stockholm exergi

Annual Green Bond Report 2019

Stockholm Exergi

Stockholm Exergi Holding AB (publ)
stockholmexergi.se

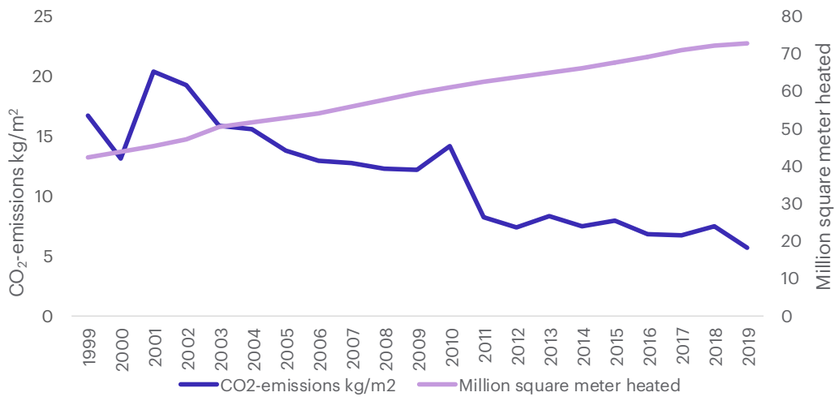
Stockholm Exergi's Sustainability roadmap

Stockholm Exergi's roadmap towards resource-efficient and fossil-free district heating consists of many areas of actions and comes with extensive investments. Our district heating has in a decisive way contributed to the City of Stockholm's goals and action plan to reduce the climate impact per inhabitant in the municipality.

The aim of the roadmap is to continue providing the growing Stockholm region with energy with a lower climate impact - without an increased need for primary energy sources. By 2030, our energy production should be completely climate neutral, and we are already working with solutions such as bio-CCS to reach even further and transform Stockholm into a carbon sink, absorbing the carbon dioxide of the atmosphere.

Stockholm Exergi has published two Green Bond Frameworks, one from 2015 and an updated one from 2019. Issuing green bonds is a natural choice for Stockholm Exergi and an integral part of our roadmap towards resource-efficient and fossil-free district heating. All new green bonds are issued under the 2019 Green Bond Framework.

CO_2-emissions from district heating per heated square meter



Over the past 20 years, the heated area of properties connected to district heating in Stockholm has almost doubled. At the same time, total emissions from district heating have decreased by 40 percent, meaning that the emissions per heated property area have decreased by 65 percent. This sharp decrease has been achieved together with property owners and businesses' own energy efficiency improvements and replacements of fossil based heat production. In order to achieve net-zero CO_2 -emissions, energy must be used efficiently, fossil fuels must be phased out, and the fossil content in the refuse derived fuels must be reduced.

Impact reporting for the Green Bond Framework 2019

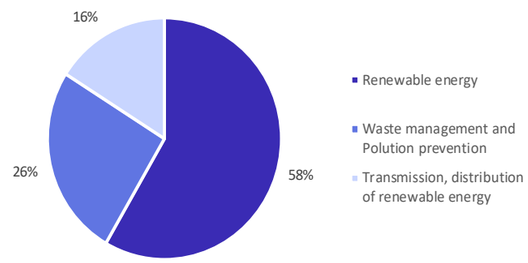
In September 2019 Stockholm Exergi Holding AB (publ) issued its first green bonds under the 2019 Green Bond Framework, for which we received a second opinion from the Norwegian climate research institute CICERO. With a CICERO Dark Green shading and an excellent governance assessment our 2019 Green Bond Framework achieved the highest possible rating outcome. Both the Green Bond Framework and the second opinion from CICERO can be found here. Two bonds were issued with a total amount of 2 000 MSEK and tenors of 4 and 7 years. All of the proceeds have been allocated by Stockholm Exergi's Green Bond Committee to the three different green project categories where most of the proceeds were allocated to projects within the renewable energy category. Most of the proceeds have been allocated to new projects instead of refinancing of older eligible projects.

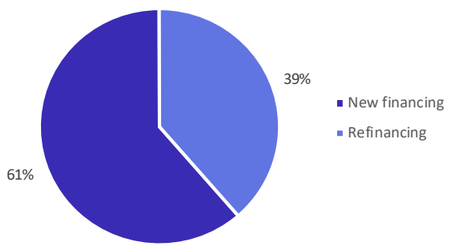
The following charts illustrate the allocation of proceeds to the different green project categories and between new financing and refinancing. The use of proceeds from green bonds and allocation to eligible green investments outlined in this report is as per March 31st 2020 and the impact reporting is based on calendar year 2019, where relevant.

