

Second-Party Opinion

Ontario Power Generation Green Bond

Evaluation Summary

Sustainalytics is of the opinion that the Ontario Power Generation Green Bond Framework is credible and impactful, and aligns with the four core components of the Green Bond Principles 2017. This opinion is based on:



USE OF PROCEEDS The eligible categories for the use of proceeds, renewable energy and energy efficiency & management, are aligned with those recognized by the Green Bond Principles, and have clear positive environmental impacts.



PROJECT EVALUATION / SELECTION Ontario Power Generation has a dedicated Green Oversight Committee, comprised of members of senior management, that is responsible for review and selection of eligible projects. This is in line with market best practice.



MANAGEMENT OF PROCEEDS Ontario Power Generation's processes for management and tracking of proceeds are in line with market practice.



REPORTING Ontario Power Generation intends to report on the allocation proceeds on an annual basis. The report will include a list and description of eligible projects to which funds have been allocated, and the amounts allocated. Where feasible, quantitative and qualitative environmental performance indicators will be provided. In Sustainalytics' view reporting on these metrics is in line with market practice.

Evaluation date	May 9, 2018
Issuer Location	Toronto, Canada

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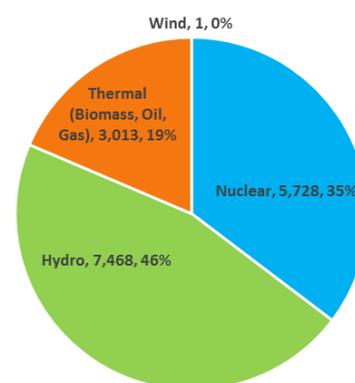
Introduction

Ontario Power Generation (OPG or “the Issuer”) generates and sells electricity in Ontario, contributing approximately half of the electricity consumed in the province. The company, a corporation wholly-owned by the Province of Ontario, generated 74.1 TWh of electricity in FY 2017. OPG is “committed to ensuring [that its] energy production is reliable, safe and environmentally sustainable for Ontarians today and for the future.”¹

OPG operates a fleet of 72 generating stations, with a total in-service capacity of 16,210 MW, as of December 31, 2017. This includes 66 hydroelectric stations, two nuclear generating stations, three thermal generating stations, and one wind turbine.² More than 99% of the electricity generated by the OPG is free of carbon emissions, making it “one of the largest near-zero-carbon generators in North America.”³

OPG has developed the Ontario Power Generation Green Bond Framework (the “framework”) under which it will issue multiple green bonds and use the proceeds to finance and/or refinance, in whole or in part, expenditures on existing projects over the 24-month period prior to the date of issuance and future projects that provide tangible environmental benefits.

In-Service Generating Capacity (MW)



The framework defines eligibility criteria in two areas:

1. Renewable Energy Generation:
 - a. Solar
 - b. Wind
 - c. Hydroelectric, including construction of new run-of-river hydro facilities and refurbishment or upgrade of existing hydro facilities
2. Energy Efficiency and Management
 - a. Transportation efficiency/electrification
 - b. Industrial efficiency
 - c. Climate change and eco-efficient products, production technologies, and processes

OPG engaged Sustainalytics to review the Ontario Power Generation Green Bond Framework and provide a second-party opinion as to the alignment of the framework with the Green Bond Principles 2017 (the “GBP”), as administered by the International Capital Market Association (the “ICMA”),⁴ and the framework’s environmental credentials. This framework has been published in a separate document.

As part of this engagement, Sustainalytics held conversations with various members of issuer’s management team to understand the sustainability impact of their business processes and planned use of proceeds, as well as management of proceeds and reporting aspects of OPG’s green bond. Sustainalytics also reviewed relevant public documents and non-public information.

This document contains Sustainalytics’ opinion of the Ontario Power Generation Green Bond Framework and should be read in conjunction with that framework.

¹ <https://www.opg.com/about/Pages/about.aspx>

² OPG also owns two other nuclear generating stations which are leased to Bruce Power LP, and is a co-owner of two thermal generating stations. OPG’s 50% share of the in-service capacity of the two co-owned facilities is included in the statistics set out in this report.

