

‘Second Opinion’ on Québec’s Green Bond Framework

30 November 2017

Summary

Overall, Québec's Green Bond framework and environmental policies provide a progressive, clear and sound framework for climate-friendly investments. This is an updated framework (original Second Opinion 16 Feb 2017). The green bond framework lists eligible projects that are supportive of the objective of promoting a transition to low-carbon and climate-resilient growth and is supported by a strong governance structure. The province has ambitious mitigation and adaptation strategies. Green bond proceeds could be used for both financing new projects but also refinancing existing ones.

The framework explicitly excludes fossil fuel and nuclear investments in electricity production. In other sectors, such as transport, certain types of projects involving fossil fuels could be eligible when these lead to tangible greenhouse gas emissions reductions. E.g. new buses should be at least hybrid buses, ideally electrical. Life-cycle analyses will not systematically be performed on all projects, but will be favoured when it provides added value, for instance for projects involving bio-energies. To be eligible, energy efficiency projects must be supported by analyses showing the potential to deliver tangible results in terms of energy efficiency improvements. Québec's policies support regular and transparent updates, including on examples of project achievements to investors and the public. Departments in charge of eligible projects will submit information on impacts using different sustainable development indicators such as emission reductions. There will be no independent verifications of achieved results.

In its updated framework (26 Oct 2017), Québec has revised the selection criteria of eligible projects. According to the update, projects that are not included in the Québec Infrastructure Plan can be financed using Green Bond Proceeds, given that these projects have been approved by the government and are supported by an extensive study case that outlines every step of the project, including social and environmental impacts. Another criterion is that the funding of these projects must be reflected in the government's budget forecasts. The projects still have to fall under one of the eligible project types in the green bond framework. Eligibility criteria, such as the demand for tangible environmental benefits, apply as before. The reason for the update is to finance projects like the Réseau Électrique métropolitain (REM) project with green bond proceeds. The REM project is a completely automated light-rail transit system (LRT) in the Greater Montreal area. CICERO does not consider these changes to affect the shading of the framework.

Based on an overall assessment of the project types, and governance and transparency considerations Québec's Green Bond Framework gets a dark green shading. It was a fine balance between medium and dark green, which eventually turned out in the favour of dark green. CICERO encourages Québec to systematically apply lifecycle perspectives and take into account rebound effects where relevant, in order to be more transparent on the climate risk exposure of its investments. We encourage the development and use of verifications of green bonds achievements.



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Dark Green

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1 Introduction and background

As an independent, not-for-profit, research institute, CICERO (Center for International Climate and Environmental Research - Oslo) provides Second Opinions on institutions' framework and guidance for assessing and selecting eligible projects for green bond investments, and assesses the framework's robustness in meeting the institutions' environmental objectives. The Second Opinion is based on documentation of rules and frameworks provided by the institutions themselves (the client) and information gathered during meetings, teleconferences and e-mail correspondence with the client.

CICERO is independent of the entity issuing the bond, its directors, senior management and advisers, and is remunerated in a way that prevents any conflicts of interests arising as a result of the fee structure. CICERO has established the global Expert Network on Second Opinions (ENSO), a network of independent non-profit research institutions on climate change and other environmental issues, to broaden the technical expertise and regional experience for Second Opinions. CICERO works confidentially with other members in the network to enhance the links to climate and environmental science, building upon the CICERO model for Second Opinions. In addition to CICERO, ENSO members currently include Basque Center for Climate Change (BC3), International Institute for Sustainable Development (IISD), Stockholm Environment Institute (SEI), and Tsinghua University's Institute of Energy, Environment and Economy. A more detailed description of CICERO can be found at the end of this report. ENSO encourages the client to make this Second Opinion publically available. If any part of the Second Opinion is quoted, the full report must be made available.

CICERO's Second Opinions are normally restricted to an evaluation of the mechanisms or framework for selecting eligible projects at a general level. CICERO does not validate or certify the climate effects of single projects, and thus, has no conflict of interest in regard to single projects. CICERO is neither responsible for how the framework or mechanisms are implemented and followed up by the institutions, nor the outcome of investments in eligible projects.

This note provides a Second Opinion of Québec Green Bonds Framework and policies for considering the environmental impacts of their projects. The aim is to assess the Québec Green Bonds Framework as to its ability to support Québec's stated objective of promoting the transition to low-carbon and climate resilient growth.

