



# Tekniska verken

## Green Bond Second Opinion

September 17<sup>th</sup>, 2019

**Linköpingsgruppen was established by the Municipality of Linköping, Linköpings Stadshus, Tekniska verken i Linköping, Stångåstaden and Lejonfastigheter in 2017 to increase cooperation and create new financial solutions by e.g. establishing a common green bond framework. All these subsidiaries of Linköpingsgruppen will issue under one green bond framework. Tekniska verken is the parent company of a group that offers products and services for production and distribution of electricity, trading of electricity, district heating, district cooling, biogas, broadband, water, sewers and waste handling, lighting and related services. The group has around 240 000 customers, with a 5 314 million SEK in revenue, in 2018.**

**Linköpingsgruppen's green bond framework as applied by Tekniska verken, provides a progressive, clear and sound framework for investments into projects that well align with the Green Bond Principles.** The green bond framework as developed by Linköpingsgruppen contains nine eligible project types. Only a subset is, however, of relevance for Tekniska verken. The main category is renewable energy, but Tekniska verken may also to a smaller extent use the categories energy efficiency and waste management. The issuer has confirmed that proceeds will not be used to finance investments in raw fossil fuels or nuclear power.

**Tekniska verken has in place strong environmental goals and targets, good mitigation plans, a sound selection process and comprehensive and transparent reporting.** The issuer has in place clear and detailed methodology for calculating greenhouse gas (CO<sub>2</sub>eq) emissions. We note that Tekniska verken does not seem to carry out climate scenario analysis or risk assessments in alignment with the methodology recommended by TCFD. However, the Climate Adaptation program of Linköping municipality is comprehensive and covers a wide set of potential future risks under climate change.

**Investors should be aware that refinancing of waste-to-energy (WTE) projects is possible under this framework.** While the project categories under this framework are shaded dark or medium green, Tekniska verken will use most of the proceeds for wind power projects, under the renewable energy category. Investments in renewable energy are crucial if we are to reach the 2 degrees goal. Based on the overall assessment of the project types utilized by Tekniska verken, governance and transparency considerations, Tekniska verken's green bond framework receives an overall **Dark Green** shading.

### SHADES OF GREEN

Based on our review, we rate the Tekniska verken's **green bond framework Dark 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 Tekniska verken'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 client's framework dated August 2019. This second opinion remains relevant to all green bonds and/or loans 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 the client's policies and processes, as well as information gathered during meetings, teleconferences and email correspondence.

## 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. 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 the client'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 the client'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 Tekniska verken's green bond framework and related policies

Tekniska verken i Linköping AB is the parent company of a group that offers goods and services in the production and distribution of electricity, trade in electricity, district heating/cooling, biogas, bio-fertilizer, broadband, water, drain, waste management, lightning and related services. The group has a total of 240 000 customers with earnings of 833 million SEK after financial net in 2018.

### Environmental Strategies and Policies

Tekniska verken is owned by the Municipality of Linköping and therefore abides by the municipality's sustainability and environmental policies as well as the Climate Adaptation Program and the Chemical Program. In this context, the issuer refers to the UN Sustainable Development Goals (Agenda 2030) and the Paris Agreement. According to the Environmental Policy of Linköping, environmentally sustainable developments will focus on pollution prevention and reduction of natural resource use, energy consumption reduction and increasing use of renewable energy, biodiversity preservation, continuous education and engagement of employees and elected representatives for continuous development of environmental activities and information of the local community and stakeholders. Tekniska verken writes its sustainability report in line with the GRI standard.

The Municipality of Linköping has the target to become carbon-neutral by 2025. Tekniska verken has clear goals and strategies to support the targets set by the municipality and works actively with its customers to reduce GHG emissions and increase resource and energy efficiency. Total direct greenhouse gas emissions (CO<sub>2</sub>eq) from activities conducted by Tekniska verken in 2018 amount to 338 816 tons. 255 000 tons of the total emissions come from waste incineration<sup>1</sup>. The issuer will contribute to the municipality's goal to become carbon-neutral by reducing its CO<sub>2</sub> emissions with 157 000 tons in 2019 and up to 204 000 tons by 2023 as well as by identifying and implementing resource-efficient use of materials. The priority measures for 2019 to achieve this goal are investments in renewable energy and improvements at the recycle and reuse centers. It should be noted that, due to the reliance on waste-to-energy systems for district heating and cooling, Tekniska verken cannot achieve a target of zero emissions by 2025.

### Use of proceeds

Tekniska verken's Green Bonds will finance and re-finance eligible projects in accordance to the Green Bond Framework. According to the issuer, most of the proceeds will be used to fund new projects and the split between new projects and refinanced green projects will be included in Linköpingsgruppen's annual Green Bond Investor Report. No operating expenditure is expected to be financed under this green bond framework.

