



Norrköping Municipality Green Bond Second Opinion

14 October 2019.

Overall, Norrköping Municipality's Green Bond Framework from September 2019 provides a clear and sound framework for investments into projects that align with the Green Bond Principles. Eligible project categories include renewable energy, energy efficiency, sustainable buildings, sustainable transport, pollution prevention and control, waste and water management and climate change adaptation.

Green bond proceeds can be used to finance new projects as well as refinance existing eligible projects. The ambition is for most of the proceeds to finance new projects.

Norrköping Municipality has in place a sound management structure for managing its green bond framework, although some procedural aspects could be strengthened in the event of disagreement on project selection.

The issuer will provide regular reporting on green bond allocations and project achievements to investors and the public in line with guidance issued by Nordic public sector issuers.

Norrköping has in place ambitious energy targets and environmental goals in different sectors, including for energy efficiency, waste management and sustainable buildings. The Municipality aims at becoming one of the country's leading environmental municipalities by 2035 and has been tracking progress for many years.

This is Norrköping Municipality's second Green Bond Framework. The first one was issued in October 2016 and was also assessed by CICERO.

Based on the overall assessment of the project types that will be financed by the green bonds and governance and transparency considerations, Norrköping's Green Bond Framework receives a **Medium Green** shading.

SHADES OF GREEN

Based on our review, we rate the Norrköping Municipality Green Bond Framework **Medium Green**.

Included in the overall shading is an assessment of the governance structure of the green bond framework. CICERO Shades of Green finds the governance procedures in Norrköping Municipality's framework to be Excellent.



GREEN BOND PRINCIPLES

Based on this review, this Framework is found in alignment with the principles.





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1 Terms and methodology

This note provides CICERO Shades of Green's (CICERO Green) second opinion of the Norrköping Green Bond Framework dated September 2019. This second opinion remains relevant to all green bonds issued under this framework for the duration of three years from publication of this second opinion, as long as the framework remains unchanged. Any amendments or updates to the framework require a revised second opinion. CICERO Green encourages the client to make this second opinion publicly available. If any part of the second opinion is quoted, the full report must be made available.

The second opinion is based on a review of the framework and documentation of Norrköping's policies and processes, as well as information gathered during meetings, teleconferences and email correspondence with Norrköping.

Expressing concerns with 'shades of green'

CICERO Green second opinions are graded dark green, medium green or light green, reflecting a broad, qualitative review of the climate and environmental risks and ambitions of the bonds. The shading methodology aims to provide transparency to investors that seek to understand and act upon potential exposure to climate risks and impacts. Investments in all shades of green projects are necessary in order to successfully implement the ambition of the Paris agreement. The shades are intended to communicate the following:

CICERO Shades of Green



Dark green is allocated to projects and solutions that correspond to the long-term vision of a low carbon and climate resilient future. Fossil-fueled technologies that lock in long-term emissions do not qualify for financing. Ideally, exposure to transitional and physical climate risk is considered or mitigated.



Medium green is allocated to projects and solutions that represent steps towards the long-term vision, but are not quite there yet. Fossil-fueled technologies that lock in long-term emissions do not qualify for financing. Physical and transition climate risks might be considered.



Light green is allocated to projects and solutions that are climate friendly but do not represent or contribute to the long-term vision. These represent necessary and potentially significant short-term GHG emission reductions, but need to be managed to avoid extension of equipment lifetime that can lock-in fossil fuel elements. Projects may be exposed to the physical and transitional climate risk without appropriate strategies in place to protect them.



Brown is allocated to projects and solutions that are in opposition to the long-term vision of a low carbon and climate resilient future.

Examples



Wind energy projects with a strong governance structure that integrates environmental concerns



Bridging technologies such as plug-in hybrid buses



Efficiency investments for fossil fuel technologies where clean alternatives are not available



New infrastructure for coal

Sound governance and transparency processes facilitate delivery of Norrköping's climate and environmental ambitions laid out in the framework. Hence, the governance aspects are carefully considered and reflected in the overall shading of the green bond framework. CICERO Green considers four factors in its review of an Norrköping's governance processes: 1) the policies and goals of relevance to the green bond framework; 2) the selection process used to identify and approve eligible projects under the framework, 3) the management of proceeds and 4) the reporting on the projects to investors. Based on these factors, we assign an overall governance grade: Fair, Good or Excellent.



