydroelectric station by our subsidiary, Eagle Creek Renewable Energy.

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

Summary of Scope 1 and 2 GHG Emissions, and GHG Emissions Intensity

Indicator	2021	2020	2019	2018	2017
Scope 1 Greenhouse Gas Emissions includes emissions from stations operating under the subsidiary Atura Power					
Total carbon dioxide equivalent (tonnes)	2,112,755	1,318,502	506,060	581,922	455,050
Thermal – Atikokan Generating Station	185,924	177,578	168,305	181,518	187,314
Thermal – Brighton Beach Generating Station	62,269	23,514	20,800	47,716	25,821
Thermal – Halton Hills Generating Station	740,815	255,043	-	-	-
Thermal – Lambton Generating Station	-	-	-	-	266
Thermal – Lennox Generating Station	81,081	66,945	83,725	118,139	130,196
Thermal – Napanee Generating Station	404,196	481,194	-	-	-
Thermal – Portlands Energy Centre	618,258	303,966	224,256	219,738	94,211
Thermal – Thunder Bay Generating Station	-	-	1,102	2,697	6,047
Nuclear	10,201	8,606	7,872	12,115	11,194
Other facilities and sources	10,012	1,657	Not reported	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	27.2	16.1	6.5	7.9	6.1
Carbon dioxide equivalent (tonnes/GWh-net) – Thermal	445	475	647	691	1,012
Scope 2 Greenhouse Gas Emissions includes emissions from stations operating under the subsidiary Atura Power					
Carbon dioxide equivalent (tonnes)	4,250	5,981	3,478	Not reported	Not reported



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 the Company's combined cycle plants operated through Atura Power.

² Scope 1 and Scope 2 emissions include OPG's proportionate share from co-owned facilities, as applicable.

³ OPG continues to evaluate and enhance its Scope 1 and 2 GHG emission sources and qualification processes.



Environmental compliance

OPG must comply with a large number of environmental requirements contained in statutes, regulations, bylaws, licences, permits, and approvals. The company considers regulatory compliance to be a minimum, non-negotiable standard. We strive to continually improve performance and, where appropriate, exceed our environmental obligations and commitments.

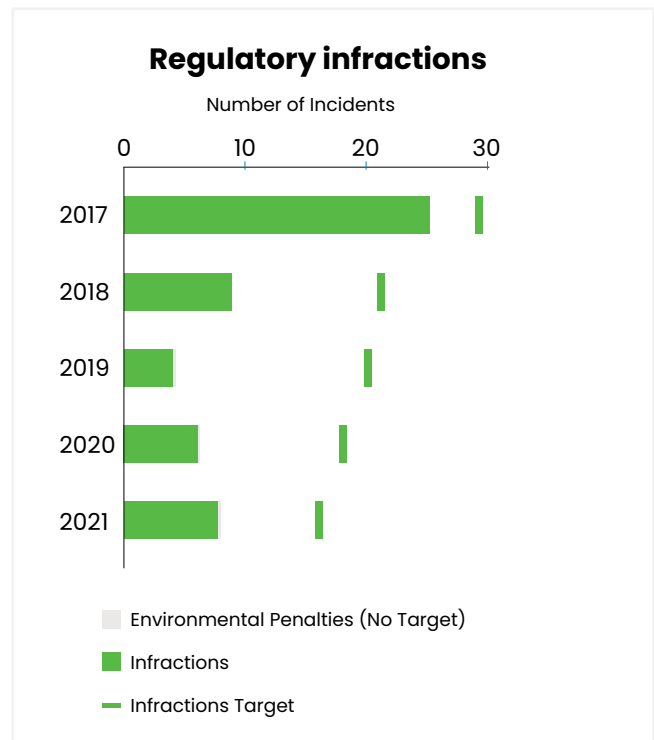
OPG has an Environmental Management System (EMS) as the framework to meet our compliance obligations, establish objectives, and maintain control of the environmental aspects of our operations. We regularly review our compliance obligations to identify new or changed requirements, and we carry out annual environmental compliance audits.

Non-compliance with environmental regulatory requirements are classified based on the potential for regulatory action (i.e. charges, orders, penalties), and the level of impact to the environment or human health. All infractions are reported to the appropriate federal, provincial and/or municipal authorities as required.

In 2021, OPG met its internal target of zero significant environmental infractions, and identified eight moderate infractions, which was better than target. OPG performed better than target in each of the last five years and OPG's most frequent type of moderate infraction over the past five years was non-compliance with effluent monitoring requirements administered by the

Ontario Ministry of the Environment, Conservation and Parks (MOECC).

The company did not receive any charges or environmental penalties from a regulatory authority in 2021. In setting our targets, OPG reviews past performance and future potential impacts, while also promoting continual improvement.



Year	Moderate Infractions	Target	Environmental Penalties
2017	5	29	0
2018	9	21	0
2019	4	20	0
2020	6	18	0
2021	8	16	0



Darlington Nuclear





Atikokan Biomass Generating Station

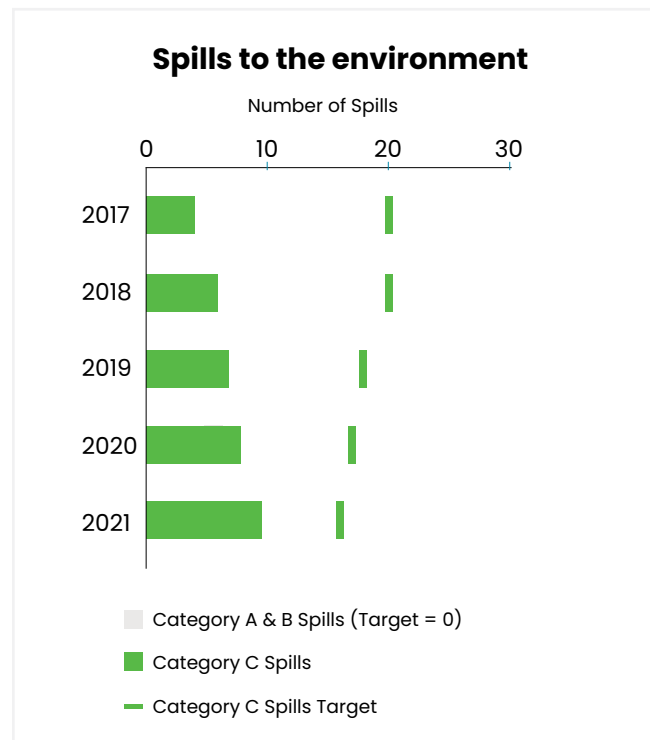
Spills management

OPG has extensive spill management programs to prevent spills of pollutants to the environment and to minimize their potential consequences.

Spills are prevented through risk assessments, material management practices, leak detection and repair, and the use of spill containment tools and structures. When a spill does occur, emergency response processes minimize any adverse impacts on the environment and reporting procedures ensure regulatory authorities are notified as required.

We classify reportable spills based on the actual or potential impacts to plants, animals, human health and safety, conduct of business, and use of property: Category A spills are considered very serious; Category B spills are considered serious; and Category C spills are all other spills that are less serious than Category A and B spills. The categories align with the MOECC's regulatory requirements for the classification of contraventions.

In 2021, OPG had no Category A or B spills and Category C spill performance was better than target with 10 spills. In the past five years, OPG had no Category A or B spills and Category C spill performance was better than target. In the last five years, oil leaks from equipment have been our most common type of Category C spill.



Year	Category A Spills	Category B Spills	Category C Spills	Category C Spills Target
2017	0	0	4	20
2018	0	0	6	20
2019	0	0	7	18
2020	0	0	8	17
2021	0	0	10	16



Nuclear monitoring and protection

At our nuclear operations, OPG maintains stringent monitoring and protection systems to limit emissions from our stations to as low as reasonably achievable, in compliance with regulatory limits. We do this to protect our communities, environment, and our employees. As well, there is rigorous oversight provided by the Canadian Nuclear Safety Commission (CNSC).

Radiation protection

Protecting local residents, the environment, and our employees remains our highest priority. In the operation of any nuclear reactor, small amounts of radioactivity are released to the environment. We have a radiation protection program to ensure any releases to air and water remain as low as reasonably achievable and within regulatory requirements.

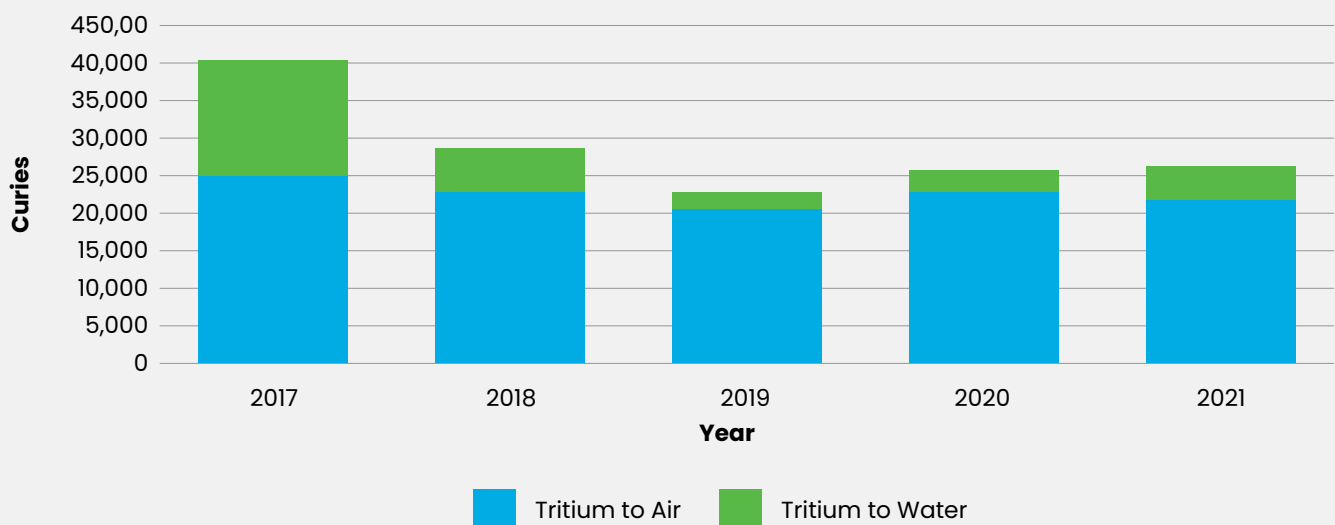
Multiple systems are in place to minimize and control radioactive emissions, including dryers to remove tritiated water vapour, ion exchange resins to remove carbon-14 emissions, and air filters to remove particulate radioactive material and radioiodine.

To promote continual improvement in this area, OPG sets rigorous internal station targets for tritium and carbon-14 emissions based on past performance and external benchmarks.

In 2021, the annual tritium air emission target improved compared to 2020, although it was not met. This was due to dryer equipment performance, an issue we are currently working to improve. Despite these challenges, emissions remained less than one per cent of legal regulatory limits.

The 2021 tritium water emission target was met. Our performance for carbon-14 emissions was better than target in 2021.

