

Sustainability performance data

Data excludes OPG subsidiaries unless otherwise noted.

Metric	2019	2020	2021	2022	2023	SASB Disclosure
ENVIRONMENT						
SCOPE 1 GREENHOUSE GAS EMISSIONS^{1,2,3}						
Includes emissions from stations operating under the subsidiary Atura Power.						
Total carbon dioxide equivalent (tonnes)	354,775	1,158,028	1,995,851	2,773,283	3,379,689	IF-EU-110a.1
Biomass – Atikokan Generating Station ⁴	17,020	17,104	28,924	20,438	18,341	
Biomass – Thunder Bay Generating Station (retired)	1,102	-	-	-	-	
Gas – Brighton Beach Generating Station	20,800	23,514	62,269	257,748	305,750	
Gas – Halton Hills Generating Station	-	255,043	740,815	956,352	975,424	
Gas – Napanee Generating Station	-	481,194	404,196	794,812	1,159,981	
Gas – Portlands Energy Centre	224,256	303,966	618,258	613,275	807,501	
Gas/oil – Lennox Generating Station	83,725	66,945	81,184	102,515	95,799	
Nuclear	7,872	8,606	10,201	17,802	8,363	
Other facilities and sources	Not reported	1,657	10,005	10,341	8,530	
SCOPE 1 GREENHOUSE GAS EMISSION RATES						
Includes emissions from stations operating under the subsidiary Atura Power.						
Carbon dioxide equivalent (tonnes/GWh-net OPG total generation)	4.6	14.1	25.2	35.3	41.7	
Carbon dioxide equivalent (tonnes/GWh-net biomass and gas generation)	479	427	416	411	404	
SCOPE 1 GREENHOUSE GAS EMISSIONS REGULATIONS						
Percentage Scope 1 emissions covered under emissions-limiting regulations	92.7	97.6	97.5	98.2	99.0	IF-EU-110a.1
Percentage Scope 1 emissions covered under emissions-reporting regulations	97.5	99.1	99.0	99.0	99.5	IF-EU-110a.1
SCOPE 2 GREENHOUSE GAS EMISSIONS⁵						
Includes emissions from stations operating under the subsidiary Atura Power.						
Carbon dioxide equivalent (tonnes)	3,478	3,986	4,250	16,197	18,244	

Metric	2019	2020	2021	2022	2023	SASB Disclosure
NITROGEN OXIDE EMISSIONS^{2,3}						
Includes emissions from stations operating under the subsidiary Atura Power.						
Total nitrogen oxides (tonnes, as nitrogen dioxide)	473	574	896	1,221	1,164	IF-EU-120a.1
Biomass – Atikokan Generating Station	206	150	144	117	143	
Biomass – Thunder Bay Generating Station (retired)	1	-	-	-	-	
Gas – Brighton Beach Generating Station	14	20	20	113	127	
Gas – Halton Hills Generating Station	-	84	245	249	308	
Gas – Napanee Generating Station	-	64	51	74	105	
Gas – Portlands Energy Centre	110	135	299	509	339	
Gas/oil – Lennox Generating Station	108	80	89	92	112	
Nuclear	35	42	48	68	31	
NITROGEN OXIDE EMISSION RATES						
Includes emissions from stations operating under the subsidiary Atura Power.						
Nitrogen oxides (tonnes/GWh-net OPG total generation, as nitrogen dioxide)	0.006	0.007	0.012	0.016	0.014	
Nitrogen oxides (tonnes/GWh-net biomass and gas generation, as nitrogen dioxide)	0.60	0.20	0.18	0.17	0.14	
SULPHUR DIOXIDE EMISSIONS^{2,3}						
Includes emissions from stations operating under the subsidiary Atura Power.						
Total sulphur dioxide (tonnes)	111	117	92	103	81	IF-EU-120a.1
Biomass – Atikokan Generating Station	0	0	0	0	0	
Biomass – Thunder Bay Generating Station (retired)	0	-	-	-	-	
Gas – Brighton Beach Generating Station	0	0	0	0	0	
Gas – Halton Hills Generating Station	-	0	0	1	1	
Gas – Napanee Generating Station	-	0	0	1	1	
Gas – Portlands Energy Centre	0	9	18	0	1	