2 Brief description of Norrköping's green bond framework and related policies

Norrköping Municipality (“Norrköping”) is a municipality in Östergötland County in southeast Sweden. It has a population of about 140 000. Norrköping has in place ambitious energy targets and environmental goals in different sectors, including for waste management and buildings. The Municipality aims at becoming one of the country's leading environmental municipalities by 2035.

Environmental Strategies and Policies:

In 2009, the Municipality decided on a 2030 goal of 30 % reduction in energy consumption compared to 2005. It has managed to make significant progress towards this goal by reducing energy consumption between 19 and 26 % between 2005 and 2017. Moreover, over time, the Municipality has a goal to source energy solely from renewables. Currently its electricity is 100 percent renewable while its heating needs are covered by district heating. District heating is on average 60% renewable, as it contains some fossil components from household waste (e.g. plastics). The Municipality recognizes this as a remaining challenge and is aiming for an energy mix that is increasingly completely non-fossil based. The Municipality also has ambitions to build resilience into all its plans and assets, in order to adapt to climate-induced changes. It is currently undertaking mapping studies with external researchers to further this aim.

The population of the Municipality is likely to grow to some 175 000 people by 2035, an increase that will necessitate continued real estate growth. The Municipality recognizes the need to develop sustainable properties and has ambitions to build more properties that are certified as such (using schemes such as Miljöbyggnad Silver).

Some of the Municipality's transport fleet is running on renewable fuel and electricity, and it is aiming to increase this proportion in the coming years.

The Municipality's Green Bonds Framework is aimed at addressing the following eight UN Sustainable Development Goals:

SDG 6 – Clean Water and sanitation

SDG 7 – Affordable and clean energy

SDG 9 – Industry, Innovation and Infrastructure

SDG 11 – Sustainable Cities and Communities

SDG 12 – Responsible Consumption and Production

SDG 13 – Climate Action

SDG 14 – Life below Water



SDG 15 – Life on Land

This is Norrköping Municipality's second Green Bond Framework. The first one was issued in October 2016 and was also assessed by CICERO. The first Green Bond issued amounted 600 million SEK.

Use of proceeds:

Proceeds from green bonds issued under this framework will finance Eligible Projects as defined by projects that promote the transition to low carbon and climate resilient growth in line with the Municipality of Norrköping's environmental goals and as determined by the Municipality of Norrköping's Green Bonds Framework. Eligible projects will be in one of the following categories: renewable energy, sustainable buildings, energy efficiency improvements in existing buildings, sustainable transport, waste management, water management, adaptation measures, and initiatives to promote biodiversity, conservation and non-toxic local environments. A full list of categories is provided in Table 1 in this opinion.

Both new projects and refinancing of existing projects are permitted. The ambition is to use the majority of the proceeds to finance new projects (defined as projects that have been finalized and brought into operation within the previous year).

Proceeds from the green bonds will not finance nuclear or fossil fuel projects.

Selection:

Eligible Projects will be selected and approved in consensus by the Finance Department (two members of staff will participate) and the Environmental Controller from the Municipality's Analysis and Development Unit.

Meetings to select projects will be held as and when required.

Management of proceeds:

An amount equal to the net proceeds of the issue of the notes will be credited to a special account that will support the Municipality of Norrköping's lending for Eligible Projects. As long as the notes are outstanding and the special account has a positive balance, at the end of every fiscal quarter, funds will be deducted from the special account and added to the Municipality of Norrköping's lending pool in an amount equal to all disbursements from that pool made during such quarter in respect of Eligible Projects.

Until disbursement to Eligible Projects, the special account balance will be placed as part of the liquidity reserve and managed accordingly (cash and cash equivalents).