Tritium Emissions



“ The Canadian nuclear industry is one of the most closely monitored industries in the world. Major nuclear facilities are the most protected critical infrastructure in Canada. Not once has a nuclear incident caused a death in Canada. Canada’s nuclear safety record is unmatched by any other industry in the world. – CNA ”



Environmental monitoring

To ensure no adverse impacts to human health and the environment, OPG maintains environmental monitoring programs in the vicinity of our nuclear facilities. These programs are designed to assess impacts, demonstrate compliance with regulatory limits, validate the effectiveness of containment and effluent controls, and verify predictions made by environmental risk assessments.

The results from our monitoring programs confirm the impact of OPG's nuclear operations on the local population

and environment continues to be very low and well below the annual established limits.

The radioactive releases from the operation of the Darlington Nuclear and Pickering Nuclear generating stations are a very small fraction of both the annual legal limit of 1,000 microsieverts (μSv), an international unit of radiation dose measurement, and the area's estimated annual average natural background radiation dose of 1,400 μSv (radiation has always been present and is all around us in many natural forms. Many radioisotopes are naturally



Salmon fry release

occurring including within the human body). In 2021, the annual public dose for Darlington and Pickering was 0.66 μSv and 2.02 μSv , respectively.

Additionally, annual average tritium concentrations in drinking water at nearby water supply plants continue to be well below and significantly better than both the Ontario Drinking Water Quality Standard and the level committed to by OPG.



Nuclear sustainability

As nations around the world focus on addressing climate change by transitioning to cleaner sources of power, nuclear power represents an important and immediate solution for achieving low-carbon electrification and sustainable electricity grids.

OPG is a world leader in the safe, environmentally sound management of the nuclear materials and by-products produced by nuclear power generation.

Our Nuclear Sustainability Services (NSS), based in Kincardine, and with additional locations at Pickering and Darlington, leverages more than 50 years of operational experience and expertise to minimize and store nuclear by-products and plan for their effective permanent disposal. These efforts help enable the sustainability of nuclear power for the future.

Generating electricity from uranium creates three main types of by-products: used fuel, intermediate-level radioactive materials, and low-level radioactive materials. Low-level materials include protective clothing, floor sweepings, and mops and rags that have become contaminated with low-level radioactivity through use in the power plant. Intermediate-level materials can include resins, filters, and used reactor components.

Low- and intermediate-level by-products from OPG-owned nuclear plants are safely transported and stored at the NSS facility located at the Bruce nuclear site in Kincardine. Used fuel bundles are



removed from the reactor and stored in water-filled pools at each station for up to 10 years, while their heat and radioactivity decline. Afterwards, they are transferred to dry storage containers made of concrete and steel.

OPG currently stores used nuclear fuel at the Pickering, Darlington and Bruce sites. The Nuclear Waste Management Organization (NWMO) is responsible for designing and implementing Canada's long-term management plan for used nuclear fuel.

Through partnerships and innovation, OPG's NSS is working to minimize by-products to reduce our environmental footprint and lower costs associated with material processing and storage.

2021 highlights from our by-product minimization achievements include:

- Met our internal waste diversion targets across OPG.
- Worked with Laurentis Energy Partners to sort an additional 5,353 cubic metres of low-level materials for volume reduction.
- Saw a significant volume reduction via a pilot program for feeder equipment from the Darlington Refurbishment project.
- Started construction of the new Western Clean Energy Sorting and Recycling facility, which will sort and segregate low-level materials.

NSS's strategies also include safely decontaminating and/or reusing radioactive items, and incinerating or compacting appropriate low-level materials to reduce volume.

Natural Resources Canada (NRCan) is currently in the process of modernizing Canada's radioactive by-products policy with international standards and best practices. NRCan has also tasked the NWMO with developing the Integrated Strategy for Radioactive Waste (ISRW), which will identify solutions for the long-term management of both existing and future by-products. OPG is actively participating in both the NRCan and ISRW engagement processes.

Because our management of nuclear by-products uses a life cycle approach, we believe it sets a standard that can serve as a model and can be adopted by renewable technologies as well.

Nuclear by-products

Every form of energy produces waste materials or by-products. Only the nuclear industry accounts for all of its by-products, which are small in volume, safely stored, closely tracked, rigorously regulated, and well managed.

OPG has 50+ years of experience in safely handling nuclear materials. We focus on minimizing volumes, investing in innovations in sorting and processing, and emphasizing the three Rs: reduce, reuse, recycle.

Nuclear by-products can be beneficial, such as valuable isotopes used in health care for medical diagnostics, imaging and equipment sterilization.

Dedicated nuclear funds

Pursuant to the Ontario Nuclear Funds Agreement between OPG and the Province of Ontario, OPG established

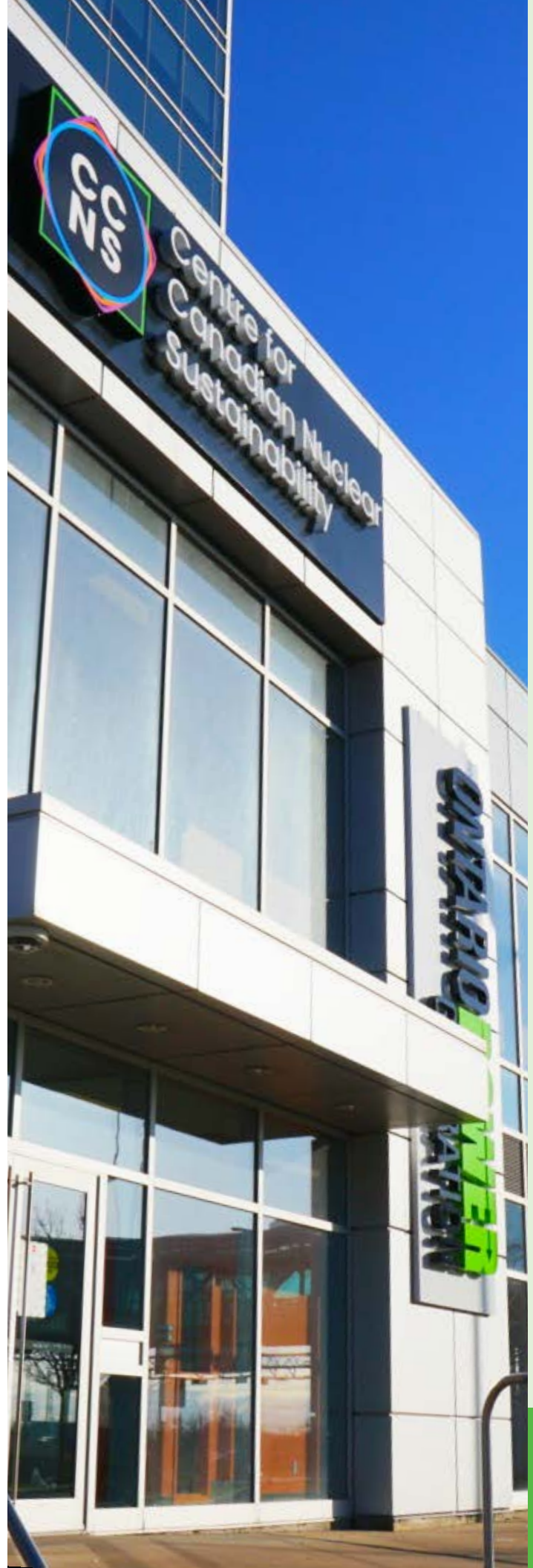
a Used Fuel Segregated Fund and a Decommissioning Segregated Fund. The funds cover future costs associated with the management of low- and intermediate-level by-products, used nuclear fuel, and the eventual decommissioning of its nuclear stations and waste management facilities, including the stations 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 is \$28 billion. The funds are growing annually through regular contributions and prudent management informed by current information and industry experience.

Centre for Canadian Nuclear Sustainability

Launched in 2020, OPG's Centre for Canadian Nuclear Sustainability (CCNS) is supporting our goal to achieve a net-zero economy by developing and promoting sustainable ways to minimize the impact of nuclear power generation, with a focus on the end of the nuclear life cycle.

The CCNS exists to make sure nuclear energy remains a benefit for current and future generations. The team is working on solving some of nuclear's most complex challenges, including decommissioning, waste stewardship and site repurposing, while bringing the same spirit of innovation to the end of the nuclear life cycle that OPG brought to building and operating its stations.

In executing a long-term plan that's focused on finding creative, innovative



technologies and tooling that can support these challenges to reduce, reuse and recycle, CCNS is collaborating with a wide range of industry partners, vendors, community members, academia, and Indigenous partners.

The organization has already grown close to 40 partners. In 2021, nine Collaboration Research Agreements were launched to study solutions for reduction, reclassification, and recycling of nuclear materials and by-products. The innovation hub is also developing efficient new tooling and techniques required for the eventual decommissioning of OPG's Pickering Nuclear station.

The ideas, techniques, and solutions developed by the CCNS and its partners will help ensure the safety of the community and environment, and further support sustainable nuclear power in Canada and around the world.

Other 2021 highlights from the CCNS include:

- Created an Indigenous Advisory Council (IAC) to provide advice and insight on how Indigenous values and content can be achieved within the CCNS mandate. Facilitated discussion between Supply Chain and the IAC on accessing opportunities for Indigenous communities.
- Hosted three virtual community events: Girls Code event in partnership with NPX and Ontario Tech University for girls age nine to 12 to learn fundamentals of coding and computer science in a fun, interactive environment; Young Entrepreneurs workshop in partnership with Ontario Tech's Brilliant Catalyst

Institute for people under 30; and a Myth vs. Fact trivia public education event to promote understanding of nuclear energy and the role it plays in Ontario's energy mix.

Biodiversity and wildlife habitat stewardship

OPG has spent decades protecting and nurturing Ontario's biodiversity. It's a fundamental part of our operations and something our employees are passionate about. Both on and off our sites, we work to enhance biodiversity and wildlife conservation with a focus on the 4 R's:

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

Over the years, we have worked with our partners to help protect and restore biodiversity and the environment, including planting more than eight million native trees and shrubs and stocking more than seven million Atlantic salmon.

We continue to contribute to biodiversity conservation through our on-site and regional biodiversity programs, which also support our *Climate Change Plan* and *Reconciliation Action Plan*. These programs focus on 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.

On-site programs

Our on-site programs aim to prevent or mitigate adverse effects to biodiversity. We are also committed to managing our sites in a way that maintains or enhances significant natural areas and protects associated species of concern.

Thanks to these efforts, OPG continues 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 2021, OPG's NSS won the "Program of the Year" award, the highest honour given to a conservation program from WHC.

Other highlights from our on-site biodiversity programs include:

- Removed extensive invasive species from OPG sites (phragmites, dog strangling vine, buckthorn), including through the use of weed-eating goats.
- Increased connectivity between our sites and neighbouring areas, creating wildlife corridors.
- Planted pollinator-friendly gardens and meadows at the NSS and R.H. Saunders GS, respectively.
- Installed a Motus Wildlife Tracking System tower at Des Joachims GS to track banded birds, bats, and insects for research studies with Birds Canada.