Green Project Portfolio distribution based on disbursed amounts

The proceeds of the Green Bonds will finance or refinance, in whole or in part, investments undertaken to promote the transition towards low-carbon and resource-efficient growth ("Green Projects") under the following categories:

- Renewable energy
- Waste management and Pollution prevention
- Transmission, distribution of renewable energy





Distribution between new financing and refinancing based on disbursed amounts

New financing is defined as Green Projects under construction or Green Projects taken into operation less than 12 months prior to the approval by Stockholm Exergi's Green Bond Committee. Refinancing is defined as financing for Green Projects taken into operation more than 12 months prior to the Green Bond Committee's approval.

Projects Financed under the 2019 Green Bond Framework

In September 2019 Stockholm Exergi issued two green bonds. All of the proceeds, 2 000 MSEK, have been allocated by the Green Bond Committee to the eligible projects presented in the table below. The total investment amount for the chosen eligible projects amounts to over 6 900 MSEK and the share of the respective project that is financed by the 2019 green bond proceeds is stated in the "Outstanding disbursed green bond amounts" column. If not otherwise mentioned, all amounts refer to new financing:

Sustainability Performance Goal	Green Project Category	Project	Description	Total Investment MSEK	Total impact for investment	Outstandning disbursed green bond amounts to project MSEK	Impact for disbursed green bonds amounts	Impact tonnes CO_2e per MSEK
	Renewable Energy	Biomass (CHP8) Värtan, completed 2016. Financing of new infrastructure projects associated with CHP8.	Refinancing of new capacity for production of renewable energy. CHP8 has produced 1 652 414 MWh renewable heat and 680 726 MWh renewable electricity during 2019. Infrastructure projects have been conducted to support and improve the production facility.	5 800	Actual savings: 345 000 tonnes CO_2e	1167 (of which 773 MSEK is refinancing)	Actual savings: 69 400 tonnes CO_2e	59
	Waste management and pollution prevention	P8 Högdalen, under construction, completion 2022.	Construction of a new CHP plant for waste incineration in Högdalen, replacing boiler 1 and 2. Emission reductions are achieved by a new flue gas cleaning system.	800	Expected emission reduction: - NOx 76 tonnes - NH_3 8 tonnes Expected reduction of the use of ammoniac: - 500 m^3 per year.	504	Expected emission reduction: - NOx 48 tonnes - NH_3 5 tonnes Expected reduction of the use of ammoniac: - 315 m^3 per year.	N/A
		Technologies to facilitate carbon sinks, BioCCS, pilot ongoing with start 2019.	Research project regarding Bio-carbon capture system technology that when built as a full-scale plant is estimated to achieve a reduction of 800 000 tonnes of CO_2 per year.	15		9		N/A
	Transmission, distribution of renewable energy, energy recovery and energy storage	Investments related to "Smarta Fastigheter" (Smart Buildings) and DSM (Demand Side Management). Ongoing with start 2019.	Investments in hardware and infrastructure enabling reduced carbon emissions in production mix and enabling customers to reduce energy consumption further. This technology has the potential of reducing CO_2 emissions with approximately 31 000 tonnes in total until year 2025.	75	Actual savings: 65 tonnes CO_2e 1 100 MWh heat	75	Actual savings: 65 tonnes CO_2e 1 100 MWh heat	0,9
		Sum of distribution projects enabling the connection of new end-users. Investments during 2019.	These distribution projects will enable an increase of 85 125 MWh distributed heat per year and an avoidance of 58 000 tonnes CO_2 emissions in total until year 2025.	254	Actual savings: 8 600 tonnes CO_2e	245	Actual savings: 8 300 tonnes CO_2e	34
			TOTAL			**2000**		**39**

Reporting methodology

Biomass (CHP8) Värtan

To calculate the actual annual avoided climate impact of the project, the completed project is compared to a baseline in which the investment does not exist. The impact of heat and electricity production are added. The baseline used for heat production is Stockholm Exergi's district heating system's annual impact before project implementation. The baseline used for electricity is the European mainland mix including Norway, 315 g CO_2 per kWh according to Nordic Position Paper on Green Bonds Impact Reporting.

Actual annual avoided climate impact (CO_2e) of the project = actual annual output of heating for the project * (baseline emission factor for heat produktion - project emission factor) + actual annual output of electricity * (baseline emissions factor for electricity - project emission factor).

P8 Högdalen

To calculate the emission reductions related to the project, the expected improved perfomance of P8's new flue gas treatment system is compared to the emissions before project implementation. The same comparison is made concerning the use of ammoniac for NOx-reduction.

Smart buildings

The CO_2 emissions savings regarding smart buildings and Demand Side Management are based on reduced customer energy consumption and Stockholm Exergi's district heating system annual environmental impact. The annual environmental impact of optimized production is estimated to 0,9 tonnes CO_2 savings per customer which is itself based on how the production fuel mix is optimized.

Sum of distribution projects enabling the connection of new end-users

To calculate the actual annual avoided climate impact of the projects, the sum of the completed projects is compared to a reference scenario in which the investment does not exist. The baseline emissions factor for heating is estimated from national Swedish average for avoided alternative heating and from avoided alternative waste treatment, 158 g CO_2 per kWh according to Nordic Position Paper on Green Bonds Impact Reporting.