Metric	2019	2020	2021	2022	2023	SASB Disclosure
Gas/oil – Lennox Generating Station	110	107	73	101	79	
Nuclear	1	0	0	0	0	
SULPHUR DIOXIDE EMISSION RATES						
Includes emissions from stations operating under the subsidiary Atura Power.						
Sulphur dioxide (tonnes/GWh-net OPG total generation)	0.001	0.001	0.001	0.001	0.001	
Sulphur dioxide (tonnes/GWh-net biomass and gas generation)	0.15	0.04	0.02	0.02	0.01	
AIR QUALITY⁶						
PM10 – particulate matter <=10 micrometres (tonnes)	6.3	7.8	8.9	7.8	7.5	IF-EU-120a.1
PM2.5 – particulate matter <=2.5 micrometres (tonnes)	6.3	8.1	8.8	7.7	7.1	
Waste incinerator dioxins and furans toxicity equivalent emissions test result (pg TEQ/Rm ³) ⁷	Exempt from testing	14.2	21.1	14.7	7.6	
RADIOLOGICAL EMISSIONS						
Tritium to air (curies)	20,458	22,631	21,084	19,292	27,197	
Tritium to water (curies)	14,328	14,839	17,934	19,211	17,589	
Carbon-14 to air (curies)	97	84	105	96	116	
RADIOLOGICAL DOSE TO THE PUBLIC						
Darlington Nuclear critical group dose (microsieverts)	0.4	0.4	0.6	0.6	0.7	
Pickering Nuclear critical group dose (microsieverts)	1.7	1.2	2.0	1.9	1.5	
RADIOACTIVE WASTE MANAGEMENT						
Production of used fuel (tonnes of uranium) Includes waste produced by Bruce Power.	1,624	1,403	1,369	1,424	1,339	
Used fuel in storage (tonnes of uranium) Includes waste produced by Bruce Power.	51,375	53,002	54,372	55,790	57,241	
Used fuel bundles in storage at Darlington Nuclear	575,492	599,327	615,691	633,679	650,353	
Used fuel bundles in storage at Pickering Nuclear	783,247	800,847	818,845	837,157	855,375	
Low and intermediate level radioactive waste produced (m ³)	4,167	3,509	5,049	4,753	5,113	

Metric	2019	2020	2021	2022	2023	SASB Disclosure
HAZARDOUS WASTE GENERATION						
Solids (tonnes)	165	181	291	103	320	
Liquids (kilolitres)	4,084	1,737	1,107	947	2,268	
WATER MANAGEMENT						
Water use: hydroelectric generating station turbine water flows (million m ³)	430,207	438,359	402,713	455,558	436,396	
Water withdrawn: non-consumptive cooling and service water use at nuclear, biomass and gas generating stations (million m ³)	8,558	8,577	8,461	7,498	7,432	IF-EU-140a.1
Water withdrawn: water use by the subsidiary Atura Power (million m ³)	Not reported	Not reported	Not reported	Not reported	531	IF-EU-140a.1
Water consumed	Negligible	Negligible	Negligible	Negligible	Negligible	IF-EU-140a.1
Percentage of water consumed in locations with high or extremely high baseline water stress. Includes all OPG-owned stations.	Not reported	Not reported	Not reported	Not reported	0	IF-EU-140a.1
Percentage of generation capacity in locations with high or extremely high baseline water stress. Includes all OPG-owned stations.	Not reported	Not reported	Not reported	Not reported	1.5	
Number of incidents of non-compliance associated with water quality permits, standards and regulations that resulted in formal enforcement action	0	0	0	0	0	IF-EU-140a.2
REGULATORY COMPLIANCE						
Significant environmental events ⁸	0	0	0	0	0	
Environmental infractions ⁹	4	6	8	5	8	
Environmental penalties ¹⁰	0	0	0	0	0	
REPORTABLE SPILLS TO THE ENVIRONMENT¹¹						
Category A spills – very serious	0	0	0	0	0	
Category B spills – serious	0	0	0	0	0	
Category C spills – less serious	7	8	10	11	10	
BIODIVERSITY AND WILDLIFE HABITAT						
Cumulative trees and shrubs planted since 2000 (million) ¹²	7.1	7.1	8.4	8.8	9.0	
Tree planting level (number of trees and shrubs planted)	Not reported	68,000	325,000	343,000	247,000	