The net proceeds will fund eligible projects and assets that meet one of the following purposes: reduce greenhouse gas emissions (1), adapt operations to climate change (2) or promote other environmental issues apart from climate change (3). According to the issuer, analysis shall be conducted to ensure that the projects do not contravene other prioritized areas.

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<sup>1</sup> Tekniska verken. Climate balance report 2018.



Tekniska verken has informed CICERO Green that proceeds under this framework will be used for three categories: renewable energy, energy efficiency and waste management. Tekniska verken has also confirmed that green bond proceeds will not be allocated to nuclear power or fossil energy generation projects. However, refinancing of projects related to energy generation from burning of waste (including plastic waste) are likely under this framework.

### **Selection**

The selection process is a key governance factor in the Green bond Principles. CICERO Green considers how climate and environmental considerations are taken into account when evaluating whether projects can qualify for green bond funding. Tekniska verken's green bond framework outlines a detailed and transparent selection procedure that is in line with the Green Bonds Principles.

Tekniska verken has established a decision-making unit, responsible for the evaluation of potential green projects which includes representatives from the financial and sustainability units. The decision-making unit is responsible for evaluating and approving projects that meet the green criteria under the green bond framework and documenting their decisions. For a project to be approved, a consensus must be reached by the members of the unit. Life cycle considerations will be taken into account. The issuer has informed CICERO Green that controversial projects, such as wind power projects that meet local resistance are generally avoided.

### **Management of proceeds**

CICERO Green finds the management of proceeds to be in accordance with the Green Bond Principles. Tekniska verken will credit the net proceeds of any issuance under the Green Bond Framework to a separate account. Financing or refinancing of eligible projects and/or assets that have qualified according to the project evaluation and selection process, will be deducted at the end of each quarter in an amount equal to disbursements for the financing of green projects. If an eligible green project or asset no longer meets the eligibility criteria, it will be removed from the pool of projects. According to the financial policy, Tekniska verken will support investments in comprehensive solutions for more efficient resource management and a steady increase of renewable energy sources

### **Reporting**

Transparency, reporting, and verification of impacts are key to enable investors to follow the implementation of green bond programs. Procedures for reporting and disclosure of green bond investments are also vital to build confidence that green bonds are contributing towards a sustainable and climate-friendly future, both among investors and in society.

Tekniska verken has committed to annual reporting through the green bond investor report which shall include a list of all approved green projects with description of the projects and their main environmental benefits, the total amount allocated and disbursed and information about the split between new projects and refinancing. Allocated funds will be reported per project. According to the issuer, the annual report aims to include installed renewable energy capacity, energy efficiency gains (expected vs. achieved) certifications and expected vs. actual energy use per green building and estimated and avoided greenhouse gas emissions when relevant and possible.

Linköpingsgruppen has informed CICERO Green that allocation of funds under the green bond framework and the green bond investor report will be reviewed annually by an external auditor. The annual report will include impact metrics, such as reductions in greenhouse gas emission and kWh produced from renewable sources. The



green bond investor report and the opinion of the external auditor will be publicly available on the webpage of every member of Linköpingsgruppen.



### 3 Assessment of Tekniska verken's green bond framework and policies

The framework and procedures for Tekniska verken'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 Tekniska verken 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 Tekniska verken's green bond framework, we rate the framework **CICERO Dark Green**.

#### Eligible projects under the Tekniska verken's 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
<b>Renewable energy</b> 	<ul style="list-style-type: none"><li>• Wind power</li><li>• Solar power</li><li>• Hydro power (new small hydro &gt;20MW and refurbishment of large hydro without increase in size of its impoundment)</li><li>• Bioenergy (from lignofuels, energy crops, bio-oil and other biogenic materials)</li></ul>	<b>Dark Green</b> <ul style="list-style-type: none"><li>✓ Consider local environmental impacts of renewables including potential impacts on biodiversity, especially in the case of hydropower.</li><li>✓ Burning of biofuels, while having the potential of being more climate friendly than fossil fuels, still give emission of local pollutants.</li><li>✓ According to this framework, the bio-oil will be imported from North America, to a limited extent. Consider that</li></ul>



international transportation of goods (i.e. biofuel) is emission intensive, accounting for over 1.10 Gt CO<sub>2</sub>eq annually.

**Energy efficiency**



- District heating/cooling
- Energy recovery
- Energy storage
- Smart grids
- Other measures to introduce and promote energy efficient solutions

**Medium green**

- ✓ Energy efficiency investments are key to reducing emissions.
- ✓ Consider the potential for rebound effects on energy consumption.
- ✓ Tekniska verken has confirmed that the district heating system will be 100% fossil free from 2020. However, incineration of plastic waste will continue to play a significant role in district heating. Plastic waste is considered fossil fuel. Due to the fossil elements that power district heating, this category shall be rated medium green.