Helping snapping turtles through biodiversity partnership



Protecting fish

OPG employs a number of specific measures to protect fish and fish habitat that may be impacted by the company's activities. Our operations use a range of measures such as trap and transport programs, a fish ladder, stocking programs, barriers and deterring structures, water flow alterations, habitat protection and creation, 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 2021 include:

- Continued work to install and maintain 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 through the use of 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.

Regional biodiversity program

Through OPG's Regional Biodiversity Program, we help fund and promote efforts that contribute to the protection and restoration of habitat cores and corridors across Ontario

Qualified partners are funded for projects to address key biodiversity issues in the areas of reforestation, wetlands, grasslands, and lakes and rivers. We also support initiatives that contribute to biodiversity education, awareness, and ecological stewardship. Our partners include the Bruce Trail Conservancy, Earth Rangers, LEAF, Ontario Nature, and the Toronto Wildlife Centre. In 2021, OPG renewed its partnership to support 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 the year, OPG's Regional Biodiversity Program also:

- Planted 324,942 trees.
- Restored over 1,000 acres of woodlands/forests.
- Restored over 135 acres of grasslands.
- Created 45 acres of wetlands.

In the years ahead, OPG will aim to advance all of our biodiversity programs by enhancing conservation efforts on and off our sites. We're also committed to increasing our engagement with local and Indigenous communities in the areas of scientific and Traditional Ecological Knowledge, and learning and growing with our community partners.



OPG is a member of the Ontario Biodiversity Council and 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.

Nanticoke biodiversity program



Success story

A unique wetland in Prince Edward County that OPG constructed as a fisheries habitat bank is now a thriving aquatic ecosystem for several species of aquatic and terrestrial organisms. The 14.8-hectare Big Island Wetland was built in partnership with Quinte Conservation as a habitat bank for OPG's operations. Constructed with three large ponds and multiple interconnected channels, the same area now hosts numerous fish species, diverse aquatic vegetation and other wildlife, including some at-risk species.

Beyond helping counterbalance the impacts of OPG's operations, the wetland is a nature-based climate solution that offers other biodiversity, carbon sequestration and socio-economic benefits to the region.

Water management

Throughout the year, OPG works with government agencies, scientists, municipalities and, most importantly, nature, to predict conditions and manage river systems for the safety of the community and the environment.

In Ontario, we operate 66 hydroelectric stations and 241 dams on 24 river systems. Many of these structures are used to control or adjust water levels and flows in accordance

with provincial and federal laws, as well as water management plans, commitments, and treaties.

In the United States, OPG owns and operates 87 hydroelectric stations on 50 river systems in 18 states through its subsidiary, Eagle Creek Renewable Energy. 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, among others.

At all of our hydro operations, regulating levels and flows helps to:

- Maintain water levels for recreational, commercial or other water-based activities.
- Mitigate and prevent flooding in many watersheds.
- Prevent shoreline erosion and damage to infrastructure.
- Reduce impacts to fish.
- And prevent damage to aquatic and terrestrial habitats.

We use hydrological models, weather forecasts, satellite imagery, weather station data, and other tools to manage water levels, flows, and water storage. OPG is investing in new data management and forecasting systems to help adapt our water management strategies as the climate changes and optimize hydro electricity production.

In managing water levels and flows across Ontario, we work with many municipalities and organizations, including the Ontario Ministry of



Measuring snow pack

Northern Development, Mines, Natural Resources and Forestry, the Ottawa River Regulation Planning Board, and the International Lake Ontario-St. Lawrence Board of the International Joint Commission. During periods of exceptionally 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 variations in water levels from flooding in 2019 to drought conditions in 2021. OPG is focused on building a resilient and adaptable fleet of assets to manage within these extremes.

As we prepare for the potential impacts of climate change on our facilities and the community, OPG continues to grow our efforts to educate the public through our microsite, opg.com/water, townhall meetings, and local outreach. We will continue to work with communities, regulators, and stakeholders to develop operational solutions in an effort to minimize these impacts and develop improved forecasting tools to improve our long-term decision-making.





Peter Sutherland Sr. Hydro Generating Station

Social pillar

OPG understands that our licence to operate depends on maintaining strong relationships based on trust and openness. Building these relationships includes meeting the environmental, social, and economic expectations of Indigenous communities, site communities, and our many stakeholders. We take these expectations seriously and strive to be a good neighbour, partner, employer, and upstanding corporate citizen. Through ongoing and meaningful partnerships and relationships, and by fostering a healthy, safe, and diverse workplace, we are not only establishing a better OPG, but a better future for all.

Indigenous reconciliation and relations

As an owner and operator of electricity generation assets within the treaty and traditional territories of Indigenous Peoples across Ontario, OPG is committed to working with Indigenous communities to foster positive and mutually beneficial relationships. Through partnership and collaboration, we work to create lasting social and economic benefits, and relationships based on a foundation of respect, transparency, and mutual responsibility. OPG's Indigenous Relations Policy and [Reconciliation Action Plan](#) formalize our commitment, innovation and project success.



Advancing Reconciliation

In October 2021, OPG launched its first-ever Reconciliation Action Plan, which will guide our work with Indigenous communities, businesses, and organizations to grow economic benefits, increase Indigenous representation across OPG, and meaningfully advance Reconciliation.

This Plan builds on our long-standing commitment to create meaningful economic development opportunities for Indigenous Peoples and communities, and is a direct response to the Truth and Reconciliation Commission's Call to Action #92, which specifically urges corporate Canada to adopt the Reconciliation framework to create a better future.

As part of our Plan, OPG commits to growing our economic impact for Indigenous communities and businesses to \$1 billion over the next 10 years through our ongoing operations,



Pillar	Goals
Leadership	Commit to reconciliation as a journey and track progress on accountability
Relationships	Build positive and mutually beneficial relationships
People	Create an engaged and inclusive workforce that reflects the broad diversity of Indigenous communities
Economic Empowerment	Advance economic reconciliation through meaningful engagement, collaboration and partnership
Environmental Stewardship	Be a trusted partner in environmental stewardship



"Ode to the Canoe" by Patrick Hunter

As part of our Plan, OPG commits to growing our economic impact for Indigenous communities and businesses to \$1 billion over the next 10 years through our ongoing operations, projects, and initiatives.

projects, and initiatives. We will enhance Indigenous procurement, increase Indigenous representation across OPG, strengthen environmental stewardship, and improve understanding of Indigenous culture, history, and perspectives within OPG.

Progressive Aboriginal Relations

We're already making progress on our goals. In August 2021, the company was awarded Gold designation from the Canadian Council for Aboriginal Business' Progressive Aboriginal Relations

(PAR) program, confirming our leadership in Indigenous relations.

PAR Gold companies demonstrate sustained leadership in Indigenous relations and a commitment to working with Aboriginal businesses and communities through innovative programs and engagement, as determined by a jury of Indigenous professionals.





We've also 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.

Leading through partnerships

For many years now, OPG has worked to build relationships and to develop and finalize settlement agreements with 21 First Nation communities. We've also 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 per cent interest. This partnership has been used by OPG as a model for our subsequent clean energy partnerships.
- Lower Mattagami River Hydroelectric Project (2010) with the Moose Cree First Nation, owner of 25 per cent 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 per cent and 5 per cent 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.

Making a positive impact

With the pandemic still underway, 2021 was another difficult year for so many Ontarians and Indigenous communities. In addition to supporting a number of initiatives under our Corporate Citizenship Program, OPG provided emergency food relief support directly to our partner and neighbouring Indigenous communities and through a regional food distribution hub.

A total of \$523,000 in community investments were made for 35 Indigenous initiatives, including:

- \$435,000 in COVID-19 emergency food relief to Indigenous organizations and communities.
- \$5,000 provided to Science North for their Indigenous STEM programming for 2021-22, which includes virtual workshops for students and teachers from Northern Ontario communities.
- \$20,000 contributed to Indspire's Soaring: Virtual Indigenous Youth Empowerment Gathering with more than 400 student participants.
- \$2,400 to assist in providing meals and essentials for Akwesasne members located in the Cornwall community experiencing insecure housing.

OPG is continuing to support promising Indigenous students through the John Wesley Beaver Scholarship Awards. In January 2021, the company signed a three-year agreement with Indspire to assume administration of the annual awards. As part of this agreement, we contributed \$100,000 for the awards, an investment that was matched by the



Government of Canada to raise the scholarship fund to a total of \$200,000.

Our partnership with Indspire has increased the scholarship award to \$10,000 from \$5,000, and increased the number of scholarships awarded each year to six in 2021 from two in prior years. This will be increased to eight awards in 2023. The first six scholarship winners were selected in October 2021.

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 Indigenous Opportunities Network (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 child care.

In 2021, ION surpassed its annual target by 30 per cent with 26 successful job placements. Since its launch in 2018, ION has placed more than 68 Indigenous candidates in job roles within OPG along with its partner vendors and unions.

Also in 2021, as part of the ION program, OPG helped launch a new Introduction to Millwrighting Training program created by the Millwright Regional Council of Ontario. The program welcomed its first

eight Indigenous candidates in October 2021 at the Darlington Energy Complex, with each undergoing six weeks of training focused on safety and instruction in the millwright trade. All eight candidates successfully graduated to officially become millwright apprentices.

Success story

Sami Jewer was one of eight graduates of the new Introduction to Millwrighting training program. After graduating in the fall of 2021, she immediately started working at OPG's Darlington Nuclear Generating Station as a millwright apprentice with contractor E.S. Fox.

Before this, she had spent about five years in the film industry, helping to coordinate music videos and commercials. She decided on her career shift after learning about OPG and the skilled trades through her boyfriend and his family, and coming across OPG's Indigenous Opportunities Network program.

"This has been a complete change for me, but it's all for the best," said Jewer, who is Ojibway and hails from the Chippewas of Nawash Unceded First Nation near Cape Croker. "I jumped on the millwright opportunity as my boyfriend comes from a family of millwrights, and I liked the stability of the trade and working in a very safe environment like Darlington."



ION program participant Sami Jewer

Human capital – our people

OPG’s people are our greatest asset and essential to our success as a company. Their dedication, commitment, and talent are the foundation of our present and future success as a company. That’s why our number one priority remains the health and safety of all of our employees. Our goal is to foster a workplace that’s welcoming and safe, and to build a healthy, engaged, inclusive, and safety-minded workforce.

Employee health and safety

The company is committed to employee and contractor safety with the ultimate goal of zero injuries. Our safety excellence starts with our strong safety culture, which has been recognized through a number of industry awards over the years.