Metric	2019	2020	2021	2022	2023	SASB Disclosure
ELECTRIFICATION						
Electric charger installation level (number of chargers installed by OPG or its joint venture with Hydro One in the Province of Ontario) ¹³	Not reported	53	76	81	10	
INTERNAL ENERGY EFFICIENCY						
Energy saving - cumulative since 1994 (GWh/year)	2,559	2,564	2,564	2,564	2,564	
Annual incremental energy saving (GWh/year)	0.5	5.3	0.1	0.1	0.1	
SOCIAL						
INDIGENOUS RELATIONS						
Suppliers from Indigenous communities	4	28	30	34	38	
Procurement from Indigenous businesses (millions of dollars)	Not reported	Not reported	Not reported	56	142	
Formal business partnerships with Indigenous communities	6	6	5	5	5	
In-service generating capacity constructed in partnership with Indigenous communities (MW)	574	574	574	574	574	
Electricity generation revenues earned in partnership with Indigenous communities (millions of dollars)	249	245	244	251	261	
WORKFORCE HEALTH AND SAFETY						
Fatalities Includes contractors.	0	0	0	0	0	IF-EU-320a.1
Serious injury incidence rate (serious injuries per 200,000 hours) Excludes contractors.	0.04	0.01	0.02	0.02	0.00	
Total recordable injury frequency (injuries per 200,000 hours) Excludes contractors.	0.35	0.31	0.21	0.32	0.16	IF-EU-320a.1
Total recordable injury frequency including OPG's subsidiaries Atura Power and Eagle Creek (injuries per 200,000 hours)	0.37	0.36	0.23	0.33	0.18	IF-EU-320a.1
EMPLOYMENT						
Regular employees	8,751	9,226	9,325	9,565	10,460	
Regular employees covered by collective bargaining agreements with the Power Workers' Union and the Society of United Professionals	7,482	7,979	7,992	8,190	8,790	
Staff turnover (per cent)	5.9	3.7	5.2	6.5	3.9	

Metric	2019	2020	2021	2022	2023	SASB Disclosure
EQUITY, DIVERSITY AND INCLUSION						
Women (per cent)	Not reported	22.3	23.5	23.7	23.2	
Indigenous Peoples (per cent)	Not reported	1.8	2.2	2.2	2.2	
Racialized people (per cent)	Not reported	13.8	18.2	18.6	19.9	
People with disabilities (per cent)	Not reported	2.2	7.0	6.7	6.5	
Supply chain diversity program spend (millions of dollars)	Not reported	Not reported	Not reported	19	58	
REPRESENTATION OF WOMEN IN LEADERSHIP						
Women on the Board of Directors (per cent)	30	40	55	55	55	
Women executives (per cent) Includes Presidents, Vice Presidents and Chief Officers.	31	33	32	36	40	
CORPORATE CITIZENSHIP						
Community investment donations and sponsorships (millions of dollars) ¹⁴	2.20	4.14	4.04	2.35	3.32	
NUCLEAR SAFETY¹⁵						
Total number of operating nuclear power units – Darlington Nuclear	3	3	3	2	2	IF-EU-540a.1
Total number of operating nuclear power units – Pickering Nuclear	6	6	6	6	6	IF-EU-540a.1
ECONOMIC						
ELECTRICITY GENERATING CAPACITY						
Includes capacity from all OPG-owned stations.						
Total in-service generating capacity (MW)	17,017	18,910	18,958	18,225	18,236	
Biomass	205	205	205	205	205	
Gas	2,935	4,815	4,815	4,815	4,815	
Nuclear	5,728	5,728	5,728	4,850	4,850	
Renewable	8,149	8,162	8,210	8,355	8,366	

