

An aerial photograph of the Sills Island Generating Station, a large concrete industrial building situated on a riverbank. The station is surrounded by lush green trees, some showing early autumn colors. In the background, a large forested hill rises under a clear blue sky. The river's surface is calm, reflecting the sky and the surrounding landscape.

# Green Bond Impact Report

2020

Sills Island Generating Station

**ONTARIOPOWER**  
GENERATION



# Ontario Power Generation

## 2020 Green Bond Impact Report

This impact report covers the reporting period of Q2 2019 – Q1 2020. During this time period, Ontario Power Generation (OPG) did not issue any new green bond offerings. This report will provide an update on projects and ongoing environmental benefits from previous issuances.

In Q2, on April 8, 2020, OPG issued a third and fourth green bond offering under its Medium Term Note Program. The issuance, totaling \$1.2 billion, consisted of \$400 million of senior notes maturing in April 2025 with a coupon interest rate of 2.89 percent and \$800 million of

senior notes maturing in April 2030 with a coupon interest rate of 3.22 percent. The net proceeds from the issuance will be used to finance or re-finance eligible projects as defined under OPG's Green Bond Framework, primarily the October 2019 acquisition of Cube Hydro Partners, LLC and affiliate Helix Partners, LLC (collectively, Cube Hydro). OPG's Green Bond Framework encompasses projects that offer tangible environmental benefits.

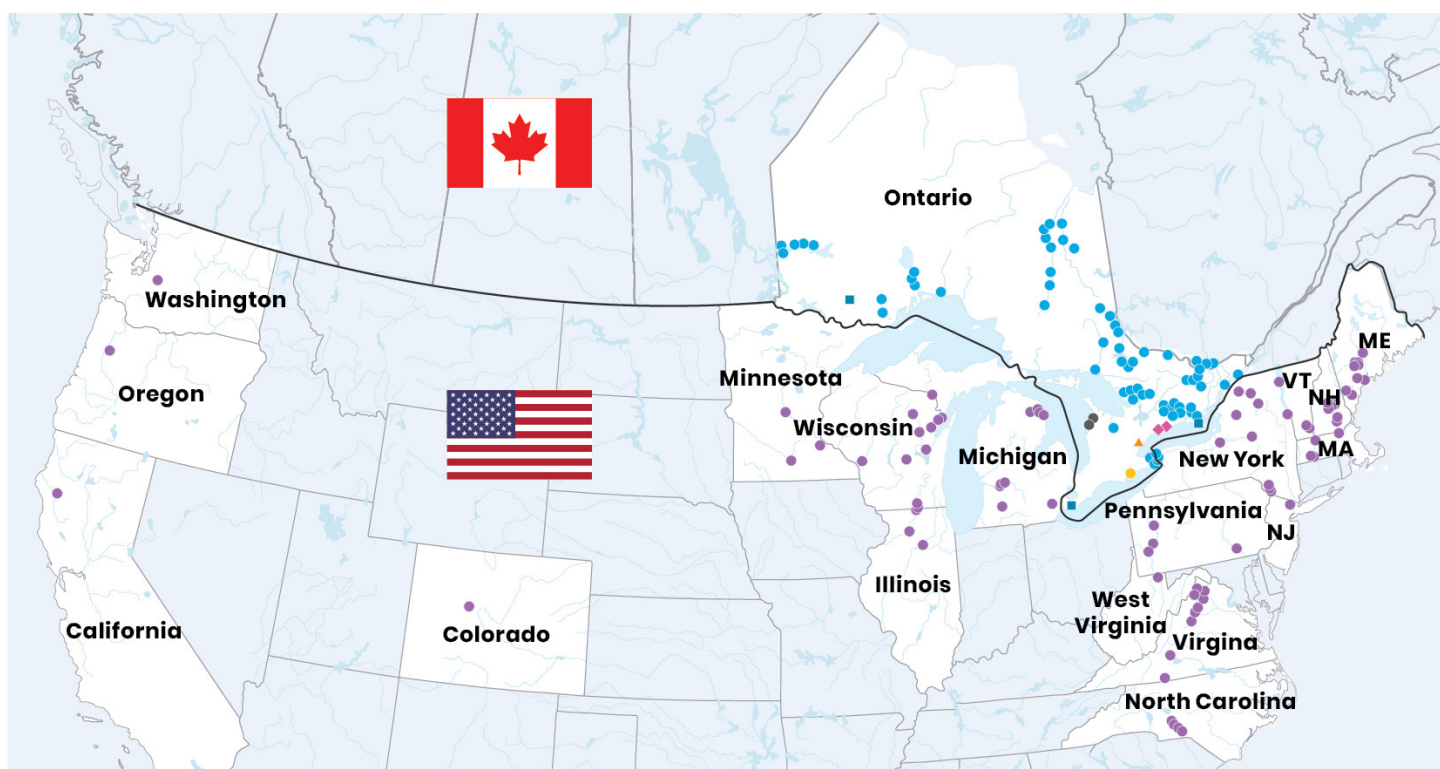
This issuance and associated environmental benefits will be reported in the 2021 Green Bond Impact Report.