In 2021, our strong safety culture was recognized with a Canadian Electricity Association President’s Award for Occupational Health and Safety, with



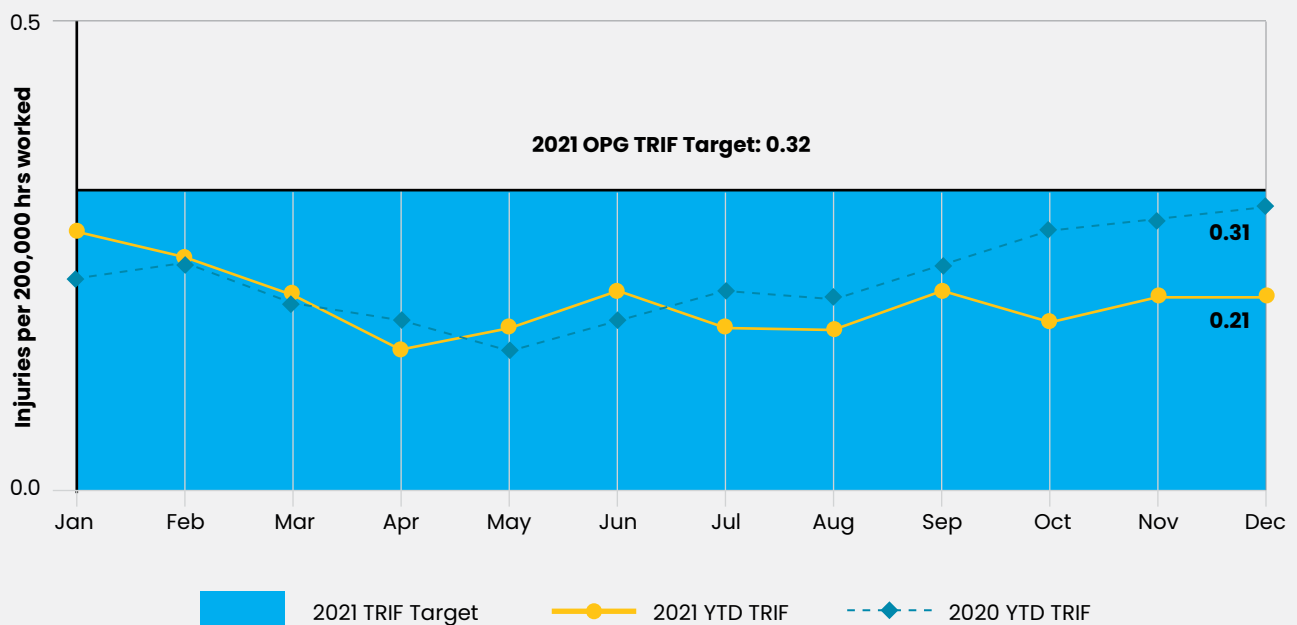
a top ranking in safety performance compared to peers. And OPG's Vice President of Environment, Health and Safety, Aaron Del Pino, was awarded Pandemic Leader of the Year by Electricity HR Canada. Our commitment to safety excellence includes a framework of standards and procedures, mechanisms for continual improvement, transformational cultural initiatives, and a team-oriented approach. Our workplace safety performance is measured using two primary metrics:

- **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 2021, OPG met challenging business plan targets with 0.02 SIIR against a target of 0.02.

- **Total Recordable Injury Frequency (TRIF):** In 2021, OPG's TRIF of 0.21 was the best-ever performance since the company's inception in 1999 and better than its target of 0.32. There were 20 injuries in the year, which was better than the 28 injuries reported in 2020. The consolidated weighted average, including both Atura Power and Eagle Creek subsidiaries, was 0.23 as set out in OPG's year-end MD&A.

Additionally, OPG recorded its best safety performance in our spring 2021 outages at both Pickering and Darlington GS and the best-ever safety performance in our Renewable Generation division. The Darlington Refurbishment project's contractor safety performance remains significantly better than the Ontario construction sector average.

OPG Total Recordable Injury Frequency (TRIF)





Darlington mock reactor





Throughout 2021, OPG made it a priority to provide education, awareness, and resources to help employees and their families navigate these challenging times with mental health supports.

To strengthen its safety performance, OPG has implemented a “Fail Safe” strategy to build stronger safety defenses. Approaches to safe work planning, learning from events, employee engagement, and education and communication are being continuously strengthened to reinforce safety as a foundational element of the company’s values-based culture. Additionally, employee safety has been identified as a key element of OPG’s sustainability-linked credit facilities demonstrating our commitment to employee safety.

Mental health support

A 2021 survey by the Canadian Mental Health Association found the pandemic’s strain on the mental health of Ontarians reached an all-time high. Only one third of respondents reported feeling good about their mental health. Throughout 2021, OPG made it a priority to provide education, awareness, and resources to help employees and their families navigate these challenging times with mental health supports.

Some of our initiatives included:

- Enhancements to our Employee and Family Assistance Program and absence management.
- Continuation of mental health first aid training.
- Nine webinars with guest speakers on a wide variety of mental health topics.
- 13-week meditation and mindfulness sessions.
- Three mental health town halls.
- Development of a new mental health in the workplace computer-based training program.

In recognition of our support of employees’ mental health and well-being during the pandemic, OPG received a Pandemic Heroes award under the Essential Service Employer category. This national award was created in partnership with Ontario Shores Centre for Mental Health Sciences, the Canadian Mental Health Association and the Mental Health Commission of Canada.

Mental health will continue to be a focus for OPG in 2022 as the company reviews its existing framework and ensures alignment with the CSA Standard, Psychological Health & Safety in the Workplace.

Employee development

OPG aspires to be a company where employees at all levels have opportunities to grow and thrive by expanding their skills and knowledge. We also want our people to be engaged, valued, and proud of the work they do.

A number of programs are in place to enhance 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. Other initiatives include our annual charity campaign and numerous events that celebrate OPG’s cultural diversity and promote an inclusive workplace.

We have an active and robust employee development program and succession planning process. Employee development is a shared responsibility





Employee development is a shared responsibility between each employee, their leader, and OPG. Through individual development plans, employees can focus on advancing a skill, behaviour, ability, or area of knowledge important to both the employee and the company.

between each employee, their leader, and OPG. Through individual development plans, employees can focus on advancing a skill, behaviour, ability, or area of knowledge important to both the employee and the company. The plan can focus on both short-term learning actions and long-term career goals. Development is achieved through work experiences, feedback, relationships, and training. OPG also offers leadership development programs to help leaders at all levels to learn, grow and ultimately step into progressive leadership positions within the company. Leadership development includes

training that is provided internally by OPG and by external facilitators.

Labour relations

Fostering positive labour relations by working cooperatively to resolve issues in the best interests of our employees, our business operations, and the Province, is an important focus for OPG. As at Dec. 31, 2021, approximately 86 per cent 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.

OPG works closely with these parties to ensure reliable operations and business continuity.

In 2021, OPG and the Society received the final arbitration award for the renewal of the collective agreement. In early 2022, OPG commenced negotiations with the PWU on its new collective agreement. The company remains committed to achieving a fair and reasonable outcome for employees that also recognizes the operational needs of the company.

With the coming end of commercial operations 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 being transparent and clear with employees and working with our union partners as we navigate this process.

Equity, diversity, and inclusion

Continuing efforts to accelerate our leadership in equity, diversity, and inclusion (ED&I) remains critical to building a better OPG and a better society. We know companies with equitable, diverse, and inclusive cultures have better discussions and make better decisions in environments where everyone can work safely and to their full potential every day.

To build on our promise to accelerate equity, celebrate diversity, and foster a culture of inclusion, and as part of a formal commitment endorsed by our Board, OPG launched our 10-year ED&I Strategy internally in 2021 and publicly

OPG launched our 10-year ED&I Strategy internally in 2021 and publicly in 2022. The Strategy will serve as our roadmap to become one of Canada's Best Diversity Employers by 2023 and a global leader in ED&I best practices by 2030 per the Global Diversity, Equity & Inclusion Benchmarks.

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In addition to these two external benchmarks, our plan identifies four areas of focus (Foundation, People, Connection, Community), 15 strategic ED&I priorities, and nearly 100 initiatives planned between 2020 and 2030. The Strategy will help the entire organization hold ourselves accountable, measure our progress, and ensure advancement. You can learn more or download the full ED&I Strategy here.

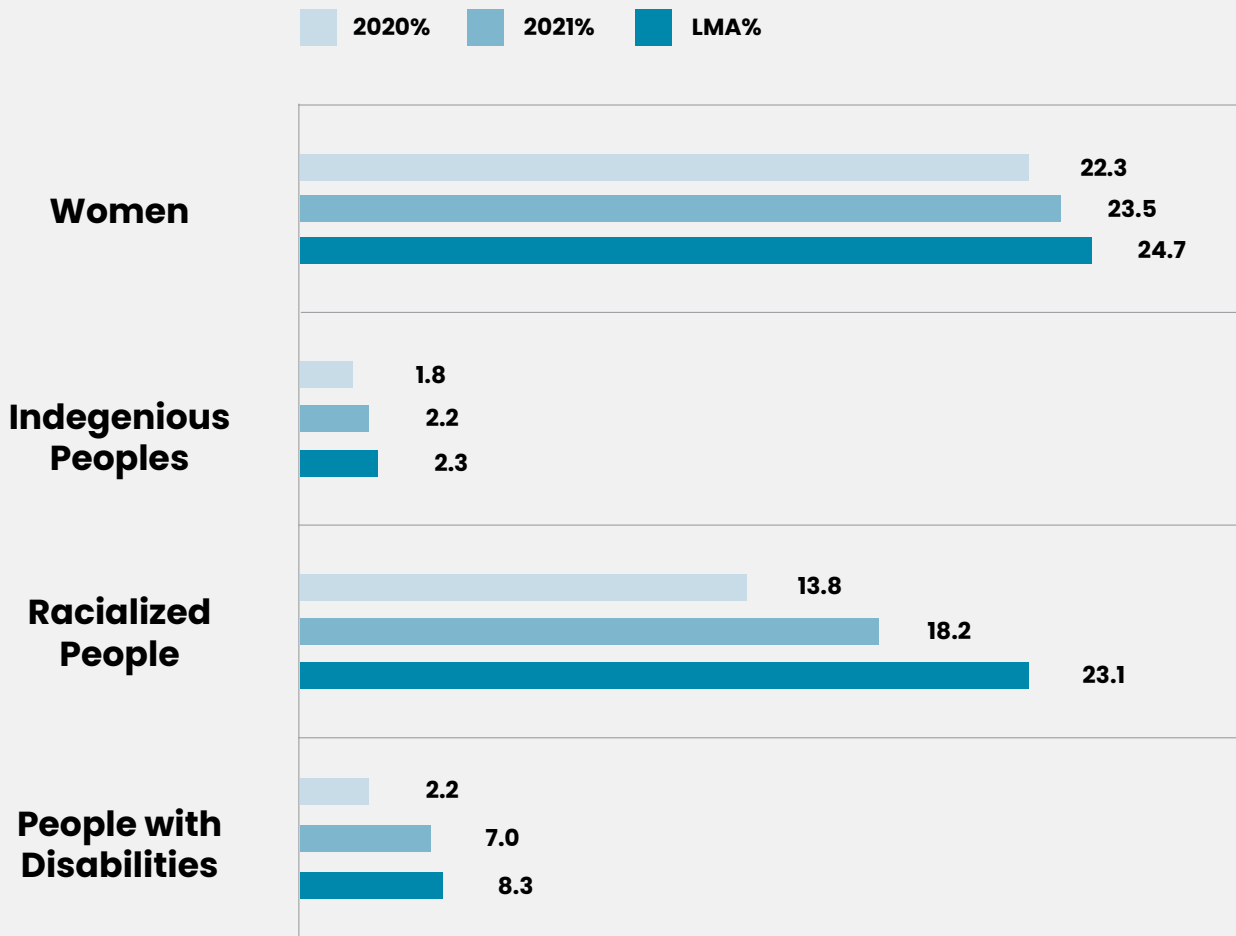
To meet our goals, we will continue to proactively identify and eliminate unintended systemic barriers within OPG through training, policy review and changes to business practices, including hiring and advancement processes. We will help lead the change in our industry. In February 2022, we became BlackNorth's founding partner in the launch of a recruitment platform to promote employment opportunities in STEM for racialized candidates. In recent



years, OPG co-founded the Nuclear Against Racism initiative to address racism in our industry, partnered with the United Way of Greater Toronto to support their Black, Indigenous, People of Colour Equity Fund, and became a member of 30% Club Canada, which aims to increase female representation across Canadian businesses.