Metric	2019	2020	2021	2022	2023	SASB Disclosure
RENEWABLE FACILITIES CAPACITY INCREASE						
Includes capacity from all OPG-owned stations.						
Renewable facilities capacity increase attributable to equipment efficiency gains, station redevelopment or rehabilitation projects (MW)	Not reported	Not reported	0	135	11	
Renewable facilities capacity increase attributable to acquisitions (MW)	Not reported	Not reported	48	13	0	
NET ELECTRICITY GENERATION						
Includes generation from all OPG-owned stations.						
Total electricity generation (GWh) ¹⁶	77,832	82,069	77,681	78,518	80,966	IF-EU-000.D
Biomass (net of consumption at retired station)	100	127	148	111	120	IF-EU-000.D
Gas	607	2,557	4,502	6,570	8,208	IF-EU-000.D
Nuclear	43,465	43,829	39,600	35,281	36,112	IF-EU-000.D
Renewable	33,659	35,555	33,431	36,556	36,525	IF-EU-000.D
OPERATING PERFORMANCE						
Darlington Nuclear unit capability factor (per cent) ¹⁷	87.4	93.1	82.7	87.0	97.0	
Pickering Nuclear unit capability factor (per cent) ¹⁷	87.6	76.3	78.9	80.0	80.7	
Hydroelectric availability (per cent) ¹⁸	85.3	87.9	88.3	87.1	86.2	
Thermal equivalent forced outage rate (per cent) ¹⁹	2.6	5.3	1.4	1.6	1.8	
FINANCIAL STRENGTH						
All OPG.						
Revenue (millions of dollars)	6,022	7,240	6,877	7,349	7,434	
Net income (millions of dollars)	1,143	1,376	1,344	1,651	1,759	
Net income attributable to the Province of Ontario (millions of dollars)	1,126	1,361	1,325	1,636	1,741	
ECONOMIC CONTRIBUTIONS						
Spending on materials and services (billions of dollars)	2.7	2.7	3.1	3.2	3.6	
Employee compensation (billions of dollars)	1.5	1.6	1.6	1.6	1.8	
Payments to the Province of Ontario (millions of dollars) ²⁰	608	623	570	677	597	

Metric	2019	2020	2021	2022	2023	SASB Disclosure
ECOLOGO-CERTIFIED GREEN POWER						
Net electricity generation (GWh, net of Ecologo product sales) ²¹	29	3	7	378	608	
CLEAN ENERGY CREDITS						
Total volume clean energy credit sales (TWh) ²²	1.1	2.8	4.1	1.9	0.6	
GREEN BONDS Includes Lower Mattagami Energy, an entity owned by OPG.						
Green bond offerings (millions of dollars)	500	1,200	375	550	0	

SASB ELECTRIC UTILITIES & POWER GENERATORS SUSTAINABILITY ACCOUNTING STANDARD

Quantitative metrics omitted based on the lack of applicability to OPG's business.

SASB Disclosure

Greenhouse gas emissions & energy resource planning – greenhouse gas emissions associated with power deliveries	IF-EU-110a.2
Air quality – air emissions of lead and mercury	IF-EU-120a.1
Coal ash management	IF-EU-150a.1
Energy affordability	IF-EU-240a.1 IF-EU-240a.3
End-use efficiency & demand	IF-EU-420a.2 IF-EU-420a.3
Grid resiliency – Number of incidents of non-compliance with physical or cybersecurity standards or regulations ²³	IF-EU-550a.1
Grid resiliency – System Average Interruption Duration Index, System Average Interruption Frequency Index, Customer Average Interruption Duration Index	IF-EU-550a.2
Number of residential, commercial, and industrial customers served	IF-EU-000.A
Total electricity delivered to residential, commercial, industrial, all other retail customers, and wholesale customers	IF-EU-000.B
Length of transmission and distribution lines	IF-EU-000.C
Total wholesale electricity purchased	IF-EU-000.E

¹ OPG continues to evaluate and enhance its Scope 1 greenhouse gas emission sources and quantification processes. Scope 1 greenhouse gas emissions for Lennox and Atura Power generating stations are third-party verified annually. Atura Power generating stations include Brighton Beach, Halton Hills, Napanee and Portlands.

² Total emissions may not equal the sum of subtotals due to rounding.

