

‘Second Opinion’ on Norrköping kommun’s Green Bond Framework

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Summary

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

Norrköping kommun has in place ambitious energy targets and environmental goals in different sectors and detailed plans on how to achieve their goals. Norrköping Kommun has ongoing work with input from the research community on developing guidelines for adaptation. The aim is to adopt new guidelines by the end of 2017.

CICERO recommends excluding projects that support prolonged use of fossil fuel-based infrastructure that will contribute to greenhouse gas (GHG) emissions in the long run. Norrköping's framework explicitly says that fossil fuels projects are not eligible for green bond financing and is therefore in line with our long-term view on climate change.

Norrköping kommun has in place very good procedures for monitoring and reporting of green bond projects. The issuer has informed us that impact reporting of changes in energy consumption (kWh) and the share of renewable fuels will be included in the Annual Report on Green Bonds. We are very encouraged to see that the information will relate to each individual project. This type of impact reporting puts Norrköping kommun at the forefront of municipalities in green bond reporting.

Based on an overall assessment of the activities that will be financed by the green bond, Norrköping Kommun's Green Bond framework gets the Dark Green shading. The Green Bond framework would however benefit from a clearer requirement that best environmental technology is used in eligible green bond building projects. This category was allocated a medium green shading.

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 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.

CICERO 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 for the outcome of investments in eligible projects.

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 Norrköping kommun:

- 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 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 Norrköping kommun's Green Bond Framework and Rules and Procedures for Climate-Related Activities

Norrköpings kommun is a municipality in Östergötland County in southeast Sweden. Its seat is located in the city of Norrköping, with around 90,000 inhabitants. Norrköping kommun has in place ambitious energy targets and environmental goals in different sectors (e.g. waste and buildings), and detailed plans on how to achieve their goals. Norrköping Kommun has ongoing work with input from the research community on developing guidelines for adaptation. The aim is to adopt new guidelines by the end of 2017.

In March 2009, the municipality adopted an Energy plan for the period up to 2030. This plan includes two objectives that affect emissions of greenhouse gases. The first relates to energy efficiency and the other to renewable energy. The targets are set based on EU 2020 goals and Swedish national targets, but also taking into considerations requirements that will apply in 2050. The objective of the energy plan is that by 2030 energy consumption will be reduced by 30 percent compared to 2005. By 2030 only renewable energy sources should be used. Since the possibilities to influence are greatest in the municipality's own operations, the target for energy consumption is set at 50% during the same period.

The Energy plan has no specific targets for reducing emissions of greenhouse gases, according to the issuer mainly because of the difficulties in evaluating climate impacts from electricity use. The energy efficiency targets are absolute. In other words they are not designed to take into account a growing population and increased productivity. To achieve the targets, Norrköping intends to finance a series of investments with funds from the issuance of green bonds, for example in housing, buildings, transport, energy efficiency and renewable energy.

Projects eligible under the Norrköping kommun's green bond framework are those that promote the transition to a low carbon and climate resilient growth in line with Norrköpings kommun's Environmental Goals. Norrköpings kommun's Green Bonds can be used to finance new projects and to refinance Eligible Projects in accordance with the Green Bonds Framework. The ambition is to use the majority of the Green Bond proceeds to finance new projects.

To enable investors to follow the development and provide insight to prioritised areas, Norrköpings kommun will provide an annual investor letter to investors including 1) a list of projects financed 2) a selection of project examples and 3) a summary of Norrköpings kommun's Green Bond development. The investor letter will be made publically available on Norrköpings kommun's web page.

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

Table 1: Documents Reviewed

Document Number	Document Name	Document Number	Document Name
1	Norrköpings kommun's Green Bond Framework (21.04.2016)	15	Ostlänken – promemoria
2	Norrköpings Vision	16	Ostlänken – kommunens arbete
3	Gemensam Klimatvision Norrköping-Linköping	17	Miljöplan
4	Övergripande mål 2015-2018	18	Mål och strategier
5	Preciseringar för hållbar utveckling och strategiska miljö- frågor, 2015	19	Teknikplan
6	Energiplan 2009-2030	20	Avfallsplan
7	Handlingsplan 2015- 2018	21	Uppföljning av avfallsplanen 2014
8	Uppföljning av Norrköpings Energiplan 2015	22	Riktlinje för dagvattenhantering
9	Miljöplan	23	Riktlinje för kostverksamheten
10	Projektbeskrivning - energieffektivisering	24	Klimatdatabas för måltider
11	Projektanvisningar fastighet	25	Riktlinje för naturvård
12	Energistrategi	26	Nuläge och Energistatistik 2015
13	Ekonomikommisionens rapport: Infra- struktur - kollektivtrafik	27	Riktlinje for vindkraft
14	Ostlänken – förslag till beslut	28	Norrköpings styrmodell och styrdokument

3. Assessment of Norrköping kommun's Green Bond framework and environmental policies

Overall, the Norrköping kommun green bond framework provides a detailed and sound framework for climate-friendly investments. The framework and procedures for Norrköping kommun'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.