If, for any reason, a financed Eligible Project ceases to meet the eligibility criteria, it will be removed from the pool of projects financed with proceeds from Green Bonds issued by the Municipality of Norrköping.

Reporting:

The Municipality of Norrköping will provide an annual Green Bond Impact Report to investors. The report will include: 1) a list of projects financed 2) a selection of project examples and 3) a summary of Norrköping's Green Bond developments (such as any updates to the Framework, etc.).



The Municipality of Norrköping will report on its Green Bond impacts in accordance with the Nordic Public Sector Issuers' *Position paper on Green Bonds Impact Reporting*¹. According to these guidelines, what characterizes Nordic public sector issuers of green bonds is that they finance projects across a range of categories and sizes, and that they have a limited number of people available to work with environmental reporting. Whenever possible, the issuer will issue real or estimated values of relevant impact metrics.

The investor letter as well as the use of proceeds, tracking and management of funds will be assured by the Municipality of Norrköping's internal auditor. The opinion of the internal auditor and the Impact Report will be made publicly available on the Municipality's webpage. Furthermore, the principle of free access to public records applies, which means both investors and potential investors have a right to request information.

For the green bond issued in October 2016, Norrköping provided an impact report listing the four projects that the proceeds from the bond had been invested in. For each, projected or realized energy efficiency or CO₂ savings were reported on, as applicable.

¹ In October 2017, the Municipality together with other public sector green bond issuers in the Nordic region released a guidance document on reporting. It was subsequently updated in January 2019. The guidance is available [here](#).



3 Assessment of Norrköping’s green bond framework and policies

The framework and procedures for Norrköping’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; weaknesses are typically areas that are unclear or too general. Pitfalls are also raised in this section to note areas where Norrköping should be aware of potential macro-level impacts of investment projects.

Overall shading

Based on the project category shadings detailed below, and consideration of environmental ambitions and governance structure reflected in Norrköping’s green bond framework, we rate the framework **CICERO Medium Green**. This shading reflects the project categories included in their framework, which go from medium to dark green. Without a guarantee that most of the funds will be applied to dark green categories, the overall framework receives the more conservative shading.

Eligible projects under the Norrköping 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 investors with certainty 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">• Wind• Solar• Geothermal (small scale)• Biogas from waste	Dark Green <ul style="list-style-type: none">✓ The issuer should consider negative impacts on wildlife, nature and lifecycle emissions from all phases (including construction) of any energy project✓ The issuer should be mindful of the potential for heavy metal pollution from geothermal energy✓ The biogas will be used for transportation fuel purposes, which is positive✓ The issuer should consider measures to reduce emissions from biogas through CHP and covering digestate storage tanks, if applicable



Energy efficiency improvements in existing buildings, activities and operations



- Energy efficiency improvements in existing buildings, activities and operations leading to efficiency improvements of at least 30 per cent compared to existing technology (such as new control technology, ventilation systems, lighting and window replacements).

Dark Green

- ✓ Be aware of possible lock-in of infrastructure that may present an improvement now but will be outdated in a few years' time
- ✓ Be aware of rebound effects and monitor if possible
- ✓ Improvements to district heating systems (resulting in lock-in of a source that currently has a significant component of non-renewable/fossil energy) are not included

Sustainable buildings



- Residential multi-family buildings: New or existing buildings with at least 15 per cent less energy use per square meter and year than required by applicable regulation (Swedish Building Regulations, BBR).
- Non-residential buildings: New or existing buildings with at least 20 per cent less energy use per square meter and year than required by applicable regulation (Swedish Building Regulations, BBR).