-
- ³ Emissions include OPG's proportionate share from co-owned facilities, as applicable. OPG acquired the remaining 50 per cent interest in Brighton Beach Generating Station in 2019 and acquired Halton Hills Generating Station, Napanee Generating Station and the remaining 50 per cent interest in the Portlands Energy Centre in 2020.
- ⁴ Atikokan Generating Station uses biomass pellets sourced from Ontario's sustainably managed forests and non-biogenic greenhouse gases and biogenic CH₄ and N₂O emissions have been reported in the table. OPG has restated historical emissions from Atikokan to exclude biogenic carbon dioxide emissions in accordance with the Greenhouse Gas Protocol, and has restated corresponding historical totals and rates. For clarity, biogenic carbon dioxide emissions (in tonnes) were 151,286 in 2019, 162,354 in 2020, 157,001 in 2021, 121,445 in 2022, and 149,087 in 2023.
- ⁵ OPG continues to evaluate and enhance its Scope 2 greenhouse gas emission sources and quantification processes. OPG's Scope 2 emissions are calculated using the consumption emissions intensity for Ontario from Canada's National Inventory Report, Part 3. An adjusted emissions intensity is used for grid electricity consumed at OPG's generation facilities to avoid double counting of emissions. This emissions intensity does not account for any environmental attribute sales.
- ⁶ For detailed information about OPG's releases to air, water and land, visit the Government of Canada's National Pollutant Release Inventory website.
- ⁷ The results of annual emissions testing performed at OPG's Waste Volume Reduction Facility have indicated the facility is in compliance with Ontario air quality standards.
- ⁸ Significant environmental events are non-compliances that have a high potential for regulatory action or cause severe environmental or health impacts, or are determined to be significant by OPG's President and Chief Executive Officer.
- ⁹ Environmental infractions are non-compliances that have moderate potential for regulatory action and/or intrusive regulatory involvement, or cause moderate environmental or health impacts.
- ¹⁰ Environmental penalty orders are monetary penalties that companies in Ontario may be required to pay for environmental contraventions under key environmental statutes.
- ¹¹ OPG classifies its spills to the environment that are reportable to a regulatory authority based on the actual or potential impacts to plants, animals, human health and safety, conduct of business, and use of property. OPG's spill categories align with Ontario Ministry of the Environment, Conservation and Parks regulatory requirements for the classification of contraventions.
- ¹² OPG's cumulative tree and shrub planting total was increased by almost one million for 2021 to include additional data from past years' planting projects and biodiversity partnerships at OPG sites.
- ¹³ Includes level 2 charging ports and level 3 chargers. Level 2 chargers with two ports can charge two vehicles simultaneously.
- ¹⁴ In addition to Corporate Citizenship Program-coordinated investments, OPG business units may have also contributed to a lesser degree on an individual basis.
- ¹⁵ The Canadian Nuclear Safety Commission (CNSC) issues an annual report on the regulatory oversight and safety performance for nuclear power generating sites. The report assesses how well licensees are meeting regulatory requirements and program expectations in areas such as human performance, radiation and environmental protection, and emergency management and fire protection at Canada's nuclear power plants and waste management facilities. The most recent annual report, for the 2022 year, was issued by the CNSC in the fourth quarter of 2023. In the CNSC's 2022 report on OPG's nuclear safety performance, CNSC staff determined that 13 out of 14 Safety and Control Areas for the Darlington Generating Station and the Pickering Generating Station and all 14 Safety and Control Areas for the Nuclear Sustainability Services' Darlington, Pickering and Western waste management facilities met CNSC staff's expectations. OPG increased resources in 2023 to implement further corrective actions to ensure current performance meets expectations at the Darlington GS and the Pickering GS for the Safety and Control Area that was below expectations.
- ¹⁶ Total electricity generation may differ slightly from the value provided in OPG's financial reporting due to differences in rounding subtotals.
- ¹⁷ Nuclear unit capability factor measures the amount of energy that the units generated over a period of time, adjusted for externally imposed constraints such as transmission or demand limitations, as a percentage of the amount of energy that would have been produced over the same period had the units produced maximum generation.
- ¹⁸ Hydroelectric availability represents the percentage of time the generating unit is capable of providing service, whether or not it is actually generating electricity, compared to the total time for the respective period, weighted by unit capacity.
- ¹⁹ Equivalent forced outage rate is measured by the ratio of time a generating unit is forced out of service by unplanned events, including any forced deratings, compared to the amount of time the generating unit was available to operate.
- ²⁰ Payments to the Province include payments in lieu of taxes, gross revenue charges, and current income tax payments.
- ²¹ Ecologo product sales consist of sales of environmental attributes.
- ²² Clean energy credit sales are from OPG's Ontario-sited Ecologo, large hydro and nuclear generation assets. The values reported are for sales volumes per vintage year.
- ²³ OPG does not report quantitative information related to grid resiliency. For qualitative information about various steps OPG is taking to comply with applicable standards and regulations and to manage physical and cybersecurity risks, please see pages 52-53 and 63-64 of OPG's 2023 Integrated ESG and Annual Report.