Our ED&I results

OPG is already seeing a yield from our ED&I efforts across the company. We are making significant progress towards reflecting the communities in which we operate. We have one of the most gender and overall diverse Board of Directors in our industry and more than half of our executive team members are women. Of our total workforce in 2021, women made up approximately 23.5 per cent and Indigenous Peoples about 2.2 per cent, both of which were close to our labour market availability.





Interior of OPG head office





Pickering's first-ever all-women led crew

Additionally, a review of OPG's 2018-2021 Nuclear Employment Equity Plan found that approximately 90 per cent of employment targets were met, indicating progress in the hiring, retention and advancement of historically marginalized populations.

To improve our employment equity data, OPG launched a redesigned workforce employment equity census in 2021. More

employees completed the census in the first six months than in the previous 10 years. This vastly improved the quality and quantity of demographic data and contributed to significant gains in workforce representation across the four designated groups (women, Indigenous Peoples, racialized people, and people with disabilities). In addition, this improved data is enhancing our ability to embed ED&I in our recruitment and



succession planning processes.

Education and training are a cornerstone of our ED&I program. In addition to regular training programs on topics ranging from human rights to bystander intervention, OPG maintains a library of micro lessons and resources covering a range of ED&I topics to further inform and develop ED&I awareness at all levels of the organization.

Success story

History was made at OPG's Pickering Nuclear Generating Station on the March 17, 2022, night shift with the first-ever, all-women led crew ensuring the effective and safe operation of Pickering's six units.

At the helm that milestone night were Shift Managers Julie Thrasher and Krista Huszarik, who oversaw the entire station's operations, and Control Room Shift Supervisors Sara Rasouli and Kasia Carisse, who were responsible for managing the authorized nuclear operators in the plant's two control rooms.

"It just shows that we are getting more women involved in not just leadership roles in nuclear, but also in leadership roles across OPG," said Julie Thrasher, who oversaw operations that night for Pickering Units 5 to 8. "For this shift to happen as it did and to be a part of it, it felt very humbling and very surreal."

In 2022, we will continue to build on the ED&I Strategy and take proactive steps to increase the representation, inclusion, and success of designated group members. To this end, OPG will provide leaders with employment equity data to inform business decisions and continue to offer ED&I training and education to employees, including anti-racism training.

Ensuring safe operations during COVID-19

Through the second year of the pandemic, OPG and our employees continued to work safely and with vigilance to protect our colleagues, families, and communities. Thanks to their dedication and effort, we continued to provide a reliable supply of power at a time when Ontarians needed it most.

To limit the spread of infections in our workforce and ensure stable operations across our company, the company implemented a number of protective measures that helped limit the impact of COVID-19 on our employees and operations.

Keeping our communities safe

Nuclear safety

OPG believes there is no such thing as being too prepared.

Our nuclear safety and emergency preparedness program is designed to ensure the company can manage an emergency in a timely and effective manner. A comprehensive emergency preparedness plan is in place to protect employees and the public, the environment, property and assets, and ensure operational continuity in the very unlikely event of a nuclear emergency.

In 2021:

- OPG's Security and Emergency Services staff continued to provide 24/7 emergency response coverage at the Darlington and Pickering nuclear stations.
- OPG, along with regional, provincial and municipal emergency preparedness groups, distributed 150,000 emergency preparedness kits to residents and businesses within 10 kilometres of the Darlington and Pickering stations.
- 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.





Both OPG's Darlington and Pickering nuclear stations employ many lines of defense to reduce the chance of an accident. These systems are monitored by the CNSC. In the unlikely event of an accident, further measures are in place to reduce any harm to the community.

Through emergency preparedness exercises, OPG ensures that responses to any given number of emergency scenarios are tested on a regular basis. And each government emergency management office has pre-established and well-rehearsed plans to protect the public.

- OPG's Nuclear Power plants – Ensuring public and employee safety is OPG's number one priority.
- Our nuclear stations are designed to be robust in guarding against a wide range of risks and hazards.
- The Canadian approach to reactor safety is "Defense in Depth."
- 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 and the public.





Monitoring water levels

- 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 three 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 Canadian Nuclear Safety Commission Standard and consistently demonstrate the overall risk to the public is very low. OPG continues to meet industry best practices through periodic updates to account for operating experience and changes at the station.

Water safety

In Ontario, OPG operates 66 hydroelectric stations and 241 dams on 24 river systems. Water levels and flows near hydro stations and dams can change rapidly through natural conditions, and with little or no warning creating dangerous flowing waterways and currents.

OPG staff work closely with partners in site communities to promote public safety around our dams and hydroelectric stations. OPG properties and facilities are clearly marked with warning signs, and barriers are in place to prevent access. For the past 14 years, the company has been running a multi-

platform water safety public education campaign stressing the message to stay away from hydro dams and stations.

We regularly research, measure, and hone our campaigns to ensure the message is reaching our target audience. Unfortunately, people still risk their lives, especially to fish in dangerous places. The 2021 campaign included an intentionally provocative video that depicted the potentially severe consequences of such behaviour through stark imagery. The fishing community was consulted and continues to be a valued partner in our education efforts.

Dam safety and emergency response

- OPG is proud of its reputation as a world leader in dam safety. Our hydro stations and dams are diligently inspected, assessed, monitored and maintained according to Canadian Dam Association standards.
- In our host communities, we work closely with local stakeholders including conservation authorities and provincial agencies on emergency planning, watershed management and flood response.
- We meet 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. Emergency responders also participate in drills to practice those procedures.
- Of note, neither OPG nor its predecessor company Ontario Hydro have ever experienced a dam failure.



Supply chain management

OPG's supply chain organization supports the company through the cost-effective acquisition and timely availability of materials and services for the nuclear business, renewable generation business, and corporate groups. Innovation is ongoing, from analysis to implementation. Our supply chain processes are consistent with approved financial management and control standards, and all applicable legal requirements. OPG procures in excess of \$2.7 billion a year in materials and services for operations, as well as projects.

Suppliers and contractors who wish to do business with OPG must be pre-qualified based on a demonstration of their ability to manage quality, health and safety, and environmental aspects, in addition to satisfying technical and commercial requirements. We have also developed our Supply Chain Cyber Security Risk Management Plan.

Recently, OPG has established a Supplier Diversity program and spend targets, which encourages procurement from diverse vendors and supplier partnerships with businesses owned and operated by equity-seeking group members. We have also developed targets to increase supplier partnerships with Indigenous-owned businesses in line with our Reconciliation Action Plan. These programs represent an important building block in the development of a sustainable and diverse supply chain with direct impact on economic empowerment for marginalized people.

Contracts are awarded following OPG's established procurement activity procedures. OPG's suppliers are expected to ensure full compliance with OPG's Supplier Code of Conduct and Code of Business Conduct in their business dealings with OPG. Certain suppliers may also be subject to OPG audits or 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. We also have strong working relationships with our Indigenous suppliers, providing jobs and training to local Indigenous communities.

OPG has recently engaged EcoVadis to conduct ESG evaluations through our value chain, beginning with our key suppliers. Suppliers will be 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; anti-competitive practices; corruption; and environmental practices. This work will also help determine a baseline for, and then ultimately reduce, Scope 3 emissions. In 2021, our Chief Supply Officer wrote to our valued suppliers outlining OPG's Climate Change Plan, Indigenous engagement in procurement, and equity, diversity, and inclusion plans. This letter establishes OPG's expectations around ESG for our supply chain as we move towards a sustainable future.



Protecting critical infrastructure

A continuous, reliable supply of electricity is critical to modern life. There are potentially high societal costs from major disruptions to electricity infrastructure, which include OPG's critical infrastructure. Disruptions can be caused by extreme weather events, natural disasters, and cyber-attacks.

Risk management for cyber security begins at the Board level with the Board of Directors' Cyber Security Policy. The Policy requires OPG to operate our information and operational technologies (the latter including the critical infrastructure of our generating facilities) in a secure, vigilant and resilient manner that minimizes cyber risks to both technologies. OPG has a robust and comprehensive cyber security program that pursues continuous improvement through monitoring, intrusive testing, benchmarking, and collaborating with external partners and experts.

Our operational and informational technologies are established in such a way to protect OPG's critical infrastructure. Employees are required to take regular cyber security training and are regularly tested on their knowledge. Since cyber risks continue to evolve and increase in complexity, OPG is continuously investing in cyber security talent, implementing best practices and standards, and advancing overall security management capabilities.

Community engagement and giving

With generating stations from Kenora to Cornwall, OPG has the privilege of operating in communities across Ontario. We are committed to being a reliable community partner and good neighbour who contributes to community strength and well-being. One way OPG demonstrates this commitment is through our Corporate Citizenship Program (CCP).

Since 1999, the CCP has provided community investments, both charitable and non-profit, and supported grassroots initiatives in the host communities where we operate.

The CCP focus areas are: Education, Environment, Community (Arts and Culture, Youth Amateur Sport, Health and Safety, Humanitarian and Local Community Causes), which also includes support of Indigenous initiatives.

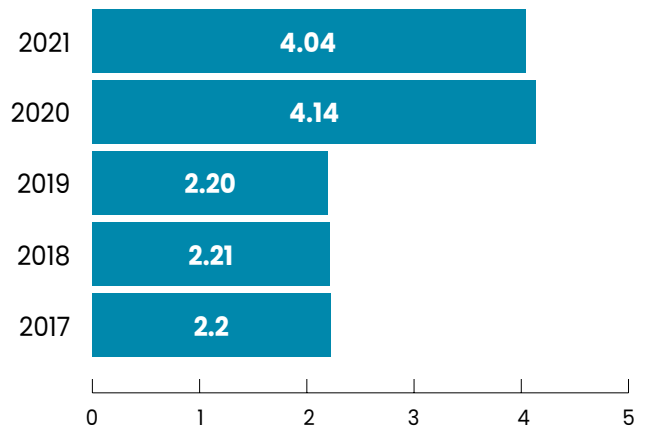
Since the start of the COVID-19 pandemic, OPG has fulfilled its existing CCP commitments, while contributing additional program funding in 2020 and 2021 to address a heightened need for support and services, specifically in the areas of food relief and health and safety. OPG also supported provincial COVID-19 vaccination efforts by transporting seniors to vaccine clinics and by hosting a public clinic at our Darlington Energy Complex that administered more than 1,000 doses.

