

‘Second Opinion’ on Östersund Municipality’s Green Bond Framework

November 17th 2017

Summary

Östersund Municipality's Green Bond Framework provides a clear and sound framework for climate-friendly investments. The framework lists eligible categories of "Green Projects" that promote a transition to low-carbon and climate-resilient growth and is supported by a strong governance structure.

Proceeds raised under this green bond framework can fund eligible projects within municipal units, municipal companies, Östersundhem AB and Jämtkraft, and their subsidiaries. The municipality and its companies have ambitious climate related goals, comprehensive environmental strategies, policies and procedures. The issuer applies a life-cycle perspective to procurement decisions.

Green projects include mitigation and adaptation projects; in addition, up to 20 percent of the proceeds can go towards other environmental projects. Östersund Municipality has explicitly stated in their green bond framework that they will not finance nuclear power or fossil fuel based projects.

Impact reporting is an important tool to enhance transparency on the projects risk from climate change and the environmental effectiveness of the projects. The Green Bond framework outlines a procedure for reporting, which includes impact reporting for renewable energy and energy efficient buildings. CICERO encourages the issuer to develop and report on impact indicators for all project categories.

Overall, CICERO finds that the framework is aligned with the Green Bond Principles. Based on the overall assessment of the project types that will be financed by the green bond and governance and transparency considerations, Östersunds Municipality's Green Bond Framework is rated CICERO Dark Green. The issuer has informed that the majority of the proceeds most likely will finance renewable energy and energy efficiency in buildings. Due to the broad nature of the framework, Östersund should take extra care when selecting eligible projects to ensure rigorous environmental assessment that supports the dark green ambitions of the framework.



°CICERO
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 Östersund Municipality's Green Bonds Framework and policies for considering the environmental impacts of their projects. The aim is to assess the Östersund Municipality's Green Bonds Framework as to its ability to support Östersund Municipality'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 Östersund Municipality:

- **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 also factor in, as they can 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.

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

Östersund kommun (“Östersund”) is a municipality in Northern Sweden with about 60 000 inhabitants. The municipality is the sole shareholder of Östersunds Rådhus AB and its two subsidiaries, Östersundshem AB, a property development company, and Östersund Sport- och Eventarena AB, which runs the local event and sports arena. The municipality has a 98% share in Jämtkraft AB, which produces, distributes and sells electricity and district heating. Proceeds raised under this green bond framework can fund eligible projects within municipal units, municipal companies and their subsidiaries. The issuer has informed us that all organizations funded under the green bond framework will follow relevant municipal policies.

Policies

The municipality and its companies have ambitious climate related goals. By 2030, Östersund’s goal is to be fossil fuel free. By 2020, Östersund’s goal is to reduce GHG emissions by 60 percent, as compared to 1990 emissions. Travel and transportation account for approximately half of municipality wide emissions. The issuer has a range of policies and initiatives to reduce the impact of transportation. The second largest contributor to emissions is heating. The municipality owned Jämtkraft and Östersundshem AS both have initiatives and policies aimed at reducing the impact of heating.

Östersund has comprehensive environmental strategies, policies and procedures. The municipality has held an ISO 14001 certification since 2007 and is registered under the EU Eco-Management and Audit Scheme (EMAS)¹. Jämtkraft also has an ISO 14001 certification for its operations and subsidiary companies. Östersundshem has an environmental management system and environmental policies that include requirements for the new buildings, as well as towards suppliers and contractors. To evaluate the sustainability of a project, Östersundshem uses the tool Värderosen, that covers social, environmental and financial indicators.

External contractors are required to follow the municipal environmental policy. The requirements can vary from case to case, for example, if the project is in a sensitive environment the demands can be higher. Environmental audits are routinely performed by internal auditors. The municipality has transparent annual reporting to stakeholders on environmental performance.