### Corporate Profile

OPG is an Ontario-based electricity generation company whose principal business is the generation and sale of electricity. OPG was established under the Business Corporations Act (Ontario) and is wholly owned by the Province of Ontario (Province or Shareholder). OPG's electricity generation portfolio had an in-service generating capacity of 17,018 megawatts (MW) as at March 31, 2020.

As of March 31, 2020, OPG and its wholly-owned subsidiaries owned and operated two nuclear generating stations, 66 hydroelectric generating stations, three thermal generating stations and one solar facility in Ontario, Canada. Through its wholly-owned subsidiaries in the US, the Company also wholly or jointly

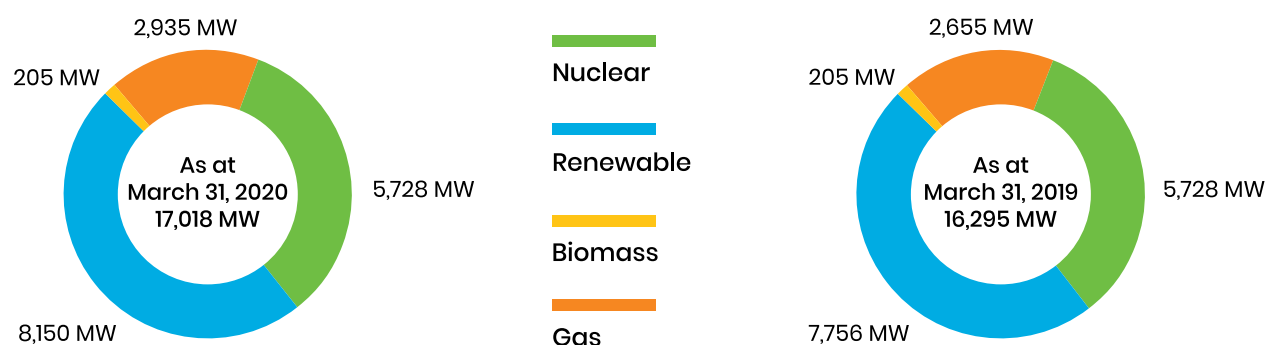
owned and operated 85 hydroelectric generating stations and held minority shareholdings in 13 hydroelectric and two solar facilities in the United States. In addition, as at March 31, 2020, OPG and TC Energy Corporation (TC Energy) co-owned the 550 MW Portlands Energy Centre combined-cycle natural gas-fired Generating Station (PEC), located in Ontario. OPG also owns two nuclear generating stations in Ontario, the Bruce A GS and the Bruce B GS (together, the Bruce nuclear generating stations), which are leased on a long-term basis to Bruce Power L.P. (Bruce Power). As at March 31, 2020, OPG did not operate PEC, the Bruce nuclear generating stations, and the minority-held facilities in the United States.



 2	 2	 3	 1	 1	 66	 85
<b>Nuclear</b> Stations	Leased <b>Nuclear</b> Stations	<b>Thermal</b> Stations	Co-Owned <b>Gas-Fired</b> Station	<b>Solar</b> Facility	<b>Canada</b> <b>Hydroelectric</b> Stations	<b>US</b> <b>Hydroelectric</b> Stations

On April 29, 2020, OPG acquired a portfolio of natural gas-fired assets in Ontario, including the remaining 50 percent interest in PEC, which will add three thermal generating facilities to the Company's operations.