In 2021, the company provided \$4 million in community investment donations and sponsorships to about 500 initiatives, including support for 71 Indigenous initiatives. All told, over the past five years, CCP has contributed close to \$15 million to host and Indigenous communities.

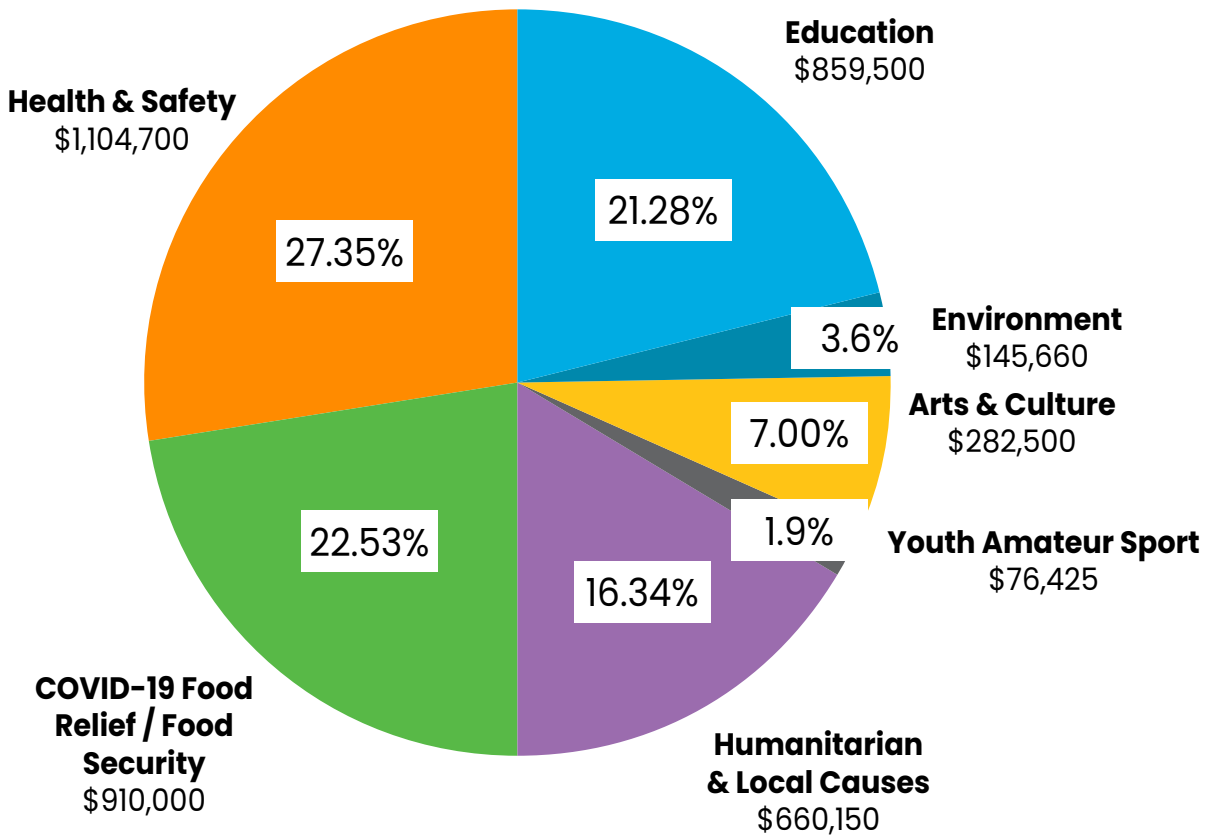
Some CCP highlights from 2021 include:

- 750,000 meals delivered to Ontarians in need
- Food relief for 43 Indigenous communities
- 20 Ontario hospitals supported
- 243 student awards/scholarships funded
- 34 STEM initiatives supported

Donations and Sponsorships (\$ millions)



2021 Community Investment (CI) \$ Contributions by Focus Area \$4.04M in CI Donations and Sponsorships





CCP at work

Scientists in School (SiS) adapted their high-quality, hands-on, in-school STEM educational workshops to a virtual model so they could continue to support students and teachers. 8,000 virtual workshops were provided to 185,000 young scientists from coast to coast, making SiS a national organization for the first time in their history.

Skills Canada - Ontario pivoted Canada's largest skilled trades competition and career fair to a virtual format reaching 18,000+ Ontario participants / students. They also connected with 3,500+ Indigenous Youth and 12,200+ Young Women on Skilled Trades career opportunities and educational initiatives.

Frontier College - The Lieutenant Governor of Ontario's Indigenous Youth Summer Literacy Camp Program for remote First Nations. Frontier College pivoted to a hybrid camp model to meet community and pandemic public health directives. Families in 19 First Nations communities were supported with at home literacy kits, learning resources and books. In four First Nations communities, in-person camps were safely operated. In total 1,800 Indigenous children in Northern Ontario experienced a summer of learning and fun.

OPG partnered with Feed Ontario to help support 1,200 hunger-relief organizations / food banks across the province experiencing increased demand for their services, at a time when food was harder to source, and there were fewer volunteers. OPG's support in 2020

assisted Feed Ontario with the provision of 403,000 COVID-19 Emergency Food Boxes. In 2021, OPG's support provided the equivalent of 750,000 healthy meals for Ontario seniors, adults and children experiencing hunger.

Cost and access to food in northern and remote First Nation communities was worsened by the pandemic. **OPG joined forces with the Regional Food Distribution Association (RFDA) of Northwestern Ontario** to help provide COVID-19 emergency food support to our First Nation neighbours in the region. OPG's partnership helped the RFDA provide 911,109 lbs of healthy food (413,000 lbs in 2020 and 498,109 lbs in 2021) to 20 First Nations.

Other pandemic initiatives aided young students, women, and mental health. These included supporting TVO's Mathify, an online, one-on-one math tutoring program for Ontario public school students in Grades 6 to 11; Jack.org's "Be There" program, a digital mental health resource for youth and people of all ages; and the Prosperity Project, which aims to mitigate the impact of the pandemic on Canadian women and encourages women and girls to consider careers in STEM and the skilled trades.

Subsidiary highlights: Atura Power supported its four host communities with \$125,000 in donations and in-kind contributions to several initiatives, including food banks, homeless shelters, and community events. Laurentis Energy Partners donated \$10,000 to the Canadian Red Cross to help address COVID-19 in communities struggling with outbreaks, including Saugeen First Nation in Ontario.



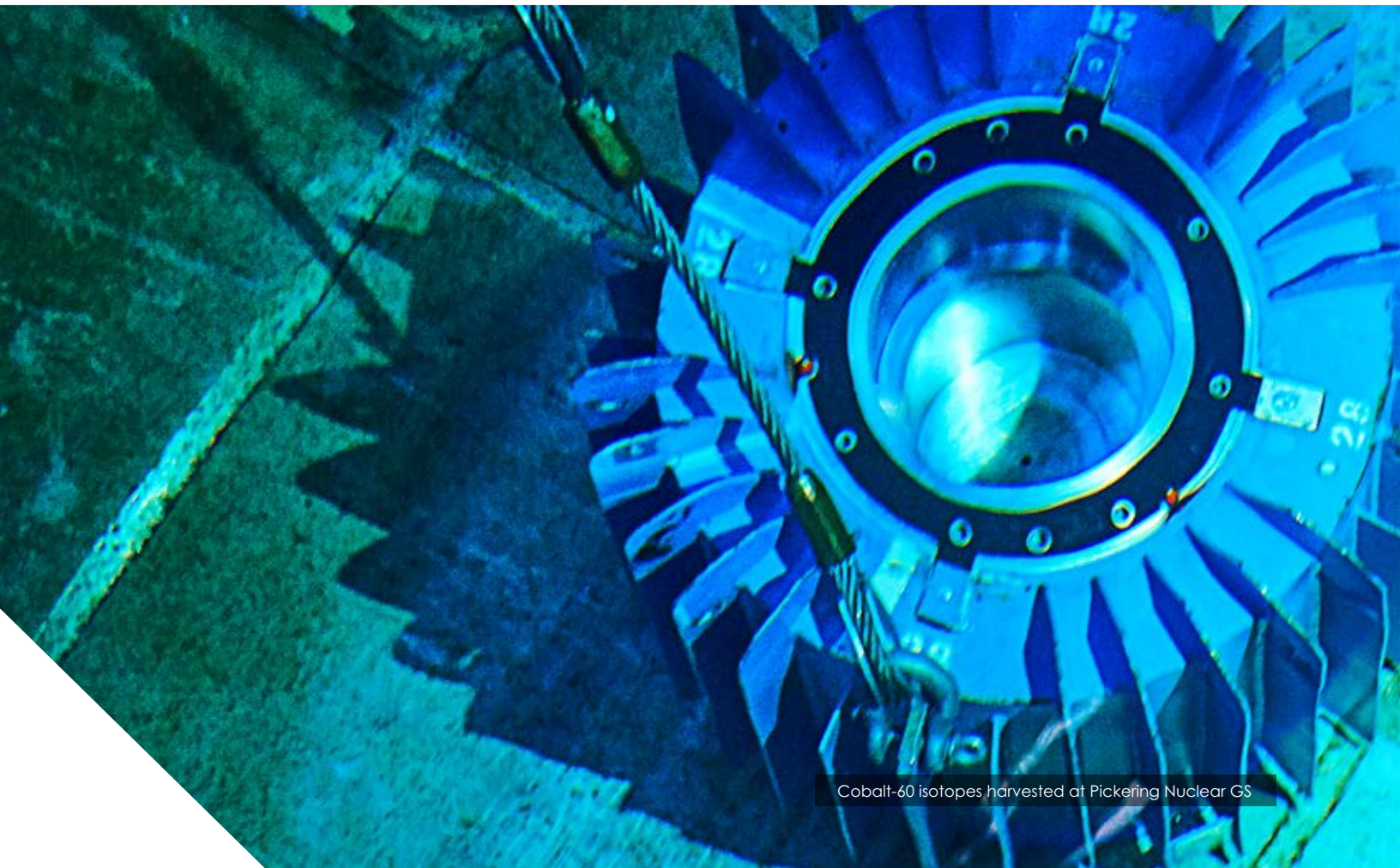
Isotope innovation

Nuclear stations not only generate clean, reliable, low-cost energy for millions of Ontarians, reactors also produce many stable and radioactive isotopes, including critical medical isotopes, that help millions around the world enjoy a healthier and safer quality of life.

Since 1971, OPG's Pickering Nuclear GS has supplied the world with Cobalt-60, an isotope used to irradiate and sterilize about 40 per cent 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.

Currently, Pickering Nuclear provides about 20 per cent of the world's supply of Cobalt-60, making it one of the leading sources of this important product. With the station's upcoming end of commercial operations, OPG will soon expand Cobalt-60 production to its Darlington Nuclear GS to help Ontario continue to meet the growing global demand for this isotope.