Actual annual avoided climate impact (CO_2e) of the projects = actual annual output of heating to new end users * (baseline emissions factor for heating - Stockholm Exergi's district heating system emission factor).

Green Bond Framework 2015

In May 2015, Stockholm Exergi Holding AB (publ) issued its inaugural green bonds under the 2015 Green Bond Framework. Two bonds were issued with tenors of 6 and 7 years and by the time of issuance, this transaction was considered the largest green bond transaction in SEK ever.

All of the proceeds, 2 500 MSEK, have been allocated during 2015. 2 254 MSEK were allocated to new projects and 246 MSEK to refinancing of older compliant projects. The projects in the portfolio are eligible based on Stockholm Exergi's Green Bond Framework from 2015, which has received a second opinion from the Norwegian climate research institute CICERO. The projects cover all areas of the framework – Renewable energy, Energy efficiency and Reduced environmental impact.

Project	Stockholm Exergi Green Bond Framework	Improvement	Total Investment SEK million	Disbursed green bond amounts SEK million
New waste incinerated CHP Brista 2	New capacity in waste to energy (WtE) solutions or change of energy source in existing production in order to reduce primary energy usage in society.	New capacity reduces the use of primary energy resources by approximately 45 GWh per year.	2 200	1 250
New biomass CHP Värtan (CHP8)	New capacity for production of renewable energy (new plants or productions units, modification of existing facilities).	Reduces CO_2-emissions in Stockholm by 345 000 tons per year.	5 800	812
New sales replacing old solutions	Investments in distribution systems that enable change in operations, or enable the connection of end users to the district heating network and thereby replacing local fossil supply.	Annual reduction of 8 600 tons of CO_2.	85	85
Flue Gas Condensation Brista and Högdalen	Flue gas and waste water cleaning. Energy recovery measure at production site.	Water emissions well within scope of environmental permit. 536 GWh of annual energy recovery.	82	82
Heat recovery in Brista	Energy recovery measures at production site.	32 GWh of annual energy recovery.	25	25
Refinancing	Refinancing of existing eligible projects.			246
Total				**2 500**

Deloitte: Auditor's Limited Assurance Report on Stockholm Exergi's Green Bond Report

To Stockholm Exergi Holding AB (publ), corporate identity number 556040-6034

Introduction
We have been engaged by Stockholm Exergi Holding AB (publ) ("Stockholm Exergi") to undertake a limited assurance engagement of the Impact reporting for the Green Bond Framework 2019 as of 31 March 2020 as set out on page 3-6 in this document ("the Reporting").

Responsibilities of Stockholm Exergi Management

Stockholm Exergi Management is responsible for the preparation of the Reporting in accordance with the applicable criteria, as explained in the Stockholm Exergi Green Bond Framework 2019 (available at https://www.stockholmexergi.se/om-stockholm-exergi/finansiell-information/finansiering/) as well as the accounting and calculation principles that the Company has developed. This responsibility also includes the internal control relevant to the preparation of the Reporting that is free from material misstatements, whether due to fraud or error.

Responsibilities of the auditor

Our responsibility is to express a conclusion on the Reporting based on the limited assurance procedures we have performed. Our engagement is limited to historical information presented and does therefore not cover future-oriented information.

We conducted our limited assurance engagement in accordance with ISAE 3000 Assurance Engagements Other than Audits or Reviews of Historical Financial Information. A limited assurance engagement consists of making inquiries, primarily of persons responsible for the preparation of the Reporting, and applying analytical and other limited assurance procedures. The procedures performed in a limited assurance engagement vary in nature from, and are less in extent than for, a reasonable assurance engagement conducted in accordance with International Standards on Auditing and other generally accepted auditing standards in Sweden.

The firm applies ISQC 1 (International Standard on Quality Control) and accordingly maintains a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements. We are independent of Stockholm Exergi in accordance with professional ethics for accountants in Sweden and have otherwise fulfilled our ethical responsibilities in accordance with these requirements.

The procedures performed consequently do not enable us to obtain assurance that we would become aware of all significant matters that might be identified in a reasonable assurance engagement. Accordingly, the conclusion of the procedures performed do not express a reasonable assurance conclusion.

Our procedures are based on the criteria defined by Stockholm Exergi Management as described above. We consider these criteria suitable for the preparation of the Reporting.

We believe that the evidence we have obtained is sufficient and appropriate to provide a basis for our conclusion below.

Conclusion

Based on the limited assurance procedures we have performed, nothing has come to our attention that causes us to believe that the Impact reporting for the Green Bond Framework 2019 as of 31 March 2020, is not prepared, in all material respects, in accordance with the criteria.

Stockholm 12 May 2020
Deloitte AB

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Expert Member of FAR