This Second Opinion is based on the green bond framework presented to CICERO by the issuer. Any amendments or updates to the framework require that CICERO undertake a new assessment. CICERO takes a long-term view on activities that support a low-carbon climate resilient society. In some cases, activities or technologies that reduce near-term emissions result in net emissions or prolonged use of high-emitting infrastructure in the long-run. CICERO strives to avoid locking-in of emissions through careful infrastructure investments, and moving towards low- or zero-emitting infrastructure in the long run. Proceeds from green bonds may be used for financing, including refinancing, new or existing green projects as defined under the mechanisms or framework. CICERO assesses in this Second Opinion the likeliness that the issuer's categories of projects will meet expectations for a low carbon and climate resilient future.

Expressing concerns with 'shades of green'

CICERO Second Opinions are graded dark green, medium green or light green, reflecting the climate and environmental ambitions of the bonds and the robustness of the governance structure of the Green Bond Framework. The grading is based on a broad qualitative assessment of each project type, according to what extent it contributes to building a low-carbon and climate resilient society.

This Second Opinion will allocate a 'shade of green' to the green bond framework of Québec:

- **Dark green** for projects and solutions that are realizations today of the long-term vision of a low carbon and climate resilient future. Typically, this will entail zero emission solutions and governance structures that integrate environmental concerns into all activities.
- **Medium green** for projects and solutions that represent steps towards the long-term vision, but are not quite there yet.
- **Light green** for projects and solutions that are environmentally friendly but do not by themselves represent or is part of the long-term vision (e.g. energy efficiency in fossil-based processes).
- **Brown** for projects that are irrelevant or in opposition to the long-term vision of a low carbon and climate resilient future.

The project types that will be financed by the green bond primarily define the overall grading. However, governance and transparency considerations are also important because they give an indication whether the institution that issues the green bond will be able to fulfil the climate and environmental ambitions of the investment framework. The overall shading reflects an ambition of having the majority of the project types well represented in the future portfolio, unless otherwise expressed by the issuer.

2 Brief Description of Québec's Green Bond Framework and rules and procedures for climate-related activities

In Canada, the federal and provincial governments have shared responsibility of environmental management. Québec has decreased greenhouse gas emissions by 8% from its 2005 emissions level and has adopted an ambitious climate action plan, that includes both mitigation and adaptation strategies for the years 2013 to 2020. This plan pinpoints priorities and initiatives in the realm of climate. Québec has a target of reducing emissions by 20 per cent below 1990 level in 2020, and adopted in 2015 a GHG emission reduction target of 37.5% below 1990 levels by 2030. Québec has also committed to reducing its greenhouse gas emissions 80-95% below 1990 levels by 2050.

The establishment of the carbon market is one cornerstone of this action plan. The revenue that the Québec government obtains from this carbon market are invested in the priorities of the action plan. The carbon market is, therefore, an integral part of the action plan.

Emissions in 2014 were 8 per cent below 1990 level. Transportation, industry and buildings account for more than 85% of the province's emissions. Reduction measures in these sectors have been targeted because they have the most significant emission reduction potentials. But also sectors such as agriculture, residual materials and electricity are covered by the climate action plan.

Definition:

To be eligible for green bond financing the projects need to be included in the Québec Infrastructure Plan (QIP). According to the framework update, also projects outside the QIP may be financed with green bond proceeds, given that they have been approved by the government and include a comprehensive outline of project execution and environmental and social impacts. In addition, funding for projects outside the QIP has to be reflected in the government's budget forecasts. Projects outside the QIP still have to fall under one of the eligible project types in the green bond framework (see Table 2). Eligibility criteria, such as the demand for tangible environmental benefits, apply as before. The projects must comply with Québec's legislative and regulatory framework, and each project must be worth more than 25 million Canadian dollars (CAD). The first disbursements required for the projects selected must be made within 12 months after the green bond issue or within 6 months prior to the issue. In addition, it must be possible to regularly track the progress of, and disbursements to, selected projects.

Selection:

The Green Bond Advisory Committee (GBAC) is comprised of representatives from various government departments and agencies including the Ministry of Finance, the Ministry of Sustainable Development, Environment and the Fight against Climate Change, the Ministry of Transport, Sustainable Mobility and Transportation Electrification and Treasury Board. The GBAC takes decisions by consensus and adopts the selection process and selects projects from among the ones considered eligible that comply with the policies and standards of the Québec government. During the

funding process the Ministry of Finance decides which projects selected by the GBAC that will be financed by Green Bonds.