**Waste management**



- Waste prevention
- Waste minimization
- Recycling
- Reuse
- Rehabilitation of contaminated land
- Leachate management
- Other resource efficiency improvements

**Medium green**

- ✓ Tekniska verken will use most of the proceeds under this category to invest in improving the system for sorting and recycling.
- ✓ Plastic waste contains petrochemicals that are produced from fossil materials.
- ✓ Refinancing of waste-to-energy (WTE) projects might be relevant given that the main district heating system is based on WTE. Due to these types of projects, this category shall be rated medium green.

Table 1. Eligible project categories

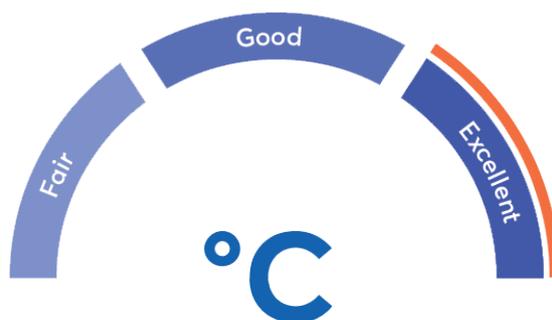


### Governance Assessment

Four aspects are studied when assessing the Tekniska verken'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 Tekniska verken's governance structure and processes gives it a rating of Excellent.

Tekniska verken has in place strong environmental goals and targets, good mitigation plans, a sound selection process and comprehensive and transparent reporting. Nevertheless, we note that Tekniska verken does not seem to carry out climate scenario analysis or risk assessments in alignment with the methodology recommended by TCFD<sup>2</sup>. On the other hand, the Climate Adaptation program of Linköping municipality is comprehensive and cover a broad set of potential future risks under climate change.



### Strengths

Tekniska verken is owned by the Municipality of Linköping and therefore abides by the municipality's ambitious sustainability and environmental policies as well as the Climate Adaptation Program and the Chemical Program. A clear target for the Municipality of Linköping is to become carbon-neutral by 2025. As the main player in the energy sector in Linköping, Tekniska verken plays a key role in reaching this target. Wind energy and other renewable energy sources are vital to the transition to a low carbon society. The criteria for eligible projects under the renewable energy category delivers the solutions needed to support the municipality's target.

### Weaknesses

We find no substantial weaknesses in Tekniska verken's Green Bond Framework.

### Pitfalls

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 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 various waste materials.

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. An example is energy efficiency. Tekniska verken should be aware of such effects and possibly avoid Green Bond funding of projects where the risk of rebound effects is particularly high.

<sup>2</sup> <https://www.fsb-tcfid.org/publications/final-recommendations-report/>



# Appendix 1: Referenced Documents List

Document Number	Document Name	Description
1	Linköpingsgruppens' Green Bonds Framework, 2019	This document comprises Linköpingsgruppens' Green Bonds Framework and how it intends to use proceeds, how it plans to evaluate and select eligible projects, manages the proceeds and reports to investors.
3	Environmental Policy of the Municipality of Linköping	The environmental policy of the Municipality of Linköping describes the principles for ecologically sustainable development that apply to the municipality's activities.
4	Climate Adaptation Programme of the Municipality of Linköping	This document describes the climate adaptation plan of the Municipality of Linköping. The purpose of the document is to create an overall picture of the risks linked to already ongoing climate change that will not be avoided within the municipality and identify long-term directions and strategies with prioritization of special development initiatives to adapt the municipality's activities to manage these risks.
5	Chemical Programme of the Municipality of Linköping	This document elaborates on the Municipality of Linköping chemical programme with the purpose to develop guidelines for how the use of chemicals that are harmful to health and the environment should be reduced in municipal activities, municipal companies and in activities purchased by the municipality.
6	Tekniska verken Business Plan 2019-2023	This document elaborates on Tekniska verken's approach on business planning, vision and focus.



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7	Tekniska verken Strategic Plan 2019-2023	Tekniska verken's strategic plan describes the company's approach to development in business, social and environmental areas.
8	Tekniska verken Goals 2019-2023	Tekniska verken's strategic plan describes the company's goals for economic, marketing, environmental, innovation, processes and employees development.
9	Tekniska verken Outcome of 2018 Goals	This document describes Tekniska verken's progress in 2018 for the goals established in Tekniska verken Goals document.
10	Climate balance report 2018	This report presents the total climate impact of the Tekniska verken during the financial year 2018. The report also presents the previous year's climate accounts and how the climate impact has changed between the years.

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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).