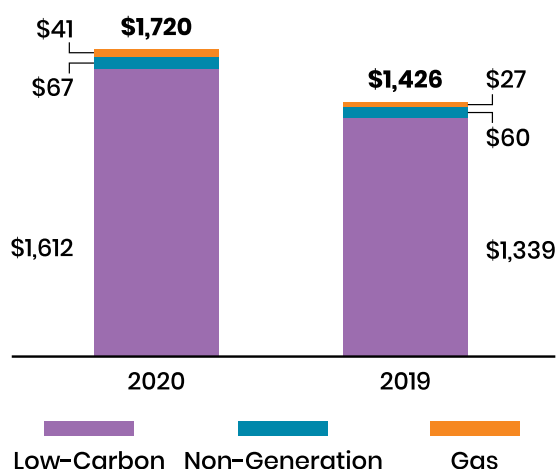
## In-service generating capacity by generation type (MW)<sup>1</sup>



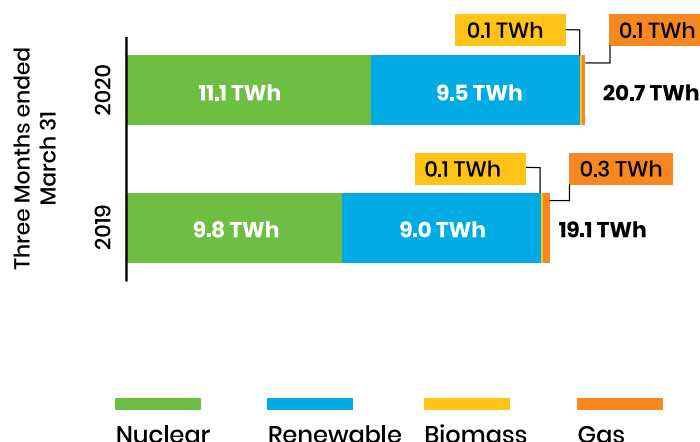
Includes OPG's proportionate share of in-service generating capacity and electricity generation from co-owned and minority-held facilities, as applicable. Gas category includes the oil/gas dual-fuelled Lennox GS, the Brighton Beach GS and OPG's proportionate share of PEC as at March 31, 2020.

## Revenue by facility category (millions of dollars)

Three Months ended March 31



## Electricity generation by generation type (TWh)



## Our Approach to Sustainability

At OPG, we believe that operating sustainably is good business. Our company's mission is to provide low-cost power in a safe, clean, reliable and sustainable manner for the benefit of our customers and our Shareholder, the Province of Ontario.

We maintain transparency with our partners and stakeholders through our dynamic and interactive digital media where we provide the latest information, stories, videos and tweets about our sustainability initiatives. For more information, refer to our [Annual Sustainable Report](#).

# Green Bond Framework

## Eligible Projects

Proceeds obtained from Ontario Power Generation’s green bonds are used to finance and/or refinance a group of selected projects that offer tangible

environmental benefits. Without limitation, Eligible Projects generally fall into the categories specified in the table below.

Renewable Energy Generation	
Investments that help supply energy from renewable sources	<div><div>Solar Energy</div><ul style="list-style-type: none"><li>• Construction of new solar energy facilities.</li><li>• Maintenance and/or refurbishment of existing solar energy facilities.</li></ul></div>
	<div><div>Wind Energy</div><ul style="list-style-type: none"><li>• Construction of new wind energy facilities.</li><li>• Maintenance and/or refurbishment of existing wind energy facilities.</li></ul></div>
	<div><div>Hydroelectricity</div><ul style="list-style-type: none"><li>• Construction of new run-of-river hydroelectricity projects.</li><li>• Refurbishment, modernization, and/or maintenance of existing hydroelectricity facilities with the purpose of increasing generation efficiency, operational life span and/or renewable energy output while maintaining or improving the level of operational safety.</li></ul></div>
Energy Efficiency and Management	
Investments that help reduce energy consumption or help manage and store energy	<ul style="list-style-type: none"><li>• Transportation efficiency/electrification.</li><li>• Industrial efficiency.</li><li>• Climate change and eco-efficient products, production technologies and processes.</li></ul>

OPG’s green bonds can also be used to finance the acquisition, including minority equity participation, of Eligible Projects.