³ OPG 2016 Annual Report <https://www.opg.com/news-and-media/Reports/2016AnnualReport.pdf>

⁴ ICMA’s Green Bond Principles 2017 <https://www.icmagroup.org/assets/documents/Regulatory/Green-Bonds/GreenBondsBrochure-JUNE2017.pdf>

Sustainalytics' Opinion

Section 1: Sustainalytics' Opinion on the Ontario Power Generation Green Bond Framework

Summary

Sustainalytics is of the opinion that the Ontario Power Generation Green Bond Framework is credible and impactful, and aligns with the four core components of the Green Bond Principles 2017. Some of its key strengths are that:

- The eligible use of proceeds categories (i.e. Renewable Energy and Energy Efficiency & Management) are recognized by the Green Bond Principles as project categories having positive environmental benefits. For additional information, please see Section 3 for Sustainalytics' assessment of the use of proceeds
 - Energy Efficiency may include future projects related to energy storage, electric vehicle infrastructure, and other technologies.
 - OPG has included criteria in their Framework excluding any use of proceeds for fossil fuels or nuclear energy generation
- OPG's project selection process will be executed by a Green Oversight Committee, which will be responsible for the selection and review of eligible projects. In line with best practice, the Committee is made up of members of senior management, including the Chief Financial Officer, Chief Administrative Officer, and President Renewable Generation. The process for project selection will include financial and risk-based analyses, as well as strategic considerations, in line with OPG's Code of Business Conduct and Environmental Policies.
- OPG has an internal system to track the allocation of proceeds, which is aligned with market practices. Unallocated proceeds will be held in a segregated account, consisting of cash or short-term money market instruments.
- OPG will report annually on the allocation of proceeds and the amount of unallocated proceeds. The company further committed to providing a list of eligible projects funded and a description of the project.
- Where feasible, this reporting will include qualitative and quantitative environmental performance indicators, such as greenhouse gas emissions avoided, renewable energy generated, or capacity of renewable energy plants constructed or refurbished.

Alignment with Green Bond Principles 2017:

Sustainalytics has determined that the Issuer's green bond aligns to the four core components of the Green Bond Principles 2017. For detailed information please refer to Appendix 1: Green Bond/Green Bond Programme External Review Form.

Section 2: Sustainability Performance of the Issuer

Contribution of framework to Issuer's sustainability strategy

Ontario Power Generation states that it is committed to operating in a safe, open, and environmentally responsible manner by making positive contributions to the environment, economy, and communities in which it operates. Some notable aspects of the company's sustainability strategy and performance include:

- OPG made one of the single largest actions in North America to combat climate change, when it ceased generating electricity from coal-fired power plants in 2014.
- OPG's current electricity generation is 99% free of carbon emissions, including 40.7 TWh from nuclear generating stations and 33.4 TWh from hydroelectric generating stations (including both run-of-river and large hydro).
- OPG's 2016 Sustainability Report⁵ identified 22 priority sustainability topics and ten environmental goals and targets, including the reduction of greenhouse gas pollution, support for regional ecosystems and biodiversity, and meeting environmental compliance obligations.

⁵ https://www.opg.com/news-and-media/Reports/Sustainability_Report_2016.pdf

Ontario Power Generation Green Bond

Given the company's stated and demonstrated commitment to low-carbon electricity generation, the refurbishment and construction of renewable energy generating stations supports OPG's ongoing commitment to near emissions-free power generation. Sustainalytics recognizes that nuclear power can be viewed by investors as controversial, especially the ongoing issue of the long-term storage of nuclear waste. However, nuclear generation can be viewed as an important source of greenhouse gas-free electricity, particularly since it has supported OPG's transition away from coal-fired generation. Furthermore, the investment in eligible renewable energy projects may reduce future reliance on nuclear power, which accounts for 35% of OPG's current installed generating capacity. The OPG Green Bond Framework excludes investments in gas and nuclear projects from the use of proceeds. Given the above, Sustainalytics considers the use of proceeds to contribute to OPG's environmental goals and thus believes that the company is well-positioned to issue its green bond.