For both residential and non-residential buildings the following applies: New buildings are encouraged to have a minimum certification of either LEED gold, BREEAM very good, Miljöbyggnad silver, the Nordic Swan Ecolabel or other certification of similar ambitions; however, this is not a firm requirement

- Major renovations of buildings leading to a

Medium Green

- ✓ For investments in energy efficient buildings, it is important to consider the potential of rebound effects for energy consumption and transportation solutions.
- ✓ According to the International Energy Agency (IEA), efficiency of buildings needs to improve by 30% by 2025 in order to reach the Paris Agreement well below 2°C climate goal.
- ✓ The encouragement to have environmental certification schemes (such as LEED gold, BREEAM very good, etc.) is positive but we note that it is not a requirement
- ✓ CICERO Dark Green shading is particularly difficult to achieve in the building sector because buildings have a long lifetime. It would usually require zero emission or plus house technologies.



	reduced energy use per square meter per year of at least 30 per cent	
<p>Sustainable public and individual transportation with renewable fuels and related infrastructure</p> 	<ul style="list-style-type: none"> • Examples of public transportation include the construction of cycle paths and charging stations for EVs • Examples of individual transportation include EVs, bicycles, and biofuel cars 	<p>Dark Green</p> <ul style="list-style-type: none"> ✓ While electric modes of transportation are preferable to those that directly use fossil fuels, we should nevertheless be aware of the indirect GHG emissions stemming from the production and use, and strive to keep increasing their efficiency. ✓ Observe complex impacts of some biofuels. Consider life cycle emissions, and avoid negative impacts on biodiversity. ✓ The issuer has informed that hybrid cars are not included in the framework.
<p>Waste management</p> 	<ul style="list-style-type: none"> • Recycling and re-use of waste, and rehabilitation of contaminated areas 	<p>Dark Green</p> <ul style="list-style-type: none"> ✓ Good practice waste management should recycle resources and reduce methane emissions ✓ Waste to energy investments are not included
<p>Water management</p> 	<ul style="list-style-type: none"> • Improvements in water quality as well as quantity (efficiency measures) 	<p>Medium Green</p> <ul style="list-style-type: none"> ✓ Broad category with no metrics. ✓ Care should be taken to consider negative impacts on wildlife, nature and lifecycle pollution and to avoid negative impacts on biodiversity.
<p>Climate Change Adaptation</p> 	<ul style="list-style-type: none"> • Climate change adaptation measures in buildings, infrastructure and sensitive surroundings 	<p>Dark Green</p> <ul style="list-style-type: none"> ✓ Investments that prolong the life of road transport can be a concern from a long-term climate change perspective
<p>Sustainable Environment (Max. 20 percent of</p>	<ul style="list-style-type: none"> • Nature conservation • Biodiversity 	<p>Dark Green</p>



proceeds will be directed to this category)



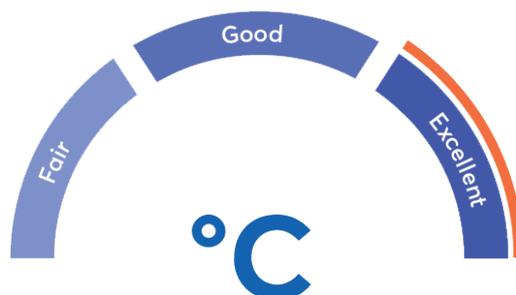
- Development of non-toxic environments, for instance rehabilitation of contaminated industrial sites
- Climate-friendly (organic, non-GMO, etc.) and in-house prepared meals for pupils and elderly

Table 1. Eligible project categories

Governance Assessment

Four aspects are studied when assessing Norrköping's governance procedures: 1) the policies and goals of relevance to the green bond framework; 2) the selection process used to identify eligible projects under the framework; 3) the management of proceeds; and 4) the reporting on the projects to investors. Based on these aspects, an overall grading is given on governance strength falling into one of three classes: Fair, Good or Excellent.

The overall assessment of Norrköping's governance structure and processes gives it a rating of Excellent.



Strengths

Norrköping Municipality has high sustainability ambitions for its operations. This is particularly visible in the areas of energy efficiency and sourcing of renewable energy sources. For both, strategic aims and corresponding metrics are set and reported on.