Management of proceeds:

It follows from the Green Bond framework that an amount from the general fund of the province of Québec, equal to the net proceeds from the Green Bonds issue, is credited to a designated account, in order to track the use and allocation of funds relating to eligible projects. As long as the account balance is positive, amounts equivalent to the funds disbursed are deducted from the balance of the designated account as the funds are allocated to eligible projects.

Transparency and Accountability:

To enable investors and the public to follow the development and provide insight to the green bond initiative, Québec will publish investor information annually on the progress in green bond projects including fund allocations, the tangible benefits for protecting the environment, reducing emissions of greenhouse gasses or adapting to climate change. This information will be made available in a dedicated section of the Québec's Ministry of Finance website.

The table below lists the documents that formed the basis for this Second Opinion:

Document Number	Document Name	Description
1	Québec's Green Bond Framework (February 2017)	
2	Selection Process Québec Green Bonds	Defining process and criteria for selecting eligible projects
3	List of Laws and Environmental Policies of Québec	Including links to relevant laws and policies, climate change strategies and action plans, Cap and trade system, greenhouse gas targets
4	List of Laws and Regulations	List of environmental laws, encompassing e.g. water, waste, pollution etc., under the auspices of the Ministry for Sustainable Development and the Environment and the Fight against Climate Change

5	2013-2020 Climate Change Action Plan (CCAP) (2012)	Outlining governmental plans for sustainable land use, innovation, greenhouse gas reduction and building of resiliency to climate change impacts
6	2013-2020 Government Strategy for Climate Change Adaptation (2012)	Outlining the expected impacts of climate change as well as strategies and implementation for adaptation measures.
7	Cap and Trade System for Greenhouse Gas Emissions Allowances	Outlining the functioning and regulations governing the carbon market of Québec.
8	2015–2020 Transportation Electrification Action Plan available at http://www.transportselectriques.gouv.qc.ca/en/action-plan/	Website outlining the government's plan to encourage electric transportation, to build an electric transportation manufacturing sector, and to create a legal and regulatory framework supportive of electric transportation.
9	2016 Sustainable Development Report (2016)	Sustainable Development Report published by the Montréal Public Transport Authority (STM)
10	Table of Sustainable Development Indicators 2011-2016	Sustainable Development Indicators 2011-2016 by the Montréal Public Transport Authority (STM)
11	Sustainable Development Plan 2020	Outlining sustainable development goals of the Montréal Public Transport Authority (STM)
12	Autorisation du projets de Réseau électrique métropolitain et exigences environnementales	“Authorization of the REM project and environmental requirements. “-Public information giving a general project description, project’s CO2 reduction forecasts, outline of environmental impact assessment and reaction to public hearing on environmental concerns.

13	Rapport d'analyse environnementale pour le projet de Réseau électrique métropolitain sur le territoire de la Communauté métropolitaine de Montréal par CDPQ Infra inc.	"Environmental analysis report for the REM project on the territory of the Communauté métropolitaine de Montréal by CDPQ Infra inc." Environmental assessment report compiled by the REM project owner and operator CDPQ infra.
14	Procédure d'évaluation et d'examen des impacts sur l'environnement du Réseau électrique métropolitain (REM)	Procedure for the evaluation and review of the environmental impacts of (REM). Outlining the timeline of benchmarking the environmental assessment report with laws and regulations. Describing the public hearing process on environmental concerns. Describing the authorization of REM in form of a government decree.

Table 1. Documents reviewed

3 Assessment of QUÉBEC Green Bond framework and environmental policies

Overall, the Québec green bond framework provides a detailed and sound framework for climate-friendly investments.

The framework and procedures for Québec’s green bond investments are assessed and their strengths and weaknesses are discussed in this section. The strengths of an investment framework with respect to environmental impact are areas where it clearly supports low-carbon projects, whereas the weaknesses are typically areas that are unclear or too general. Pitfalls are also raised in this section to note areas where issuers should be aware of potential macro-level impacts of investment projects.

Eligible projects under the Green Bond Framework

At the basic level, the selection of eligible project categories is the primary mechanism to ensure that projects deliver environmental benefits. Through selection of project categories with clear environmental benefits, green bonds aim to provide certainty to investors that their investments deliver environmental returns as well as financial returns. The Green Bonds Principles (GBP) state that the “overall environmental profile” of a project should be assessed and that the selection process should be “well defined”.