Well positioned to address common environmental and social risks associated with the projects

The most relevant environmental and social risks associated with the construction and operation of renewable energy projects are land use impacts at the site of construction, biodiversity impacts from operation (e.g. fish and birds), and the impact on communities living near the projects.

Sustainalytics is of the opinion that OPG is well-positioned to mitigate environmental and social risks, based on the following points:

- OPG has an Environmental Policy,⁶ which is updated annually, and states that it will meet all compliance obligations and that it will set and meet environmental commitments, with the intention to exceed these minimum commitments when feasible. Additionally, the policy states that OPG will manage its project sites in a way that maintains or enhances natural areas and species of concern, set environmental objectives as part of its business planning, and communicate environmental performance to stakeholders. Since 1999, OPG has maintained an ISO 14001 certified environmental management system. The certification covers the construction, operation, and decommissions of all generating stations and associated structures.
- OPG has an Indigenous Relations Policy,⁷ which acknowledges that it "operates within the traditional territories of Indigenous Peoples." The policy commits OPG to respecting the treaty rights of First Nations, to carrying out a relationship based on the principles of respect and integrity, and to working with Indigenous communities to build mutually beneficial relationships. OPG has demonstrated this commitment through several joint ventures with First Nations, most recently the construction of a hydroelectric generation station in partnership with the Taykwa Tagamou Nation in 2017.
- OPG has an active program to promote biodiversity, including the reforestation and restoration of natural habitats at project sites. In particular, OPG cites projects such as the restoration of a natural wetlands at the decommissioned Nanticoke Generating Station, the biodiversity programs hosted at the Darlington and Pickering nuclear stations, and the Marsh Monitoring Program at the Atikokan Generating Station. According to OPG, they maintain 20 certifications from the Wildlife Habitat Council.
- Electricity projects completed in the Province of Ontario are subject to the requirements of the Environmental Assessment Act. Based on the size and type of project, the Electricity Projects Regulation dictates the regulatory requirements that must be followed. Specifically, wind turbines greater than 2MW and all hydroelectric projects up to 200 MW are subject to a Class B Environmental Screening Process.

Given OPG's programmes and policies on environmental management and community engagement and lack of involvement in significant controversies, as well as the existing government regulations on electricity projects, Sustainalytics considers OPG to be well-positioned to mitigate risks related to the potential environmental and social risks of the use of proceeds.

⁶ https://www.opg.com/about/management/open-and-accountable/Documents/Environmental_Policy.pdf

⁷ https://www.opg.com/about/management/open-and-accountable/Documents/Indigenous_Relations_Policy.pdf

Section 3: Impact of Use of Proceeds

The use of proceeds categories are recognized as impactful by GBP.

Importance of ongoing investment in renewable energy in Ontario

OPG currently generates power that is 99% free of carbon emissions, and Ontario as a whole generated over 95% of its electricity from non-emitting sources. Of the 78.2 TWh of power generated by OPG in FY2016, 487 GWh was EcoLogo-certified green power. This amount consists of the generation from 26 small hydroelectric stations and one wind turbine.

OPG's green bond proceeds will be allocated to wind, solar, and hydro. Additional investments in these areas will support and enhance continued operation and/or increase the relative share of renewables generation in OPG's portfolio. Sustainalytics is of the opinion that these investments in renewable energy projects will support OPG's ongoing commitment to low-carbon electricity generation, as well as supporting the growth in green electricity in Ontario.

Contribution of the use of proceeds to Ontario's Climate Change Action Plan

Ontario's Climate Change Action Plan sets a target of reducing carbon emissions in the province by 15% below 1990 levels by 2020, and 37% by 2030. According to the Ontario Government's 2017 Progress Report, in 2015 the electricity sector emitted approximately 5.2 Mt of CO₂eq. Sustainalytics is of the opinion that the use of proceeds in the areas of both renewable energy and energy efficiency & management will support the achievement of commitments under Ontario's Climate Change Action Plan.