Norrköping receives the rating 'Excellent' in part in recognition of its ambitious and consistent work with sustainability issues over the past years. Reports from 2008 show that it was an 'early mover'. The Municipality assesses goal achievements within all areas on an annual basis and report on them in their Annual Report. These include environmental indicators on local air pollution, fuel use of the municipality's vehicle fleet, and plans for climate change adaptation. The Municipality does not yet incorporate Task force on Climate-related Financial Disclosures (TCFD) considerations in its work, but many of the issues covered by TCFD is already part of Norrköping's sustainability strategy.

Another reason for Norrköping's high governance rating is its transparency on reporting and reliance on the guidelines issued by Nordic public sector green bond issuers. Impact metrics will depend on the project category



and include estimated or real values, depending on what is feasible and recommended within the framework. An internal auditor will assess the reporting and publish its assessment.

Finally, Norrköping is relatively advanced when it comes to adaptation and the use of scenario planning. Together with external researchers, the municipality is in the process of developing guidelines for adaptation to climate change – which it expects to be ready in 2019. Some of its property companies are already undertaking work to map flooding and stormwater risk.

Norrköping Municipality's Green Bond Framework provides a comprehensive framework for financing the municipality's sustainability activities, reflecting the municipality's broad ambitions in all its operations.

For the category 'Sustainable Buildings', the Green Bond Framework requires energy efficiency improvements of between 15 and 30% compared to standard regulatory requirements. This is positive, as energy use is one of the most direct drivers of climate change.

Weaknesses

We find no overall weaknesses in Norrköping's Green Bond Framework.

Pitfalls

Based on its previous experience with selecting projects for green bond financing, the issuer expects its Green Bond Framework to provide the guidance needed for selecting projects and has clarified that it does not expect a need for additional formal rules to navigate through the selection process. While this may have worked well for Norrköping so far, there is a possibility that situations of disagreement arise and for those it may be useful to consider a two-step decision process (proposal, adoption) or other formal procedures for disqualifying projects around which there may be disagreement (for instance with particular risk of rebound or for which life-cycle analysis may be advantageous). This is particularly important since the Green Bond Framework is broad and comprises many categories which may be open to interpretation.

For impact reporting related to electricity Norrköping will use methods, assumptions and grid factors presented in the Position Paper on Green Bonds Impact Reporting (Nordic Public Sector Issuers, January 2019). For reporting related to reduced heat consumption, historic grid factors for district heating will be used, also in line with the Position Paper. CICERO very much welcomes the development and use of a common methodology in impact reporting, and sees it as a clear strength that Norrköping commits adherence to the guidance for Nordic Public Sector Issuers. CICERO is encouraged that not only emissions reductions, but also other indicators that measure the transition to a low carbon and climate resilient society are reported. Investors should however be aware of the different approaches commonly applied in calculating emissions from production and use of electricity. Estimating the actual marginal emission impact of electricity in the Nordic grid is an extremely complex task, and different analyses may produce results varying from nearly zero to almost 1000 gCO₂/kWh, depending on assumptions and project-specific conditions.

The European grid factor recommended by the Nordic Public Sector Issuers is 380 g CO₂/kWh, and based on the methodology outlined in the Harmonized Framework for Impact Reporting developed by a group of multilateral development banks. Investors should be aware that this factor is higher than the European average grid factor, which was 350 g CO₂/kWh in 2015 (International Energy Agency). The Nordic Public Sector Issuers have chosen the geographic area comprising EU26+Norway because the Nordic energy system is increasingly connected to other European countries facilitating export and import of electricity in its production mix. The average grid factor for production in the Nordic countries today according to the European Environmental



Agency amounts to 83 g CO₂/kWh. National agencies in Norway and Sweden tend to prefer using factors representing a national or Nordic production mix. Using a Nordic mix would be more favorably for much needed electrification solutions such as electric vehicles.



Impact beyond the project boundaries

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.

Norrköping uses life-cycle analysis (LCA) when assessing transportation options but not otherwise. This is an area for the Municipality to consider increasing its level of ambition.

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 1, an example is green buildings. Norrköping should be aware of such effects and if possible avoid Green Bond funding of projects where the risk of rebound effects is particularly high.