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) (ICMA 2015) state that the “overall environmental profile” of a project should be assessed and that the selection process should be “well defined”.

Table 2: Eligible project types, shades of green and concerns

Category	Eligible project types	Green Shading and some concerns
Renewable energy	<ul style="list-style-type: none"> • Wind • Solar • Geothermal • Biogas from waste 	Dark green <ul style="list-style-type: none"> ✓ Consider negative impacts on wildlife, nature and lifecycle pollution. ✓ Consider emissions from construction phase and landscape issues and mass deposits ✓ Potential for heavy metal pollution from geothermal energy.
Energy efficiency	<ul style="list-style-type: none"> • Improvements in existing buildings, activities and operations such as new control technology, ventilation systems and lighting. • Minor renovations of buildings (e.g. window replacement) leading to efficiency improvements of at least a 35% compared to existing technology can also be included. 	Dark green <ul style="list-style-type: none"> ✓ Rebound effects need to be considered. Efficiency improvements in existing fossil fuel infrastructure can prolong the lifetime of this infrastructure, thus possibly increasing accumulated GHG emissions from the plant.
Sustainable public and individual transportation with renewable fuels and related infrastructure		Dark green <ul style="list-style-type: none"> ✓ Consider the fuel type and comparison to current practice of all elements of each project. ✓ Consider local and lifecycle pollution of biofuels
Sustainable buildings	<ul style="list-style-type: none"> • New buildings with at least 25% less energy use per m2 and year than required by applicable regulations (Boverkets byggregler, BBR) and preferably a minimum certification of either LEED gold, BREEAM very good, Miljöbyggnad silver or Svanen 	Medium green <ul style="list-style-type: none"> ✓ The building criteria are good, but may not realise a standard reflecting best available technologies. This is important for long-term sustainable development. ✓ LEED (LEED 2009a,b,c) and other certifications include aspects important to

	<ul style="list-style-type: none"> Major renovations leading to at least a 35% reduction in energy use per m2 and year 	<p>long-term sustainable development, e.g. site selection and consideration of brownfields, urban density and planning, and access to public transportation. The additional 25% and 35 % reduction requirement ensures GHG reductions.</p>
Waste management	<ul style="list-style-type: none"> Recycling and re-use Rehabilitation of contaminated areas 	<p>Dark green</p> <ul style="list-style-type: none"> ✓ Energy production from waste will not be included. Good practice waste management should recycle resources and reduce methane emissions
Water management		<p>Dark green</p> <ul style="list-style-type: none"> ✓ Water management is important given future climate change scenarios and expected regional water shortages. ✓ Positive for water supply security and can have positive environmental effects but little effect on GHG emissions although reduction in hot water use reduces energy use. ✓ Large wastewater treatment plants should be subject to an environmental impact assessment.
Adaptation	<ul style="list-style-type: none"> Measures in buildings, infrastructure and sensitive surroundings 	<p>Dark green</p> <ul style="list-style-type: none"> ✓ Higher frequency of extreme weather events expected from climate change. Risk analysis and adaptation of buildings can reduce impacts and costs of events.
Sustainable Environment (max 20%)	<ul style="list-style-type: none"> Nature conservation Biodiversity Development of non-toxic environments Climate-friendly and in-house prepared meals for pupils and elderly Sustainable agriculture 	<p>Dark green</p> <ul style="list-style-type: none"> ✓ Good for environment and potentially climate. Be aware that such investments might in some cases increase GHG emissions.

Strengths

CICERO recommends excluding projects that support prolonged use of fossil fuel-based infrastructure that will contribute to GHGs in the long run. Norrköping's framework that explicitly says that fossil fuels projects are not eligible for green bond financing is therefore in line with our long-term view on climate change. Norrköping has sold its energy production to Sydkraft, who then sold it to E.ON. The municipality has no plans to build energy production based on fossil or nuclear energy. Several projects on wind power and solar cells are under construction or in the pipeline.

Staff with energy and environmental expertise with first-hand experience with the projects, will do a first assessment/selection of potential green bond projects. Norrköping operates under the principle that those closest to operations have the best knowledge of the projects green credentials (eligibility under the green bond framework). After the first screening, eligible projects will have to be approved by Finance Department (internal bank) and the Environmental controller, which decide by consensus. The municipal environmental controller thus has a veto in the selection of green bond projects. The Municipality of Norrköping's internal bank is the municipality's central finance function and is responsible for coordinating the overall financial strategy, cash management, liquidity management, raising capital in the short and long term placement of short- and long-term excess liquidity.