In addition to Cobalt-60, nuclear generation also produces heavy water, or deuterium, as well as tritium. Deuterium is an isotope that can be used to enhance magnetic resonance imaging and help pharmaceuticals last longer in the bloodstream, while tritium is used in medical research and the production of self-powered lights.

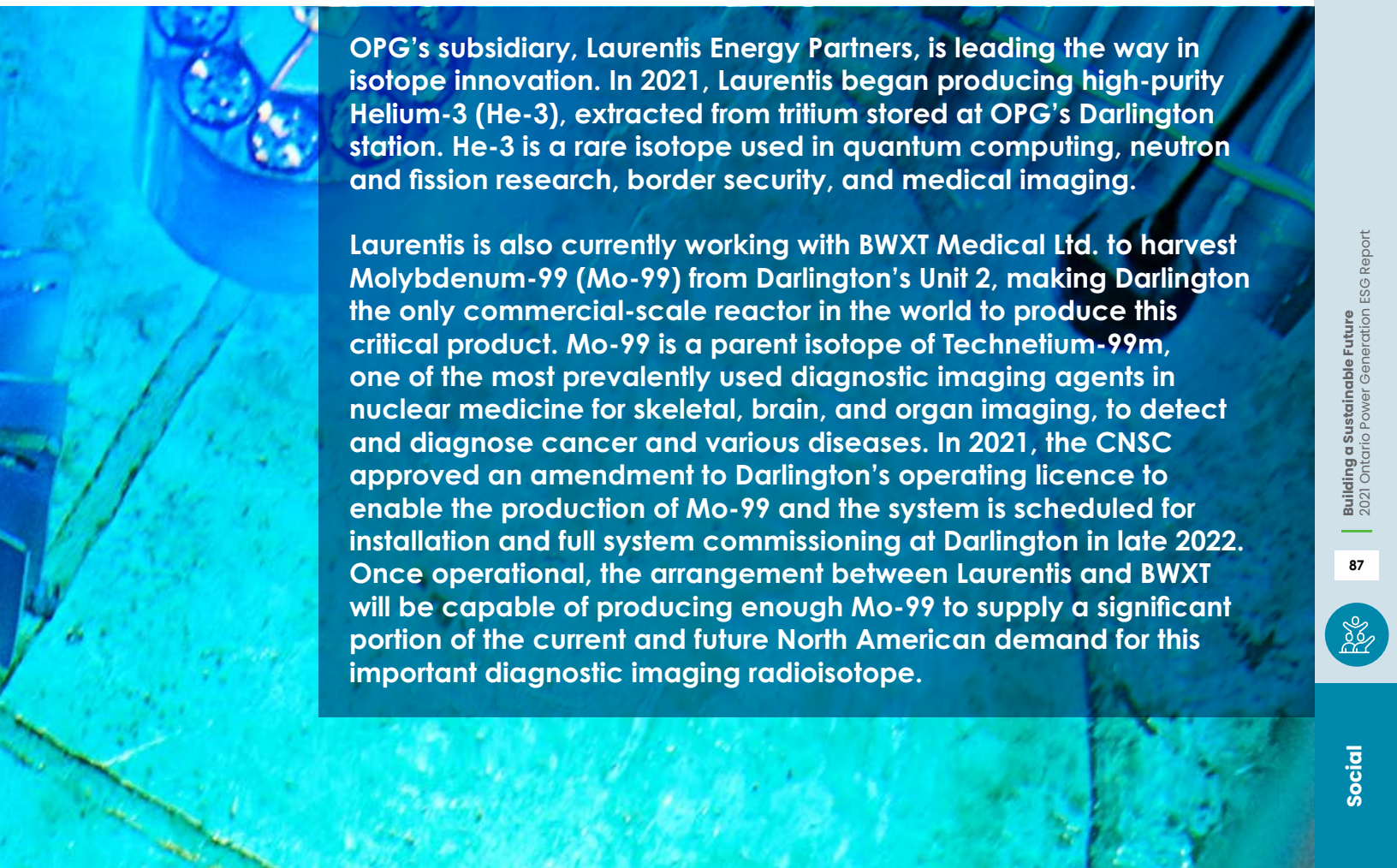


Cobalt-60 isotopes harvested at Pickering Nuclear GS

OPG's subsidiary, Laurentis Energy Partners, is leading the way in isotope innovation. In 2021, Laurentis began producing high-purity Helium-3 (He-3), extracted from tritium stored at OPG's Darlington station. He-3 is a rare isotope used in quantum computing, neutron and fission research, border security, and medical imaging.

Laurentis is also currently 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 prevalently used diagnostic imaging agents in nuclear medicine for skeletal, brain, and organ

imaging, to detect and diagnose cancer and various diseases. In 2021, the CNSC approved an amendment to Darlington's operating licence to enable the production of Mo-99 and the system is scheduled for installation and full system commissioning at Darlington in late 2022. Once operational, the arrangement between Laurentis 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.



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OPG head offices

Governance pillar

Corporate governance

OPG's overall corporate governance is structured to oversee, implement, and evaluate ESG performance throughout the company. The company's governance also ensures the highest standards of ethical business conduct, and helps to identify and assess risks to our business objectives.

Board of directors

Starting at the top of the company, 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.

The Board sets OPG's Corporate Strategy, prioritizing 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 and are overseen by the Board. The Board also oversees all significant risk factors to OPG through the Enterprise Risk Management (ERM) program. This enables the Board to oversee management's ability to identify and assess material environmental and social risks.

The committees of the Board have direct responsibility for a full range of ESG topics for which they report back to the full Board. Topics include: environmental performance and compliance, health and safety, corporate culture, Indigenous relations, climate change and decarbonization, workforce strategies, ED&I, social licence, stakeholder relations, and executive compensation.



The Board is also directly responsible for approving numerous ESG-related policies, for which it receives regular progress reports. These 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*, and the *Board's Diversity and Inclusion Policy*.

OPG's Board consists entirely of independent members except for the President and CEO. It has a succession plan with renewal embedded through Director term-limits. Board-approved skills criteria, such as expertise and experience in a wide range of individual ESG topic areas and ESG reporting, are reflected in its composition and succession plan.

Chief Executive Officer

In addition to setting a leadership standard on key ESG principles, the Chief Executive Officer is accountable to the Board for ensuring a culture of integrity and ethical conduct.

The CEO is also responsible for defining and executing a corporate strategy, including a sustainable business model that aims to service the province's long-term power generation needs, increase Shareholder value, and help the company achieve excellence in safety, operations, financial performance, asset reliability, stakeholder and Indigenous relationships, and environmental and regulatory compliance.

Executive team

ESG performance is a shared responsibility at OPG. Within our executive team, members have responsibilities for setting standards and key performance indicators related to the environment, health and safety, ethics, stakeholder and rights holder engagement, and financial stewardship. Annual priorities and targets are included in a corporate scorecard which is used to assess the company's overall performance. Individual operating units and functions must also establish annual performance objectives and report monthly on key performance results. Performance targets are reinforced with management employees through the SRP that links compensation to performance.

Two members of OPG's Enterprise Leadership Team have direct responsibility for leading OPG's ESG performance reporting – the Chief Legal and Ethics Officer, and the Vice President Law, ESG and Corporate Secretary.

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 the ratepayer. Executive compensation consists of base salary as well as "pay for performance" programs, under which compensation is contingent on meeting approved objectives. The Board of Directors, through the Human Resources and Governance Committee, approves



Hydro rehabilitation work





OPG's Corporate Balanced Scorecard, which is the basis for management's annual short-term pay for performance incentive program, called the Stakeholder Return Program (SRP). The Board of Directors also approves performance targets and payments under OPG's medium-term pay for performance program called the Medium Term Incentive Plan (MTIP) for executives.

To help ensure strong performance on ESG, both the Annual Corporate Balanced Scorecard and the MTIP require Board evaluation of management and

executive compensation against key ESG performance indicators. At the end of 2021, a decision was made to include new ESG performance indicators for the next MTIP cycle beginning in 2022. These include Supply Chain Diversity Spend, Procurement from Indigenous Businesses, Climate Change Mitigation and Adaptation Capital Expenditures, ED&I Succession Planning targets, and execution on the Climate Change Plan. The Board of Directors also has the discretion to adjust Corporate Score based on an overall assessment of ESG considerations.



One OPG Award winners

Corporate culture – “One OPG”

OPG believes organizational culture is integral to the overall engagement, well-being and success of its employees, and to our organization as a whole. The right organizational culture must be integrated with daily decisions by employees. These decisions, large and small, must be aligned with ESG considerations, including furthering climate change mitigation, employee inclusivity, advancing Reconciliation, and

ensuring the health and safety of fellow employees. It is the behaviour of employees that expresses the values of the enterprise.

Given its fundamental importance, oversight of OPG’s organizational culture is included in the Board’s Human Resources and Governance Committee mandate. Regular reports are provided to the full Board. Management’s SRP incentive compensation is linked to each leader’s actions toward building an engaged workforce, both as part of its organizational culture objectives and





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Pickering Nuclear

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as a part of ESG considerations on the Corporate Balanced Scorecard.

Informed by employee feedback, in 2016 OPG launched a cultural transformation called “One OPG.” One OPG is key to achieving the company’s People Powering the Future Strategic Objective. While significant progress has been made, more work remains. The company believes that by working with a greater sense of ownership and involvement, together, we’re creating a culture where all employees can grow and thrive.

In their daily work, employees are encouraged to collaborate with others from across the company, embrace continuous improvement by sharing ideas, and create long-term results that matter. One OPG also means owning accountability at individual, team, and enterprise levels, and encouraging small changes that can have a big impact.

In 2021, OPG promoted One OPG culture through sustained engagement, awareness, and reinforcement of the culture shifts. We also benchmarked organizations that have undergone significant change to understand how major business changes could impact culture. Our culture strategy will continue to evolve based on employee feedback and engagement, and through guidance from a partnership of leaders, the culture action team, the Ethics & Equity team, and Human Resources.

Ethical business conduct

OPG has many policies and measures to ensure the highest standard of ethical conduct across the company. At our foundation is OPG’s Code of Business Conduct (the “Code”) and corresponding program, which are essential to maintaining safe, healthy, and equitable workplaces.

Our ethical values of safety, integrity, excellence, and people and citizenship express what is important for our organization, and guide our collective behaviour and decision making. The Code supports a diverse, committed, and agile workforce that reflects the communities in which we operate, working in an environment that is respectful and inclusive of all employees. The Code aligns with the UN Guiding Principles on Business and Human Rights.

In response to a 2020 company-wide assessment of sexual and gender-based harassment and discrimination, OPG launched a multi-year plan. This included implementing Workplace Assessment Action Teams, a company-wide “Think Again” communication campaign, and interactive workshops for managers, supervisors and human resources staff on identifying, addressing and preventing workplace sexual and gender-based harassment and discrimination.