Appendix 1: Referenced Documents List

Document Number	Document Name	Description
1	Municipality of Norrköping –Green Bonds Framework -September 2019	The green bond framework
2	Hyrebostader Energistrategi	The energy strategy of the Municipality's real estate assets, from May 2015
3	Norrköpings Vision	The Municipality's Vision for 2035
4	Norrköpings styrmodell och styrdokument	Guidelines for the Municipality's management model
5	Övergripande mål 2015-2018	The Municipality's Strategy (goals) for 2015-18
6	Preciseringar för hållbar utveckling och strategiska miljö-frågor, 2018	Document detailing the Municipality's work on sustainable development and strategic environmental issues for 2018
7	Gemensam Klimatvision Norrköping-Linköping	Joint Climate Change Vision of Linköping – Norrköping Municipalities, from 2008
8	Inriktningsdokument för miljöpolitiken	The Municipality's Environmental Policy, 2017
9	Översiktsplan för staden	The Municipality's Strategic Urban Action Plan, 2017



10	Gemensam översiktsplan Norrköping-Linköping	Joint plan for Municipalities of Norrköping-Linköping
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11	Årsredovisning 2017	Norrköping's Annual Report, 2017
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12	Hållbarhetsrapport 2017	Norrköping's Sustainability Report, 2017
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13	Energiplan 2009-2030	Norrköping's Energy Strategy for the period 2009-2030 (updated in 2017)
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14	Energihandlingsplan 2015-2018	Norrköping's Implementation Plan for the Energy Sector for the period 2015-2018
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15	Uppföljning av Norrköpings Energiplan	Energy Plan Update, 2016
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16	Nuläge och energistatistik 2015	Current State of Energy Plan and Statistics, 2015
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17	Vindkraft i Norrköpings Kommun	Wind Power in Norrköping Municipality, 2013
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18	Riktlinje för tjänsteresor	Norrköping Municipality's Travel Guidelines
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19	Riktlinje för trafik	Norrköping Municipality's Transportation Guidelines/Policy
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20	Riktlinjer för parkering	Norrköping Municipality's Parking Policy
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21	Framtidens resor i Norrköping	The Future of Transport in Norrköping: final report from a strategy project.
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22	Avfallsplan	Norrköping Municipality's Waste Plan, 2013
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23	Riktlinje för kostverksamheten	Norrköping Municipality's Guidelines on Healthy Eating
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24	Riktlinje för ekosystemtjänster	Guidelines for the Municipality's work with ecosystem services
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25	Riktlinje för minskad kemikalieanvändning	The Municipality's Policy on use of chemicals
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26	Riktlinje för dagvattenhantering	Guidlines for handling stormwater
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27	Riktlinje för upphandling och inköp	Norrköping Municipality's Procurement Policy
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28	Checklista hållbara arrangemang	Checklist for sustainable events management
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29	Handbok giftfritt byggande	Handbook for non-toxic material choice for buildings
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Appendix 2: About CICERO Shades of Green

CICERO Green is a subsidiary of the climate research institute CICERO. CICERO is Norway's foremost institute for interdisciplinary climate research. We deliver new insight that helps solve the climate challenge and strengthen international cooperation. CICERO has garnered attention for its work on the effects of manmade emissions on the climate and has played an active role in the UN's IPCC since 1995. CICERO staff provide quality control and methodological development for CICERO Green.

CICERO Green provides second opinions on institutions' frameworks and guidance for assessing and selecting eligible projects for green bond investments. CICERO Green is internationally recognized as a leading provider of independent reviews of green bonds, since the market's inception in 2008. CICERO Green 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 Green operates independently from the financial sector and other stakeholders to preserve the unbiased nature and high quality of second opinions.

We work with both international and domestic issuers, drawing on the global expertise of the Expert Network on Second Opinions (ENSO). Led by CICERO Green, ENSO contributes expertise to the second opinions, and is comprised of a network of trusted, independent 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).