Alignment with and contribution to the UN Sustainable Development Goals

The Sustainable Development Goals (SDGs) were set in September 2015 and form an agenda for achieving sustainable development by the year 2030. This green bond advances the following SDG goals and targets:

Use of Proceeds Category	SDG	SDG target
Renewable Energy	7. Affordable and Clean Energy	7.2 By 2030, increase substantially the share of renewable energy in the global energy mix
Energy Efficiency & Management	7. Affordable and Clean Energy	7.3 By 2030, double the global rate of improvement in energy efficiency

Conclusion

OPG has developed a Green Bond Framework to support the financing and/or refinancing of various eligible renewable energy and energy efficiency projects. Proceeds will be allocated to project categories that are recognized by the Green Bond Principles as impactful. Furthermore, the projects will enhance continued operation and/or will increase the amount of renewable electricity generation in Ontario, maintain OPG's track record of emissions-free generation, and help advance two of the SDGs.

OPG has a system in place to track the allocation of bond proceeds, which is aligned with market practice. The company will report on allocation periodically and provide a list and description of projects that have been funded. Based on the above, Sustainalytics is confident that OPG is well-positioned to issue a green bond and considers the OPG Green Bond Framework to be robust, credible, and transparent and in alignment with the four core components of the Green Bond Principles 2017.

Appendices

Appendix 1: Green Bond / Green Bond Programme - External Review Form Section 1. Basic Information

Issuer name:	Ontario Power Generation (OPG)
Green Bond ISIN or Issuer Green Bond Framework Name, if applicable: <i>[specify as appropriate]</i>	Ontario Power Generation Green Bond Framework
Review provider's name:	Sustainalytics
Completion date of this form:	May 8, 2018
Publication date of review publication: <i>[where appropriate, specify if it is an update and add reference to earlier relevant review]</i>	

Section 2. Review overview

SCOPE OF REVIEW

The following may be used or adapted, where appropriate, to summarise the scope of the review.

The review assessed the following elements and confirmed their alignment with the GBPs:

- | | |
|--|--|
| <input checked="" type="checkbox"/> Use of Proceeds | <input checked="" type="checkbox"/> Process for Project Evaluation and Selection |
| <input checked="" type="checkbox"/> Management of Proceeds | <input checked="" type="checkbox"/> Reporting |

ROLE(S) OF REVIEW PROVIDER

- | | |
|---|--|
| <input checked="" type="checkbox"/> Consultancy (incl. 2 nd opinion) | <input type="checkbox"/> Certification |
| <input type="checkbox"/> Verification | <input type="checkbox"/> Rating |
| <input type="checkbox"/> Other <i>(please specify)</i> : | |

Note: In case of multiple reviews / different providers, please provide separate forms for each review.

EXECUTIVE SUMMARY OF REVIEW and/or LINK TO FULL REVIEW *(if applicable)*

Please refer to Executive Summary above.

Section 3. Detailed review

Reviewers are encouraged to provide the information below to the extent possible and use the comment section to explain the scope of their review.

1. USE OF PROCEEDS

Overall comment on section (*if applicable*):

The eligible categories for the use of proceeds, renewable energy and energy efficiency & management, are aligned with those recognized by the Green Bond Principles, and have clear positive environmental impacts.

Use of proceeds categories as per GBP:

- | | |
|--|--|
| <input checked="" type="checkbox"/> Renewable energy | <input checked="" type="checkbox"/> Energy efficiency |
| <input type="checkbox"/> Pollution prevention and control | <input type="checkbox"/> Environmentally sustainable management of living natural resources and land use |
| <input type="checkbox"/> Terrestrial and aquatic biodiversity conservation | <input type="checkbox"/> Clean transportation |
| <input type="checkbox"/> Sustainable water and wastewater management | <input type="checkbox"/> Climate change adaptation |
| <input type="checkbox"/> Eco-efficient and/or circular economy adapted products, production technologies and processes | <input type="checkbox"/> Green buildings |
| <input type="checkbox"/> Unknown at issuance but currently expected to conform with GBP categories, or other eligible areas not yet stated in GBPs | <input type="checkbox"/> Other (<i>please specify</i>): |