Definition:

The green bond proceeds will go towards projects specifically selected to promote the transition to low carbon and sustainable development (“Green Projects”). Östersund has defined Green Projects as projects that aim to either:

¹ The EU Eco-Management and Audit Scheme (EMAS) is a management instrument developed by the European Commission for organizations to evaluate, report, and improve their environmental performance. More information http://ec.europa.eu/environment/emas/index_en.htm

- a) Reduce greenhouse gas emissions (including investments in low-carbon and clean technologies, such as energy efficiency and renewable energy)
- b) Adapt operations to climate change (including investments in increased resilience)
- c) Address other environmental issues (maximum 20 percent of proceeds will be invested in these projects)

The issuer will analyze each project to ensure that it does not counteract another prioritized area. The Municipality of Östersund's environmental officers at the Climate and Environment Unit will conduct this analysis together with environmental officials at Östersundshem and Jämtkraft. In some cases, environmental impact assessments and LCA analysis are available. In all cases, projects will be analyzed based on a holistic life cycle perspective. For example, an adaptation measure should not diminish energy efficiency and vice versa.

Eligible projects can be funded in whole or in part by the Municipality of Östersund. Proceeds can be used to finance new projects and to refinance Green Projects².

The Municipality of Östersund's Green Bond framework explicitly excludes nuclear power and fossil fuel based projects.

Selection:

Östersund's Finance Unit and Climate and Environment Unit will select eligible Green Projects in consensus, in consultation with the implementing administrations and municipality-owned companies. In addition to the Green Bond Framework, eligible projects must comply with EU law, the Swedish Environmental Code ("Miljöbalken") and align with the municipality's environmental goals, plans and programs. The projects may also be subject to requirements stemming from the municipality's ISO 14001 certification or EMAS registration, or Jämtkraft's ISO 14001 certification. As per the requirements of ISO 14001, life cycle assessments are considered in the environmental management system. The issuer has informed us that there are few life cycle analyses available, however the issuer has incorporated life cycle thinking, which includes an assessment of production, transport, energy use and recycling.

Östersund Municipality sets environmental requirements for procurement, which include criteria for transport services. Jämtkraft sets environmental requirements based on operation and needs, such as emissions, chemicals or energy efficiency.

In connection with annual reporting, the Finance Unit and Climate and Environment Unit will review the projects that have or will be funded with a green bond, and will assess if these still meet the criteria in the framework. If a project no longer meets the criteria, it will be removed from the list. Either the funding will be reallocated to another project or returned to the earmarked account.

Environmental experts are involved in the selection of eligible projects. They are responsible for ensuring compliance with environmental policies and have veto power in the decision making process.

Management of proceeds:

Proceeds from the issuance of Green Bonds will be separated and tracked by the issuer. Net proceeds will be credited to a separate account. As long as Green Bonds are outstanding and the account has a positive balance,

² New projects are defined as projects that have been finalized within one year before the time of approval by the Department of Finance and Economy and the Department of Environmental Strategy and thereafter.

the Municipality of Östersund will, at the end of every fiscal quarter, deduct funds from the account in an amount equal to disbursements through Green Projects made during such quarter. Prior to disbursement to Green Projects, the separate account balance will be placed as part of the liquidity reserve.

The liquidity reserve falls under the municipality's finance policy. Which states that Östersund Municipality will seek to be a responsible investor in its financial management. Investments shall be ethically and environmentally justifiable in accordance with the municipality's basic values. Further, asset management must also actively work to invest fossil-free and investments may not be made in companies engaged in the exploration, exploitation, recovery or production of coal, oil, gas, oil sands or other unconventional fossil oil. An update of the financial policy to clarify environmental and ethical considerations will take place in 2018.

CICERO finds the management of proceeds to be in line with the Green Bond Principles.

Transparency and Accountability:

The issuer will annually report on the use of proceeds in an Investor Letter. The letter will include a list of financed Green Projects, including allocated amounts, a description of the projects and their main environmental benefits, a description of the allocation between financing of new projects and re-financing, and a summary of the Municipality of Östersund's Green Bond development.