Also in 2021, OPG completed an employment systems review to assess policies, practices, and governance related to employment equity. The findings from this review will help further support the company’s work to create



a more equitable, diverse, and inclusive workforce as part of our ED&I Strategy.

In response to federal legislation, OPG enhanced its 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 Compliance 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 were revised to reflect the strengthened provisions.

Finally, 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.

Enterprise risk management

OPG's Board of Directors has established an Enterprise Risk Management (ERM) Policy, which promotes risk-informed decision-making and supports effective execution of OPG's strategic and business plans through a robust company-wide risk management framework.

The Board's Audit & Risk Committee is responsible for overseeing OPG's ERM framework, and is provided with quarterly risk reports and updates. The ERM framework helps OPG's leaders manage the company's risk profile, and

helps the Board understand how risks may affect the company and how they are being addressed by management. In developing its quarterly reports to the Committee, management undertakes a ground-up review with all of the business units and functions to identify any new risks and mitigation, assess any change in the severity of existing risks, and remove matters that are no longer risks.

The company's risk profile is validated by an Enterprise Risk Committee made up of OPG senior management before being presented to the Audit & Risk Committee. In addition, annually, management delivers a report directly to the full Board of Directors on specific risk areas which include ESG topics.

Integrating ESG infund investments

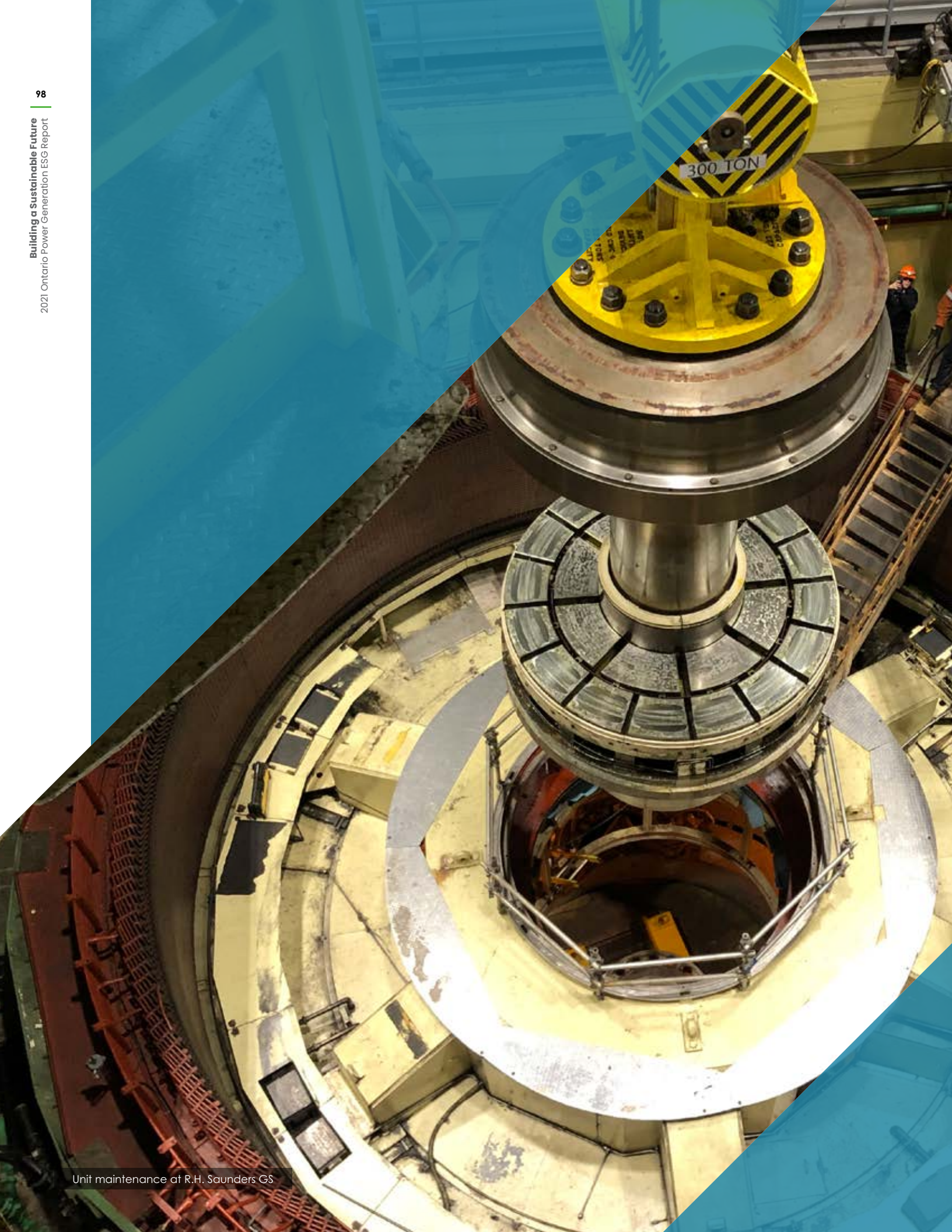
OPG manages over \$40 billion in investment funds; about \$15 billion related to OPG's pension plan and approximately \$28 billion to pay for the costs of eventually decommissioning our nuclear power plants and for the long-term storage of nuclear by-products that cannot be re-purposed.

Both funds are managed by OPG's Fund Management Group, which is responsible for developing, recommending, implementing, and monitoring strategies that seek to achieve total return objectives for the funds, while also monitoring associated risks. The segregated nuclear funds are co-managed with the Ontario Financing Authority.



The OPG pension fund has an ESG policy in place to help guide the fund's investments in equity markets, bonds, and specific assets in real estate and infrastructure. The policy acknowledges that consideration of ESG factors contributes to comprehensive risk management for a long-term investor. This can also contribute to long-term value creation through investment opportunities. The investment funds support measures to protect the environment, to ensure adherence to fundamental human rights, and to be net zero by 2040 with respect to carbon emissions.





Unit maintenance at R.H. Saunders GS



Appendices

Appendix 1 – TCFD Index

Appendix 2 – GRI Standards Index

Appendix 3 – Data Assurance and Quality

Appendix 1 – TCFD Index

Category	Disclosure	Page Reference
Governance		
Governance (a)	Board oversight of climate-related risks and opportunities	17, 89-92
Governance (b)	Management's role in assessing and managing climate-related risks and opportunities	89-92
Strategy		
Strategy (a) and (b)	Identified climate-related risks and opportunities and their impacts on the organization's businesses, strategy, and financial planning	31-37
Strategy (c)	Climate resiliency and climate-related risks	36-37
Risk Management		
Risk Management (a) and (b)	Identification and assessment of climate-related risks and the organization's processes for managing climate-related risks	14, 96
Risk Management (c)	Process for integrating climate-related risks into the organization's overall risk management	14, 89-90, 96
Metrics and Targets		
Metrics and Targets (a)	Metrics used to assess climate-related risks and opportunities	90-93
Metrics and Targets (b)	Greenhouse gas (GHG) emissions and related risks	40-41
Metrics and Targets (c)	Targets used to manage climate-related risks and opportunities and performance against targets	31

Appendix 2 – GRI Standards Index

Topic	GRI Disclosure	Description	Information or Page Reference
GRI 102: General Disclosures			
Organizational Profile	102-1	Name of the organization	5, 106
	102-2	Description of activities, brands, products, and services	5-6, 14
	102-3	Location of headquarters	106
	102-4	Location of operations	6-7
	102-5	Ownership and legal form	5
	102-6	Markets served	6-7
	102-7	Scale of the organization	5-7
	102-8	Information on other employees and other workers	22, 70-72
	102-9	Supply chain	80
	102-12	External initiatives	14, 21
Strategy	102-14	Statement from senior decision-maker	9-11
	102-15	Key impacts, risks, and opportunities	20-21, 31-38, 51-52, 59-61, 71-72, 96
Ethics and Integrity	102-16	Values, principles, standards, and norms of behaviour	7, 93-96
	102-17	Mechanisms for advice and concerns about ethics	95-96
Governance	102-18	Governance structure	89-90
	102-20	Executive-level responsibility for economic, environmental, and social topics	90
	102-35	Remuneration policies	90-92
Stakeholder Engagement	102-41	Collective bargaining agreements	70-71
Report Practice	102-46	Defining report content and topic boundaries	14, 104
	102-47	List of material topics	18
	102-50	Reporting period	13
	102-52	Reporting cycle	9, 14
	102-55	GRI content index	101-103
	102-56	External assurance	15, 104
GRI 200: Economic Disclosures			
Economic Performance	201-1	Direct economic value generated and distributed	5, 20-22, 63-64
	201-2	Financial implications and other risks and opportunities due to climate change	26-38
	203-1	Infrastructure investments and services supported	22, 31-36
	203-2	Significant indirect economic impacts	22, 63-64
Sustainable Financing	103-2	Management approach	38

Topic	GRI Disclosure	Description	Information or Page Reference
Clean Energy Credits	103-2	Management approach	38
ESG Integration in Funds Investment Processes	103-2	Management approach	96-97
GRI 300: Environmental Disclosures			
Water Management	103-2	Management approach	56-57
	303-1	Interactions with water as a shared resource	56-57
Biodiversity and Wildlife Habitat Stewardship	103-2	Management approach	52-55
	304-2	Significant impacts of activities, products, and services on biodiversity	54
	304-3	Habitats protected or restored	54
Greenhouse Gas Emissions	103-2	Management approach	40-41
	305-1	Direct (Scope 1) greenhouse gas emissions	40-41
	305-2	Energy indirect (Scope 2) greenhouse gas emissions	40-41
Environmental Compliance	103-2	Management approach	42-49
	305-7	Other significant air emissions	46-49
	306-3	Significant spills	45
	307-1	Non-compliance with environmental laws and regulations	42
Management of Nuclear By-Products	103-2	Management approach	49-52
	306-2	Other significant air emissions	49-50
GRI 400: Social Disclosures			
Human Capital	103-2	Management approach	65-70
	403-6	Promotion of worker health	69
	403-9	Work-related injuries	66
	404-2	Programs for upgrading employee skills and transition assistance programs	69-70
Equity, Diversity and Inclusion	103-2	Management approach	71-75
	405-1	Diversity of governance bodies and employees	72
Corporate Citizenship	103-2	Management approach	82-85
	413-1	Operations with local community engagement and development programs	82-85

Topic	GRI Disclosure	Description	Information or Page Reference
GRI Indicator			
Indigenous Reconciliation and Relations	103-2	Management approach	59-64
COVID-19 Response	103-2	Management approach	76, 82
Community Public Safety	103-2	Management approach	76-79
Protection of Critical Infrastructure	103-2	Management approach	82
Medical Isotopes	103-2	Management approach	86-87

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.

Sustainability data and practices are verified by an independent auditor every four years 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, 2021.

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, 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 & Adaptation	All OPG
Greenhouse Gas Emissions	All OPG excluding hydroelectric operations due to negligible impact
Environmental Compliance	OPG operated facilities covered by OPG's ISO 14001 Environmental Management System registration
Management of Nuclear By-products, Nuclear Sustainability Services	All OPG
Health & Safety – TRIF and SIIR	OPG, Atura and Eagle Creek



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