If applicable please specify the environmental taxonomy, if other than GBPs:

2. PROCESS FOR PROJECT EVALUATION AND SELECTION

Overall comment on section (if applicable):

OPG Green Oversight Committee, which is made up of members of OPG senior management, including Chief Financial Officer, Chief Administrative Officer and President Renewable Generation 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. OPG has formal risk management policies, procedures and systems in place to identify, assess and mitigate risks to the Company.

Evaluation and selection

Ontario Power Generation Green Bond

- | | |
|--|---|
| <input checked="" type="checkbox"/> Credentials on the issuer's environmental sustainability objectives | <input checked="" type="checkbox"/> Documented process to determine that projects fit within defined categories |
| <input checked="" type="checkbox"/> Defined and transparent criteria for projects eligible for Green Bond proceeds | <input checked="" type="checkbox"/> Documented process to identify and manage potential ESG risks associated with the project |
| <input type="checkbox"/> Summary criteria for project evaluation and selection publicly available | <input type="checkbox"/> Other (<i>please specify</i>): |

Information on Responsibilities and Accountability

- | | |
|--|--|
| <input checked="" type="checkbox"/> Evaluation / Selection criteria subject to external advice or verification | <input type="checkbox"/> In-house assessment |
| <input type="checkbox"/> Other (<i>please specify</i>): | |

3. MANAGEMENT OF PROCEEDS

Overall comment on section (*if applicable*):

OPG green bond proceeds will be held in a segregated account consisting of cash and/or short-term money market instruments. As Eligible Projects require funding, money will be released from the segregated account to offset the green funding commitments.

Tracking of proceeds:

- | |
|---|
| <input checked="" type="checkbox"/> Green Bond proceeds segregated or tracked by the issuer in an appropriate manner |
| <input checked="" type="checkbox"/> Disclosure of intended types of temporary investment instruments for unallocated proceeds |
| <input type="checkbox"/> Other (<i>please specify</i>): |

Additional disclosure:

- | | |
|--|---|
| <input type="checkbox"/> Allocations to future investments only | <input checked="" type="checkbox"/> Allocations to both existing and future investments |
| <input checked="" type="checkbox"/> Allocation to individual disbursements | <input type="checkbox"/> Allocation to a portfolio of disbursements |
| <input type="checkbox"/> Disclosure of portfolio balance of unallocated proceeds | <input type="checkbox"/> Other (<i>please specify</i>): |

4. REPORTING

Overall comment on section (if applicable):

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Allocation Reporting

OPG will update investors annually in regards to the use of proceeds and OPG's green bond program developments. The reports will include a complete list of 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.

Impact 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).

Use of proceeds reporting:

- | | |
|--|---|
| <input checked="" type="checkbox"/> Project-by-project | <input type="checkbox"/> On a project portfolio basis |
| <input type="checkbox"/> Linkage to individual bond(s) | <input type="checkbox"/> Other (<i>please specify</i>): |

Information reported:

- | | |
|---|--|
| <input checked="" type="checkbox"/> Allocated amounts | <input type="checkbox"/> Green Bond financed share of total investment |
| <input type="checkbox"/> Other (<i>please specify</i>): | |

Frequency:

- | | |
|--|--------------------------------------|
| <input checked="" type="checkbox"/> Annual | <input type="checkbox"/> Semi-annual |
| <input type="checkbox"/> Other (please specify): | |

Impact reporting:

- | | |
|--|--|
| <input type="checkbox"/> Project-by-project | <input checked="" type="checkbox"/> On a project portfolio basis |
| <input type="checkbox"/> Linkage to individual bond(s) | <input type="checkbox"/> Other (please specify): |

Frequency:

- | | |
|--|--------------------------------------|
| <input checked="" type="checkbox"/> Annual | <input type="checkbox"/> Semi-annual |
| <input type="checkbox"/> Other (please specify): | |

Information reported (expected or ex-post):

- | | |
|---|---|
| <input checked="" type="checkbox"/> GHG Emissions / Savings | <input checked="" type="checkbox"/> Energy Savings |
| <input type="checkbox"/> Decrease in water use | <input type="checkbox"/> Other ESG indicators (please specify): |

Means of Disclosure

- | | |
|--|--|
| <input type="checkbox"/> Information published in financial report | <input checked="" type="checkbox"/> Information published in sustainability report |
| <input type="checkbox"/> Information published in ad hoc documents | <input type="checkbox"/> Other (please specify): |

- Reporting reviewed (if yes, please specify which parts of the reporting are subject to external review):

Where appropriate, please specify name and date of publication in the useful links section.

USEFUL LINKS (e.g. to review provider methodology or credentials, to issuer's documentation, etc.)

SPECIFY OTHER EXTERNAL REVIEWS AVAILABLE, IF APPROPRIATE

Type(s) of Review provided:

- | | |
|---|--|
| <input checked="" type="checkbox"/> Consultancy (incl. 2 nd opinion) | <input type="checkbox"/> Certification |
| <input type="checkbox"/> Verification / Audit | <input type="checkbox"/> Rating |
| <input type="checkbox"/> Other (<i>please specify</i>): | |

Review provider(s):

Date of publication:

ABOUT ROLE(S) OF REVIEW PROVIDERS AS DEFINED BY THE GBP

- i. **Consultant Review:** An issuer can seek advice from consultants and/or institutions with recognized expertise in environmental sustainability or other aspects of the issuance of a Green Bond, such as the establishment/review of an issuer's Green Bond framework. "Second Party Opinions" may fall into this category.
- ii. **Verification:** An issuer can have its Green Bond, associated Green Bond framework, or underlying assets independently verified by qualified parties, such as auditors. In contrast to certification, verification may focus on alignment with internal standards or claims made by the issuer. Evaluation of the environmentally sustainable features of underlying assets may be termed verification and may reference external criteria.
- iii. **Certification:** An issuer can have its Green Bond or associated Green Bond framework or Use of Proceeds certified against an external green assessment standard. An assessment standard defines criteria, and alignment with such criteria is tested by qualified third parties / certifiers.
- iv. **Rating:** An issuer can have its Green Bond or associated Green Bond framework rated by qualified third parties, such as specialised research providers or rating agencies. Green Bond ratings are separate from an issuer's ESG rating as they typically apply to individual securities or Green Bond frameworks / programmes.

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The Opinion was drawn up with the aim to explain why the analyzed bond is considered sustainable and responsible. Consequently, this Opinion is for information purposes only and Sustainalytics will not accept any form of liability for the substance of the opinion and/or any liability for damage arising from the use of this Opinion and/or the information provided in it.

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The client is fully responsible for certifying and ensuring its commitments` compliance, implementation and monitoring.

Sustainalytics

Sustainalytics is a leading independent ESG and corporate governance research, ratings and analytics firm that support investors around the world with the development and implementation of responsible investment strategies. With 13 offices globally, the firm partners with institutional investors who integrate ESG information and assessments into their investment processes. Spanning 30 countries, the world’s leading issuers, from multinational corporations to financial institutions to governments, turn to Sustainalytics for second-party opinions on green and sustainable bond frameworks. Sustainalytics has been certified by the Climate Bonds Standard Board as a verifier organization, and supports various stakeholders in the development and verification of their frameworks. Global Capital named Sustainalytics the “Most Impressive Second Party Opinion Provider in 2017. In 2018, the firm was recognized as the “Largest External Reviewer” by the Climate Bonds Initiative as well as Environmental Finance. In addition, Sustainalytics received a Special Mention Sustainable Finance Award in 2018 from The Research Institute for Environmental Finance Japan for its contribution to the growth of the Japanese Green Bond Market.

For more information, visit www.sustainalytics.com

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