Look-back period: Ontario Power Generation is entitled to allocate funds to Eligible Projects up to 24 months prior to the date of the Green Bond issuance.

Exclusion criteria: Ontario Power Generation has developed exclusionary

criteria for the Use of Proceeds, and is committed to not knowingly use proceeds for financing assets/projects that involve nuclear energy technology, equipment or infrastructure, or generation from fossil fuels.

## Process of Project Evaluation and Selection

Ontario Power Generation’s Green Bond Oversight Committee is made up of members of the senior management team, including its Chief Financial Officer, Chief Administrative Officer and President Renewable Generation. This Committee is responsible for the ultimate review and selection of the green projects that will qualify as Eligible Projects.

Projects are evaluated using financial and risk-based analyses as well as

strategic considerations. Ontario Power Generation has formal risk management policies, procedures, and systems in place to identify, assess and mitigate risks to the Company. Ontario Power Generation’s Code of Business Conduct Policy and Environmental Policy establish the Company’s parameters for ethical behaviour and environmental management, respectively.

## Management of Proceeds

Ontario Power Generation’s green bond proceeds are held in a segregated account consisting of cash and/or short-term money market instruments.

As Eligible Projects require funding, the money will be released from the segregated account to offset the green funding commitments.

## Transparency and Reporting

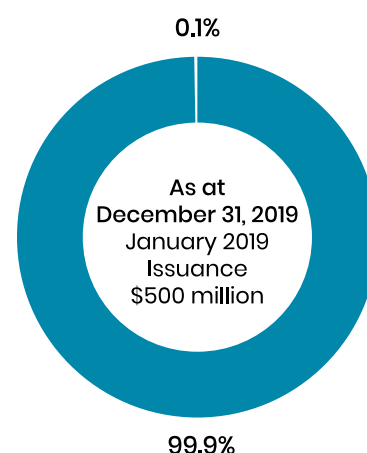
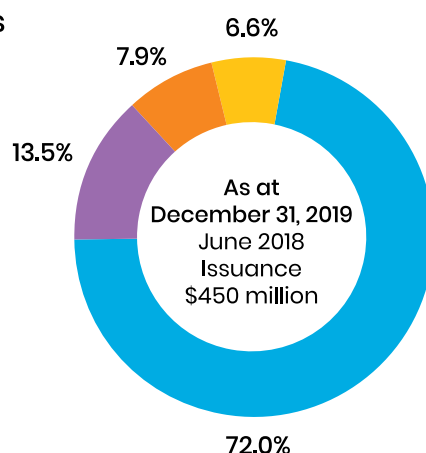
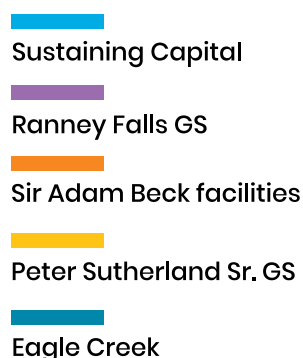
Allocation	Ontario Power Generation will update investors annually in regards to the use of proceeds and green bond program developments. The reports will include a list of major Eligible Projects to which green bond proceeds have been allocated, a brief description of the Eligible Projects, amounts allocated and the remaining balance of funds that have not yet been allocated.
Reporting	Where feasible, the report will include qualitative and quantitative environmental performance indicators (e.g. greenhouse gas emissions reduced/avoided, renewable energy generation, capacity of renewable energy plant constructed or rehabilitated).

## Issuances

As there have been no new green bond issuances in the 2020 reporting period, this report highlights project updates and ongoing environmental benefits.

For previous green bond impact report, refer to our Green Bond Investor Relations page.

### Value and use of net proceeds From green bond offerings



Project	Allocation (\$M)	Energy Production (MWh)*	Annual Avoided Emissions (tonnes CO2e)	Status
Ranney Falls GS Unit 3 Improvement	60.2	33,070	8,995	2020**
Sir Adam Beck I Units 1 and 2 Replacement	35.2	143,995	21,807	2022**
Construction of Peter Sutherland Sr. GS	29.7	112,489	30,597	Complete
Eagle Creek Acquisition	496.1	919,783	675,000	Complete

\*Upon completion of projects approaching operation

\*\*Currently project site work has been delayed in response to the COVID-19 pandemic, and OPG is assessing resulting impact to project completion timelines.

