

‘Second Opinion’ on City of Lund’s Green Bond Framework

25 April 2017

Summary

Overall, City of Lund's Green Bond Framework provides a clear and sound framework for climate-friendly investments. The framework lists eligible categories of 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 City of Lund has in place ambitious climate and environmental goals. The goal is to cut greenhouse gas emissions in 2020 by half compared to 1990, and emissions should be close to zero in 2050. The framework does explicitly exclude nuclear power and fossil fuel projects. Climate change related projects will make up 80% of the projects, with the remaining 20% going to environmental management projects.

The City of Lund encourages and promotes the use of impact reporting and will provide that to the largest extent possible. For each building, the expected or actual energy use will be reported in the investor letter. For solar and wind power projects, the amount of installed or produced renewable energy will be reported.

Based on the overall assessment of the project types that will be financed by the green bond and governance and transparency considerations, City of Lund's Green Bond Framework gets a Dark Green shading.

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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 City of Lund Green Bond Framework and policies for considering the environmental impacts of their projects. The aim is to assess the City of Lund's Framework as to its ability to support City of Lund's stated objective of reducing greenhouse gas emissions, preparing for the impacts of climate change, and leading on climate action.

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 City of Lund:

- 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 City of Lund's Green Bond Framework and rules and procedures for climate-related activities

City of Lund is a municipality in southern Sweden (Skåne region), with a population of 120 000 inhabitants.

Policies: The issuer has in place ambitious climate and environmental goals. The goal is to cut greenhouse gas emissions in 2020 by half compared to 1990, and emissions should be close to zero in 2050. The largest source of emissions comes from transportation. Greenhouse gas emissions in Lund has decreased by 47 percent compared with 1990 (statistics from 2014), while the population in Lund has increased by over 30 percent during the same period.

The largest decrease in emissions has occurred in the energy sector (electricity and heating). The most important driver of the emission reductions have been that district heating has been converted from fossil fuels to renewable and waste heat. A CHP that was fueled by natural gas was shut down in 2014 and replaced by residual heat and a new CHP fueled by biomass. In addition small-scale oil heating has been phased out. Emissions from the transport sector is slightly less than in 1990.

Definition: City of Lund's green bond framework includes projects with the purpose to reduce greenhouse gas emissions and to adapt to a changing climate. To a lesser extent (max 20%) projects which address other environmental issues are also eligible. City of Lund's Green Bonds will not finance nuclear power or fossil fuel energy projects. The proceeds can also be used for refinancing purposes. The ambition is however to use the majority of the proceeds to finance new projects

Selection: Green Projects will be selected in consensus by the Department of Finance and Economy and the Department of Environmental Strategy in consultation with the implementing administrations and municipality-owned companies.

Management of proceeds: According to the framework and in line with the Green Bonds Principles the Green bond, proceeds will be tracked by the City of Lund in a systematic manner. An amount equal to the net proceeds of the issue of the notes will be credited to a special account. Funds will be deducted from the special account equal to disbursement to eligible projects. Until disbursement to eligible projects, the special account balance will be placed in liquidity reserves.

Transparency and Accountability: To enable investors to follow the development of the City of Lund's Green Projects and to get insight into prioritised areas, City of Lund will provide an annual investor letter including:

1. a list of financed Green Projects
2. a selection of project examples with impact reporting and
3. a summary of City of Lund's Green Bond development.

The issuer has informed us that allocation amounts to individual disbursements will be reported, as well as allocations to both existing and future investments. The investor letter will include reports on allocation to each project. Also projects with co-funding will be reported with both total cost and cost for the issuer.

The City of Lund encourages and promotes the use of impact reporting and will provide that to the largest extent possible. For each building, the expected or actual energy use will reported in the investor letter. For solar and wind power projects, the amount of installed or produced renewable energy will be reported measured in kWh. The use of the proceeds from the Green Bonds, tracking and management of the funds is part of the annual

internal control in the City of Lund. The investor letter will be made publically available on City of Lund'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	City of Lunds Green Bond Framework April 5 2017	13	Travel and transportation policy
2	Annual report 2015	14	Waste management plan
3	Budget and operational plan 2017-2019	15	Green urban spaces and environmental protection program
4	Summary of climate and environmental action in Lund	16	Public procurement policy
5	City of Lund's program for ecologically sustainable development 2014-2020 ("LundaEko II")	17	Policy for ethical criteria in public procurement
6	Environmental report 2015	18	Environmental management system
7	Review of the climate goals	19	Environmental management system criteria 2016-06-02
8	Action plan for a fossil-free municipality organization in 2020	20	Department of services' environmental management system policy and diploma
9	Carbon fee and climate fund	21	LKF environmental management system policy
10	Energy Plan	22	LKF environmental management system diploma
11	LundaMaTs III - Strategy for a sustainable transport system in Lund	23	Environmental awards
12	Vehicle procurement and usage policy		

3 Assessment of City of Lund’s Green Bond Framework and environmental policies

Overall, the City of Lund Green Bond Framework provides a sound framework for climate-friendly investments. The framework and procedures for City of Lund 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 unclearly or too generally described. 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”. City of Lund has a broad framework that covers several eligible categories:

Table 2 Eligible project categories

Category	Eligible project types	Green Shading and some concerns
Renewable energy	<ul style="list-style-type: none"> • wind power, • solar power and • bioenergy from agricultural residues, forestry residues and other biological residues 	Dark green <ul style="list-style-type: none"> ✓ Consider negative impacts on wildlife, nature and lifecycle pollution. Avoid negative impacts on biodiversity. ✓ Only bioenergy from local sources ✓ Fractions of peat is included. Last year 12 percent of the energy input in the new biomass CHP came from peat, expected to be reduced this year to 8 percent. From 2019 the intend is to not use peat at all.
Energy efficiency	<ul style="list-style-type: none"> • district heating/cooling • energy recovery • energy storage and smart grids. 	Dark green <ul style="list-style-type: none"> ✓ Be aware of possible rebound effects.
Sustainable transportation	<ul style="list-style-type: none"> • public transportation, • pedestrian and bicycle paths, • hydrogen, biogas and electrical vehicles 	Dark green <ul style="list-style-type: none"> • Potential for emission reduction depends on area planning and degree of urbanization, introduction

	<ul style="list-style-type: none"> logistics solutions leading to reduced climate footprints from transportation of people and goods. 	of new vehicle technologies for passenger and goods transportation, and fuel types. No projects that include fossil fuel are eligible.
Replacement of fossil raw materials	<ul style="list-style-type: none"> e.g. from fossil based plastics to bioplastics. 	Dark green
Energy efficient commercial and residential buildings	<ul style="list-style-type: none"> commercial and residential buildings that meet the energy requirements for FEBY, Svanen or Miljöbyggnad Silver. major renovations leading to a reduced energy use of at least a 35% per m² Atemp and year. 	Medium green <ul style="list-style-type: none"> ✓ Building criteria are considered adequate but may not reflect best available technology nor the highest level of standards possible in Sweden. ✓ Be aware of possible rebound effects.
Waste Management		Dark green <ul style="list-style-type: none"> ✓ Good practice waste management should recycle resources. ✓ No investments in waste to energy, i.e. combustion of fossil fuels plastic.
Water and waste water management		Dark green <ul style="list-style-type: none"> ✓ No risk of investments in existing fossil fuel or nuclear infrastructure (e.g. pipe upgrades)
Climate adaptation measures	<ul style="list-style-type: none"> in buildings, infrastructure sensitive habitats 	Dark green <ul style="list-style-type: none"> ✓ Important given climate change scenarios and higher frequency of extreme weather conditions. ✓ Potential for good synergies with mitigation actions and opportunities
Environmental measures	<ul style="list-style-type: none"> nature conservation biodiversity development of non-toxic environments sustainable agriculture improved eco-system services 	Medium Green <ul style="list-style-type: none"> ✓ Max 20 percent. Good for environment as a whole. Very broad category. No climate mitigation objective.

Strengths

City of Lund has in place ambitious climate policies both on mitigation but also on adaptation, and has taken important steps in order to achieve them. While emissions in the geographical scope of the municipality have declined by 47 percent since 1990. The ambition is to continue the decline in emissions and meet a reduction target of 50 percent in 2020. The issuer does not track progress on emissions from activities of the organization of the municipality, but have a target of being fossil fuel free in 2020.

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 GHGs in the long run. City of Lund has explicitly stated in their green bond framework that they will not finance nuclear power or fossil fuel based projects.

The backbone of the governance structure is the City of Lund's Green Bond Framework. The Bond framework includes a comprehensive list of project categories that are important for low-carbon and climate change resilient growth.

City of Lund has a good structure for approval of projects in place that ensure environmental integrity. Green Projects will be selected in consensus by the Department of Finance and Economy and the Department of Environmental Strategy in consultation with the implementing administrations and/or municipality-owned companies.

Selection and decision procedures and responsibilities could however be identified clearer. The framework would gain from some more details on describing who will select eligible projects to be approved and procedures for how and how often (in addition to whom) the approval will happen.

Impact reporting is an important tool to enhance transparency in regard to the projects economic risk from climate change and the environmental effectiveness of the projects. Thus, it is important to verify that projects perform as intended with respect to mitigation of greenhouse gas emissions and enhancing climate change resilience, as well as avoiding significant unwanted external effects. The Green Bond framework outlines a procedure for reporting. Also, the principle of free access to public records applies. These enable all stakeholders to have broad insight.

City of Lund will encourage and promote impact reporting and will provide that to the largest extent possible. The processes for allocation of use of proceeds, tracking and management of funds will be part of City of Lund's annual internal control.

Weaknesses

We find no obvious weaknesses in City of Lund's Green Bond framework.

Pitfalls

Energy efficiency improvements in buildings are important building blocks for reaching the 2 degree climate change goal. City of Lund applies criteria for both new buildings and in renovation of existing buildings with energy efficiency requirements over and above status quo. 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. 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 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.

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 usage. City of Lund 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 work actively to reduce the risk for rebound effects but there will be some cases where the energy saved will be used by new inhabitants or for improved quality of life such as for better ventilation. There will be a screening based on lifecycle considerations when it comes to investments related to renewable energy and energy-efficiency, where the issuer will look at the use of primary energy.

References

IPCC (2013). Climate Change 2013: The Physical Science Basis, Fifth Assessment Report, Intergovernmental Panel on Climate Change

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