The Municipality of Östersund encourages and promotes the use of impact reporting. The issuer has committed to including impacts for two eligible project categories in the Investor Letter:

- Energy efficient commercial and residential buildings: The expected or actual energy use for each building
- Renewable energy: For solar and wind power projects, the amount of installed or produced renewable energy will be reported measured in kWh

Other impact reporting will be included to the extent possible. The use of proceeds from the Green Bonds, as well as tracking and management of funds will be part of the annual internal control in the Municipality of Östersund. The investor letter will be made publically available on the Municipality of Östersund's web page. The issuer has informed us that impact reporting will be subject to internal environmental review. The principle of free access to public records provides additional transparency into the operations of the municipality.

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

Document Number	Document Name	Description
1	Östersund Kommun - Ramverk för Gröna Obligationer – 9. november 2017	The green bond framework (Swedish document)
2	Miljöpolicy, Miljöledningssystem, EMAS och ISO, http://www.ostersund.se/bygga-bo-och-	The municipality's environmental management strategy and system,

	miljo/halsa-och-miljo/kommunens-miljoarbete/miljoledningssystem.html	including environmental policies, laws and regulations, communication and capacity building
3	Kommunens miljöarbete http://www.ostersund.se/bygga-bo-och-miljo/halsa-och-miljo/kommunens-miljoarbete.html	Overview of the municipalities environmental efforts
4	Miljöredovisning 2016 http://www.ostersund.se/bygga-bo-och-miljo/halsa-och-miljo/kommunens-miljoarbete/miljoredoavisning.html	The Annual Environmental report for 2016
5	Avfallsplan (process pågår, ny avfallsplan kommer 2018)	Waste management plan
6	Översiktsplan http://www.ostersund.se/download/18.7ea73fc815271422765e8b97/1454483295894/%C3%96versiktsplan%20%C3%96stersund%202040.pdf	Östersund 2040, comprehensive plan presenting the municipality's vision and strategies towards 2040
7	Tillväxtplan http://www.ostersund.se/download/18.36cfd098152aa926a3333eea/1454921955249/Tillv%C3%A4xtplan.pdf	The municipality plan for sustainable growth for the period 2014-2020
8	Trafikplan http://www.ostersund.se/download/18.186f97a815361281f82bfbdb/1504263601061/Trafikplan.pdf	Transportation plan adopted in 2005, key strategies include a higher share of trips by public transport, increased cycling
9	Resepolicy	Travel policy

		http://www.ostersund.se/download/18.3f220621152327646a79d4b/1452629420435/Resepolicy.pdf
10	Parkeringspolicy	Parking policy and guidelines for bike and car parking. http://www.ostersund.se/download/18.186f97a815361281f82c1b7/1465910088938/Parkeringspolicy.pdf
11	Plan för naturvård och park	Plan for nature conservation and parks, including a section on ecosystem services using http://www.ostersund.se/download/18.186f97a815361281f82743/1457626344710/Plan%20f%C3%B6r%20naturv%C3%A5rd%20och%20park.pdf
12	Plan för vatten- och avloppsförskning	Water and waste water treatment plan http://www.ostersund.se/download/18.186f97a815361281f82744/1457626344927/Plan%20f%C3%B6r%20vatten-%20och%20avloppsf%C3%B6rs%C3%B6rjning.pdf
13	Upphandlingspolicy	Procurement policy http://www.ostersund.se/download/18.7ea73fc81527142276532466/1453929045596/Upphandlingspolicy_gemensam.pdf
14	Program för stadsnära skogar	Program for management of forests in proximity to urban areas http://www.ostersund.se/download/18.186f97a815361281f82c111/1457688809546/Program%20f%C3%B6r%20sk%C3%B6tsel%20av%20stadsn%C3%A4ra%20skogar.pdf
15	Cykeltrafikprogram	Bicycle transportation program http://www.ostersund.se/kommun-och-politik/styrning/mal--och-styrdokument.html