# Projects Approaching Operation

## Ranney Falls Generating Station

The Ranney Falls Generating Station expansion project, which will double the station's output, continues tracking on budget of \$77 million.

OPG's latest hydro rebuild involves replacing the station's G3 unit to improve the available hydroelectric potential at site. The unit is housed in a new powerhouse and the total station capacity will double from 10 to 20 MW,

enough electricity to supply up to 10,000 homes with clean, renewable power.

The new G3 unit is now more than 90 percent complete, with the generating unit safely installed in the new powerhouse and spillway gate recently put into service. Installation of the new unit – an efficient ECOBulb hydroelectric turbine runner – is currently underway.

## Sir Adam Beck Generating Station

At OPG's flagship Sir Adam Beck I Generating Station, work has begun to replace two historic generating units to provide more climate change-fighting, clean power for Ontario.

In 2019, OPG removed the outdated 25 hertz (Hz) G1 and G2 turbine-generators and its associated equipment from the 98-year-old station. Going in will be two new, more efficient 60 Hz generators, which will add about 125 megawatts (MW) of incremental generating capacity to the plant. Currently, the station's eight remaining units (G3 to G10) have a maximum capacity of 447 MW of

power, with an estimated annual energy production of 2,149 gigawatt hours.

The installation of the new G2 unit is scheduled to begin in the second half of 2020 following the completion of engineering design activities. The project's expected in-service date is in 2022, with a total estimated cost in the range of \$120 million to \$150 million. It will be the first full generator replacement to take place in the station's long history. As the station approaches its 100th birthday, Sir Adam Beck I GS is set to undergo other upgrades to help it continue to produce clean power for many more decades.



## Eagle Creek Renewable Energy

On November 27, 2018, OPG acquired 100 percent ownership interest of Eagle Creek Renewable Energy, LLC (Eagle Creek) for a total cash purchase price of approximately US\$298 million. The acquisition represents the expansion of OPG's renewable generation portfolio to new geographies, with additional clean energy generation aligning to OPG's strategic imperatives.

Eagle Creek is a hydropower platform with interests in 76 hydroelectric facilities and two solar facilities throughout

the United States (US) on the date of acquisition. The majority of facilities within Eagle Creek's fleet operate in the New England, Midwest and New York power market areas. Eagle Creek also acquired several smaller hydroelectric facilities during 2019, adding approximately 16 MW of in-service generating capacity to OPG's US operations.

Each year, Eagle Creek Renewable Energy powers over 115,000 homes and displaces approximately 675,000 metric tonnes of carbon dioxide from its operated facilities.

## GHG Mitigation Calculation Methodology

The quantification of greenhouse gas mitigation for the increased generation in Ontario Power Generation's hydroelectric fleet is calculated using a computer based model that determines how much generation will be displaced from combined cycle gas turbine plants. Using the incremental annual generation profile from the increased hydroelectric capacity, the model determines when the combined cycle gas turbine plants will be displaced. When the incremental hydroelectric generation is displacing gas, the Ontario grid emission factor of 0.4 tonnes carbon dioxide/MWh is used to calculate the net greenhouse gas mitigation.

The annual greenhouse gas mitigation from Eagle Creek is calculated using the tool from the United States Environmental Protection Agency called the Avoided Emissions and Generation Tool. This tool splits the contiguous 48 states into 10 regions across the United States and assigns emission factors to the appropriate generating stations.

The relevant AVERT regions and related NERC subregions are:

- Northeast region includes NERC subregions NEWE (Northeast Power Coordinating Council/New England), NYUP (Northeast Power Coordinating Council/Upstate New York)
- Great Lakes / Mid-Atlantic region includes NERC subregions RFCM (Reliability First Corporation/Michigan), RFCW (Reliability First Corporation/West), RFCE (Reliability First Corporation/East)
- Upper Midwest region includes NERC subregions MROE (Midwest Reliability Organization/East), MROW (Midwest Reliability Organization/West), SRMW (SERC Reliability Corporation/MISO-Central)
- California region includes NERC subregion CAMX (Western Electric Coordinating Council/California)
- Rocky Mountains region includes NERC subregion RMPA (Western Electric Coordinating Council/Rockies)