Category	Eligible project types	Green Shading and some concerns
Public Transit	<ul style="list-style-type: none"> Funding new public transit projects Improvements of the efficiency of existing public transit fleets, through upgrades or replacement 	<p>Medium Green</p> <ul style="list-style-type: none"> Potential for emission reduction depends on degree of urbanization, fuel type, and competition with private transportation.
Energy Efficiency	<ul style="list-style-type: none"> Energy retrofits to public sector buildings Improvement of combustion and industrial process efficiency 	<p>Medium Green</p> <ul style="list-style-type: none"> Consider potential lock-in of obsolete technologies. Efficiency improvements in existing fossil fuel combustion and industrial processes can prolong the use of these fuels and these processes, thus possibly increasing accumulated emissions of

greenhouse gasses. This should be considered if more environmental friendly alternatives exist.

- Rebound effects need to be considered.

Renewable Energy

- Increase in the production of hydro-electricity; biomass, biofuel and geothermal energy; and solar and wind power

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- Be aware of environmental impacts and possible rebound effects.
- Consider negative impacts on wildlife and nature in particular with large hydro project due to scale of environmental impacts.
- Consider emissions from construction phase and landscape issues and mass deposits.
- For biofuels, care should be taken to observe complex impacts of some waste types and effects on lifecycle emissions.
- Consider potential for heavy metal pollution from geothermal

Sustainable Waste Management

- Methane capture and destruction
- Development of organic waste treatment facilities using biomethanation and composting

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- Consider life cycle emissions, including reducing incineration of fossil fuel derived waste streams, and avoid negative impacts on biodiversity. Consider recycling of fossil fuel waste into material instead of incineration.

Sustainable Land Development

- Implementation of intermodal projects to reduce emissions generated by passenger and freight transportation
- Development of pedestrian pathways and bike paths

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Water Management and/or Water Treatment

- Construction of wastewater treatment plants
- Water and dam management

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- Water management is important given future climate change scenarios and expected regional water shortages.
 - Consider life cycle emissions and avoid negative impacts on biodiversity.
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Forest, Agricultural Land and Land Management	<ul style="list-style-type: none"> • Reforestation • Sustainable forest management 	Dark green
Climate Adaptation and Resilience	<ul style="list-style-type: none"> • Protection against heat islands • Infrastructure strengthening to deal with the impact of climate change 	Dark green <ul style="list-style-type: none"> • Higher frequency of extreme weather events expected from climate change. Risk analysis and adaptation can reduce impacts and costs of events.

Table 2. Eligible project categories

Strengths

The Province has ambitious mitigation and adaptation strategies. The issuer has adapted an ambitious climate action plan for the period 2013-2020 with clear priorities and focus areas. Through this plan Québec is pointing at concrete measures to achieve its goal of 20 per cent reductions in 2020 below 1990 level. Québec also has ambitious longer-term target for 2030 and 2050.

In addition, the Province has in place a government strategy for climate change adaptation. This strategy sets out a plan for government intervention to strengthen the resilience of Québec society to climate change. It also provides information about major adaptation initiatives for climate change that will be mobilized over the coming years. Québec also has a number of relevant laws and regulations aimed at steering the development of the province towards a resilient and low carbon future.

CICERO recommends excluding projects that support prolonged use of fossil fuel-based infrastructure that will contribute to GHGs in the long run. Québec's framework that explicitly says that electricity generation projects involving fossil fuels are not eligible for green bond financing is therefore in line with our long-term view on climate change.

It is a strength that The Green Bond Advisory Committee has a member representing the Ministry of Sustainable Development, Environment and the Fight against Climate change and that this committee selects by consensus projects from among the ones considered eligible that comply with the policies and standards of the Québec government. The Ministry of Finance decides which projects selected by the Advisory Committee that will be financed by Green Bonds.