The municipality is rarely or almost never an operator when various tasks are performed, such as paving or building. External contractors are selected through procurement. It is the principal contractor's responsibility to check the subcontractors' work on issues including quality, environment and work environment. The municipality monitors the main contractor's work in meetings. If the contractor or subcontractors are short of their commitments, these will be further reported and penalties imposed.

Weaknesses

We find no clear weaknesses in Norrköping's green bond framework. Norrköping applies reasonably stringent criteria for both new buildings and in rehabilitation of existing buildings with energy efficiency requirements over and above those enforced by applicable regulations. The Green Bond framework would benefit from a clearer requirement that best environmental technology is used in eligible green bond building projects.

Energy efficiency improvements in buildings are important building blocks towards a low carbon economy. Voluntary environmental certifications provide some level of measurement of the environmental footprint of a building, including energy efficiency measures. It is preferred that eligible new buildings have certifications such as LEED gold, BREEAM very good, Miljöbyggnad silver or Svanen, but according to the framework this is not required.

In order to achieve dark green shading the highest classification level of projects as a minimum is required. In a low carbon 2050 perspective energy efficiency, in particular the energy performance of buildings, is expected to be improved, with passive house technology becoming mainstream and the energy performance of existing buildings greatly improved through refurbishments.

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.

Within the municipality life cycle analysis (LCA) are not broadly used in decision making. LCA is in particular important for projects that includes biofuel. The purchasing department uses lifecycle cost analysis (LCC) when investments exceeds 2 million SEK. These analysis however doesn't take into account climate risks. The purchasing department is a member of Byggvarubedömningen. The aim is

to find suitable building materials in new construction and reconstructions. In Byggvarubedömningen web-based systems are environmental assessments for the most used products / goods that are used in the real estate industry. These estimates are primarily based on the chemical content of products, but also on a number of life cycle criteria.

All the food served in the municipality shall as far as possible be locally produced and organic. The food should be cooked as close to the users as possible. The issuer is planning to build more energy efficient kitchens. Two different tools are in use in order to reduce carbon footprint from Norrköping's food program; "klimatkompassen" and "Lätt att välja rätt".

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 improved energy efficiency, which in part may lead to more energy use. Norrköping should be aware of such effects and possibly avoid Green Bond funding of projects where the risk of rebound effects is particularly high. According to the issuer they have well-developed statistics for each property. An increase in energy consumption e.g. can be read quickly. In this way, the issuer aims at detecting "rebound effects" at an early stage and mitigate if needed.

Transparency, monitoring, reporting and verification

Transparency, reporting and verification are key in order to enable investors to follow the implementation of the Norrköping kommun Green Bond Program. Without becoming too burdensome, impact reporting enhances transparency in regard to the projects economic risk from climate change and the environmental effectiveness of the projects.

Norrköping kommun has in place very good procedures for monitoring and reporting of green bond projects. Norrköping kommun will provide an annual newsletter to the green bond investors. This investor letter will be made publically available on Norrköping kommun's web page. The issuer has informed us that impact reporting of changes in energy consumption (kWh) and the share of renewable fuels will be included in the Annual Report on Green Bonds. CICERO is encouraged to see that information will relate to each individual project. This type of impact reporting puts Norrköping kommun at the forefront of municipalities in green bond reporting.

Municipal Audit, with a mandate to independently examine Norrköping kommun's activities, will carry out the internal control of the green bond projects to ensure that it meets the criteria set in the Green Bond Framework.

Appendix: About CICERO

CICERO (Center for International Climate and Environmental Research – Oslo) is Norway’s foremost institute for interdisciplinary climate Research. We deliver new insight that help solve the climate challenge and strengthen international climate cooperation.

We help to solve the climate problem and strengthen international climate cooperation by predicting and responding to society’s climate challenges through research and dissemination of a high international standard. Our researchers collaborate with top researchers from around the world, and publish their work in recognized international journals, reports, books and periodicals.

CICERO has garnered particular attention for its research on the effects of manmade emissions on the climate, society’s response to climate change, and the formulation of international agreements. We have played an active role in the IPCC since 1995. In recent years we have also developed considerable expertise in climate financing and is currently a lead provider of Second Opinions on Green Bonds.

CICERO has a national role in promoting knowledge about climate change and is internationally recognised as a driving force for innovative climate communication. We are in constant dialogue about the responses to climate change with public and private decision makers, government administration and civil society.

See: <http://www.cicero.uio.no/en/posts/news/cicero-grades-climate-friendly-bonds-with-shades-of-green>