16	<p>Klimatväxlingsavgift för flygresor</p> <p>http://fossilfritt-sverige.se/utmaningar/klimatvaxlingsutmaningen/</p>	<p>Fossil Fuel Free Sweden's Climate Change Challenge to Which Östersund has signed up, organizations add an internal fee to travel with high emissions and dedicate this fee towards environmentally friendly activities</p>
17	<p>Beslut om solceller på kommunala tak</p>	<p>Protocol from a City Council meeting 2015-09-01 where it was decided that where feasible the municipality should install rooftop solar on public buildings</p>
18	<p>Hälsa och miljö</p> <p>http://www.ostersund.se/bygga-bo-och-miljo/halsa-och-miljo.html</p>	<p>Information about health and environment initiatives, including hazardous materials, indoor air quality and pesticides</p>
19	<p>Green Highway</p> <p>http://www.greenhighway.nu/</p>	<p>Information about the Green Highway project</p>
20	<p>Cykeltrafik</p> <p>http://www.ostersund.se/trafik-och-infrastruktur/cykeltrafik.html</p>	<p>Information for cyclists</p>
21	<p>Kollektivtrafik</p> <p>http://www.ostersund.se/trafik-och-infrastruktur/kollektivtrafik.html</p>	<p>Information about public transport options</p>
22	<p>Hållbart resande</p> <p>http://www.ostersund.se/trafik-och-infrastruktur/hallbart-resande.html</p>	<p>Information about the municipality's work in the areas of sustainable transportation</p>
23	<p>FairTrade City</p> <p>http://www.ostersund.se/bygga-bo-och-miljo/halsa-och-miljo/fairtrade-city.html</p>	<p>Information about Östersund's certification as a Fairtrade City</p>

24	Medlem och ordförande av Klimatkommunnätverket	List of the members of the Municipal Climate Board
	http://www.klimatkommunerna.se/Om-klimatkommunerna/Styrelsen/	
25	Årsredovisning 2016	Annual report 2016
	http://www.ostersund.se/kommun-och-politik/ekonomi/arsredovisning.html	
26	Budget 2016 och flerårsplan 2017-2018 Referensdokument – Budget 2017 och flerårsplan 2018-2019	The Municipality's annual budgets
	http://www.ostersund.se/kommun-och-politik/ekonomi/budget-och-uppfoljning.html	
27	Om hur Östersunds kommunkoncern är organiserad	Overview of the organization of the municipality and it's corporate interests
	http://www.ostersund.se/kommun-och-politik/kommunens-organisation.html	
28	Silverplats i Laddguldets 2017	Östersund received the Silver Award for facilitating electric car ownership and use
	http://www.ostersund.se/om-webbplatsen/nyhetsarkiv/nyhetsarkiv/2017-09-06-det-blev-silvermedalj-i-laddguldets.html	
29	Bästa arrangör av Europeiska Trafikantveckan 2014	European Mobility Week website. Östersund won the prize for the best organizer of the event in 2014.
	http://www.mobilityweek.eu/emw-award/	
30	Bästa klimatmunicipalit enligt Naturskyddsföreningen 2010	Östersund was ranked the best climate municipality by Naturskyddsföreningen in 2010
	https://www.naturskyddsforeningen.se/nyheter/ostersund-har-sverige-basta-klimatarbete	

31	Bästa elbilsstad 2011 http://www.klimatkommunerna.se/For-medlemmar/Medlemmar/Ostersund/	Östersund was voted the best place for electric vehicles by “green motorists”
32	ISO 14001-certifikat https://www.jamtkraft.se/globalassets/filer/om-jamtkraft/hallbarhet/jamtkraft-miljocertifikat-svenska-2016.pdf	Jämtkrafts ISO 14001 certification
33	Miljöpolicy https://www.jamtkraft.se/globalassets/filer/om-jamtkraft/hallbarhet/miljopolicy-jamtkraft.pdf	Jämtkraft’s environmental policy
34	Jämtkrafts års- och hållbarhetsredovisning https://www.jamtkraft.se/arsredovisning/	Jämtkrafts integrated annual reporting from 2016
35	Miljöfond https://www.jamtkraft.se/om-jamtkraft/hallbarhet/miljo/jamtkrafts-miljofond/	Information about Jämtkrafts environmental fund
36	Östersundshem AB Miljöpolicy	Östersundshem AB environmental policy
37	Årsredovisning 2016 Östersundshem AB	Östersundshem AB annual report
38	Östersundshem AB Hållbarhetsprogram nyproduktion	Östersundshem AB sustainability program for new buildings