The projects that will be undertaken through a Green bond financing must be chosen within the Québec Infrastructure Plan (QIP). Therefore, projects greater than 50 million CAD included in the QIP are required to follow the Directive sur la gestion des projets majeurs d'infrastructure publique (Directive). In this Directive, Departments in charge of the projects are required to submit an extensive study case that outlines every steps of the project including impacts on social front and on the environment. For projects below 50 million CAD, the GBAC will ask the Department in charge of the project to provide such information. The Directive does not apply to municipalities, therefore if any municipal projects are financed through a Green bond, the Departments working with municipalities will be asked to provide such information. According to the framework update, also projects that are not included in the QIP may be financed using Green Bond proceeds, given that they have been approved by the government and include a comprehensive outline of project execution and environmental and social impacts. In addition, funding for projects

outside the QIP has to be reflected in the government's budget forecasts. The projects still have to fall under one of the eligible project types in the green bond framework (see Table 2). Criteria regarding tangible environmental benefits apply as before.

The reporting and validation procedures are described well in the description of the Green Bond framework and other documents. Québec's policies support regular and transparent updates to investors and the public. Information will be made available in a dedicated section of the Québec's Ministry of Finance website.

Québec has no plans for external verifications of the green bond projects achievements. CICERO encourages the development of and use of verifications of Green Bonds achievements.

Weaknesses

There are no obvious weaknesses in Québec's green bond framework.

Pitfalls

Québec has informed us that the government favours projects across all sectors that increase the share of renewable energies. However, solutions involving renewable energies not always being available, certain types of projects involving fossil fuels could be eligible when these lead to tangible greenhouse gas emissions reductions. In the transportation sector, for instance, projects allowing modal shifts towards less emissive modes of transportation of persons and goods could be eligible. Reducing emissions in the transport sector is especially crucial for Québec as this sector represents 45 per cent of total emissions. Québec launched in November 2013 its "Stratégie d'électrification des transports", which objective is to support various initiatives regarding people's transportation, individual and collective, and merchandise transportation. To help doing so, the Ministry of Transport, Sustainable Mobility and Transportation Electrification has issued a ministerial directive toward transit companies, which states that new buses acquisitions should from now on be at least hybrids buses, and ideally electrical only.

To be eligible, energy efficiency projects must be supported by analyses showing the potential to deliver tangible results in terms of energy efficiency improvements. In certain sectors, existing governmental standards could provide extra guidance for the analysis and selection process. However, the Committee will not develop new standards.

Impacts beyond the project boundary

Due to the complexity of how socio-economic activities impact the climate a specific project is likely to have interactions with the broader community beyond the project borders. These interactions may or may not be environmentally friendly, and thus need to be considered with regards to the net environmental impacts of investments. Life-cycle perspectives and supply chain considerations are helpful in that regard. Québec has informed us that life-cycle analyses will not systematically be performed on all projects, but will be favoured as much as possible when doing so provides added value, for instance for projects involving bio-energies.

Rebound effects

Another macro-level concern is the potential for rebound effects. This can occur when emission reductions result in a net increase in emitting activities. For example, energy efficiency improvements that lower energy costs, inducing more energy use and partially offsetting energy savings. This can have the end result of lower reduction in emissions than anticipated. While these effects can never be entirely avoided, it is recommended to be aware of possible rebound effects and avoid investing in projects where the risk of such effects is particularly high.

Appendix: About CICERO

CICERO Center for International Climate Research is Norway's foremost institute for interdisciplinary climate research. We deliver new insight that helps solve the climate challenge and strengthen international climate cooperation. We collaborate with top researchers from around the world and publish in recognized international journals, reports, books and periodicals. CICERO has garnered particular attention for its work on the effects of manmade emissions on the climate and the formulation of international agreements and has played an active role in the UN's IPCC since 1995.

CICERO is internationally recognized as a leading provider of independent reviews of green bonds, since the market's inception in 2008. CICERO received a Green Bond Award from Climate Bonds Initiative for being the biggest second opinion provider in 2016 and from Environmental Finance for being the best external review provider (2017).

CICERO Second Opinions are graded dark green, medium green and light green to offer investors better insight in the environmental quality of green bonds. The shading, introduced in spring 2015, reflects the climate and environmental ambitions of the bonds in the light of the transition to a low-carbon society.

CICERO works with both international and domestic issuers, drawing on the global expertise of the Expert Network on Second Opinions. Led by CICERO, ENSO is comprised of trusted research institutions and reputable experts on climate change and other environmental issues, including the Basque Center for Climate Change (BC3), the Stockholm Environment Institute, the Institute of Energy, Environment and Economy at Tsinghua University and the International Institute for Sustainable Development (IISD). ENSO operates independently from the financial sector and other stakeholders to preserve the unbiased nature and high quality of second opinions.

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