Table 1. Documents reviewed

3 Assessment of Östersund Municipality's Green Bond framework and environmental policies

Overall, the Östersund Municipality's green bond framework provides a detailed and sound framework for climate-friendly investments.

The framework and procedures for Östersunds Municipality'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
Renewable Energy	<ul style="list-style-type: none"> Hydropower with water-rights court ruling in Sweden or concession in Norway³ Wind power Solar power Production of hydrogen from electrolysis or other residual flows Production of biogas, biofuels and bioenergy from agricultural residues, forestry 	<p>Dark Green</p> <ul style="list-style-type: none"> ✓ Consider local environmental impacts ✓ Avoid negative impacts on biodiversity. Jämtkraft is taking steps in this direction by performing inventory studies of flora and fauna in impacted areas prior to construction of power plants

³ Jämtkraft has business relations with Norway, among others through joint ownership of the Norwegian renewable energy company Nordkraft.

	residues and other biological residues.	<ul style="list-style-type: none"> ✓ The issuer has informed us that only local feedstocks will be used ✓ Take care to avoid investments in fossil fuel related grid infrastructure
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Energy efficiency	<ul style="list-style-type: none"> • District heating/cooling • Energy recovery • Energy storage • Smart grids 	<p>Dark Green</p> <ul style="list-style-type: none"> ✓ Be aware of possible rebound effects. ✓ Fossil fuel infrastructure is excluded. ✓ Peat is included in the energy mix in district heating (5% in 2016). ✓ Due to start up and some very cold days there is a small share of oil consumption in the energy mix for district heating (0,5 % in 2016). ✓ The issuer is looking at options to replace the oil use with greener solutions. the goal is to be 100 % renewable in 2026 (including phasing out peat).
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Sustainable transportation	<ul style="list-style-type: none"> • Fossil free public transportation, pedestrian and bicycle paths • Vehicles driven by hydrogen, biogas and electricity • Logistics solutions leading to reduced climate footprints from transportation of people and goods 	<p>Dark green</p> <ul style="list-style-type: none"> ✓ Potential for emission reduction depends on area planning and degree of urbanization, introduction of new vehicle technologies for passenger and goods transportation, and fuel types. ✓ No projects that include fossil fuel are eligible. ✓ Biogas is produced locally as a part of a green regional partnership. ✓ Biogas vehicles can potentially run on natural gas.

According to the issuer only biogas is produced and available at the gas filling station , in the city of Östersund and the nearest natural gas pump is 200 km away.

Replacement of fossil raw materials

- For example from fossil based plastics to bioplastics

Dark Green

- ✓ Important step to phase out fossil fuel in supply chains

Energy efficient commercial and residential buildings

- Commercial and residential buildings that meet the energy requirements for FEBY⁴, Svanen⁵ or Miljöbyggnad Silver⁶⁷
- Major renovations and re-construction leading to a reduced energy use of at least a 35 percent per m²Atemp and year

Medium Green

- ✓ Passive or plus house technologies should become mainstream and the energy performance of existing buildings greatly improved. Östersund is taking steps towards this long-term vision with energy efficiency targets
- ✓ Construction projects can have potential negative local environmental impacts. Both Östersundshem AB and the municipality have policies in place to mitigate negative impacts of construction phase
- ✓ For new buildings, access to public transport is considered, bicycle parking and charging facilities for electric cars are offered to tenants

⁴ FEBY is the Swedish Passive House standard, requirements range from 25 kWh/m² to 63 kWh/m² depending on the location and building specifications, more information <http://www.nollhus.se/feby-12/passivhus-energianvaendning>

⁵ Svanen is the Nordic Swan Ecolabel. Small houses, apartment buildings and pre-school buildings can be awarded the Nordic Swan Ecolabel. Buildings in Sweden must not consume more energy than 75% of BBR21 or 80% of BBR22 (applies to small houses) and 85% of BBR22 (applies to apartment buildings and pre-school buildings). More information http://www.svanen.se/Documents/portaler/Hus/Kriteriedokument_089_Smahus_flerbostadshus_och_forskolebyggnader_2_Engelska.pdf

⁶ Miljöbyggnad is the Swedish Green Building Council green building certification. To meet the energy requirements for Silver, non-residential buildings must use less than 70 percent of applicable building standards, residential must use less than 80 percent. More information: <https://www.sgbc.se/docman/bgo-2014/947-3-0-mb-nyproduktion-170510-vers-170915/file>

⁷ In each case, a geographical systemic approach and primary energy perspective shall be applied, i.e. it is the need of energy input, not purchased energy, which shall be considered. Energy use is verified against the energy declaration for each individual building. Certification of the buildings is positive but not a requirement.

Waste Management	<ul style="list-style-type: none"> • Recycling and re-use • Rehabilitation of contaminated land, and leachate management 	<p>Dark or Medium Green</p> <ul style="list-style-type: none"> ✓ The issuer has informed us that the majority of municipal trucks run on biodiesel or biogas. ✓ Waste incineration is best combined with ambitious recycling policies.
Water and waste water management	<ul style="list-style-type: none"> • Projects could include waste water treatment at municipal landfills or new water treatments plants for municipal drinking water 	<p>Dark Green</p> <ul style="list-style-type: none"> ✓ Consider negative impacts on wildlife, nature and lifecycle pollution. Avoid negative impacts on biodiversity. ✓ Be aware of possible lock-in of pipes and infrastructure supporting fossil fuel related industries. ✓ Careful consideration should be taken in assessing projects to exclude fossil fuel elements (e.g. water pipelines to coal power plants).
Carbon sequestration	<ul style="list-style-type: none"> • Biochar production • CCS/CCR technology 	<p>Dark Green</p> <ul style="list-style-type: none"> ✓ Issuer has informed that the CCS and CCR technology would have to use bio sources. No actual project on going.
Climate adaptation measures	<ul style="list-style-type: none"> • Adaptation measures in buildings, infrastructure and sensitive habitats 	<p>Dark Green</p> <ul style="list-style-type: none"> ✓ Important given climate change scenarios and higher frequency of extreme weather conditions.

		<ul style="list-style-type: none"> ✓ The issuer will analyze each project to ensure that it does not counteract mitigation efforts ✓ Fossil fuel related infrastructure is excluded
Environmental measures (not climate related)	<ul style="list-style-type: none"> • Nature conservation • Biodiversity • Development of non-toxic environments • Sustainable agriculture • Improved eco-system services 	<p>Dark Green</p> <ul style="list-style-type: none"> ✓ Maximum 20 percent of proceeds will go towards this category

Table 2. Eligible project categories

Strengths

The municipality has both ambitious climate related goals and a record of accomplishment. According to Swedish environmental emissions data, carbon emissions from fossil fuels in the municipality were reduced by 54 percent between the years of 1990 and 2015⁸. Between 2010 and 2015, energy use in the municipality was reduced by 19 percent and energy use related to the municipal administration was reduced by 17 percent. Travel and transportation account for approximately half of municipality wide emissions. The issuer has a range of policies and initiatives to reduce the impact of transportation. The municipality transport plan includes a strategy to increase the share of trips made by public transportation and cycling in cities. For example, Östersund's goal is that 20 percent of all urban trips are by bicycle in 2020. The second largest contributor to emissions is heating. The municipality owned Jämtkraft and Östersundshem AS both have initiatives and policies aimed at reducing the impact of heating.

Östersund Municipality has a good structure for approval of projects in place that ensure environmental integrity. Green Projects will be selected in consensus by the Finance Unit and Climate and Environment Unit. The backbone of the selection process is the issuer's strong environmental governance. An example is Jämtkraft's diligence in eliminating fossil fuel as a fuel source. The issuer has informed us that currently around 0.5 percent of fuel sources for district heating are fossil fuels, and that they use fossil fuel powered vehicles to transport biofuels. The company has a plan to phase out both of these fossil fuel elements and, in addition, to phase out the use of peat at the latest in 2026.

The incorporation of life cycle thinking is a clear strength.. An example of this approach is the use of the Värderosen tool by Östersundshem AB. The tool covers social, environmental and financial indicators, and serves as support in the procurement of major new constructions. Östersundshem AB uses a process called

⁸ Carbon dioxide emissions for Östersunds municipality as a geographical unit was 150 794 tons in 2015.

partnering procurement. In this form of procurement, the client and the contractor design the project together and use Värderosen as a support.

The issuer is developing a climate adaptation policy. A risk and vulnerability assessment has already been conducted and the municipality has taken actions to avoid flooding, negative impacts from storms, power failure, problems with sewage system and water supply. Municipal planning already incorporates flooding and overflow consideration.

CICERO takes a long-term view on climate change, and thus recommends excluding projects that support prolonged use of fossil fuel-based infrastructure that will contribute to emissions in the long run. Östersund Municipality has explicitly stated in their green bond framework that they will not finance nuclear power or fossil fuel based projects.

Impact reporting is an important tool to enhance transparency on the projects risk from climate change and the environmental effectiveness of the projects. The Green Bond framework outlines a procedure for reporting and includes impact reporting for two project categories. CICERO is encouraged by Östersund's commitment to impact reporting and further encourages the issuer to develop and report on impact indicators for all project categories.

Weaknesses

We find no obvious weaknesses in Östersund Municipality's Green Bond framework.

Pitfalls

In a low carbon 2050 perspective, the energy performance of buildings is expected to be improved, with passive house technology becoming mainstream and the energy performance of existing buildings being greatly improved through refurbishments. The issuer is taking a step in this direction with energy efficiency criteria for both new buildings and by renovating existing buildings. The Green Bond framework would however benefit from a clearer requirement that best environmental technology is used in eligible green bond building projects. Voluntary certifications could be required and the classification level of projects could be increased to reflect best available technology in Sweden. The Swan labeling only requires 15% lower energy use than the BBR.

The use of peat and waste for energy purposes represents a potential pitfall when it comes to supporting a low carbon and climate resilient future. Waste incineration with energy recovery is a sound environmental and climate friendly option to divert waste away from landfilling. Waste incineration is however best combined with ambitious recycling policies. When the capacity of waste incineration is high, it might be an incentive to burn waste for energy purposes instead of material recycling. Hence, there is a particular need to continue to improve in this regard, in particular to recycle more fossil fuel waste such as plastics into new materials. The issuer has several recycling stations with separate containers for newspaper and various packaging materials (plastic, paper, metal, glass and newspaper). The recycling rate (waste to energy excluded) is 41 % according to Avfall Sweden.

Biogas vehicles can potentially run on natural gas. In the city of Östersund, only biogas is produced and available at the gas filling station and the nearest natural gas pump is 200 km away. The biogas vehicles in the municipal fleet run almost entirely within the boundaries of the municipality, as opposed to long distance trips.

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 climate-friendly, and thus need to be considered with regards to the net impact of climate-related investments.

Rebound effects

Efficiency improvements may lead to rebound effects. When the cost of an activity is reduced there will be incentives to do more of the same activity. From the project categories in Table 2, an example is energy efficiency. Östersunds Municipality should be aware of such effects and possibly avoid Green Bond funding of projects where the risk of rebound 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.

cicero.oslo.no/greenbonds

