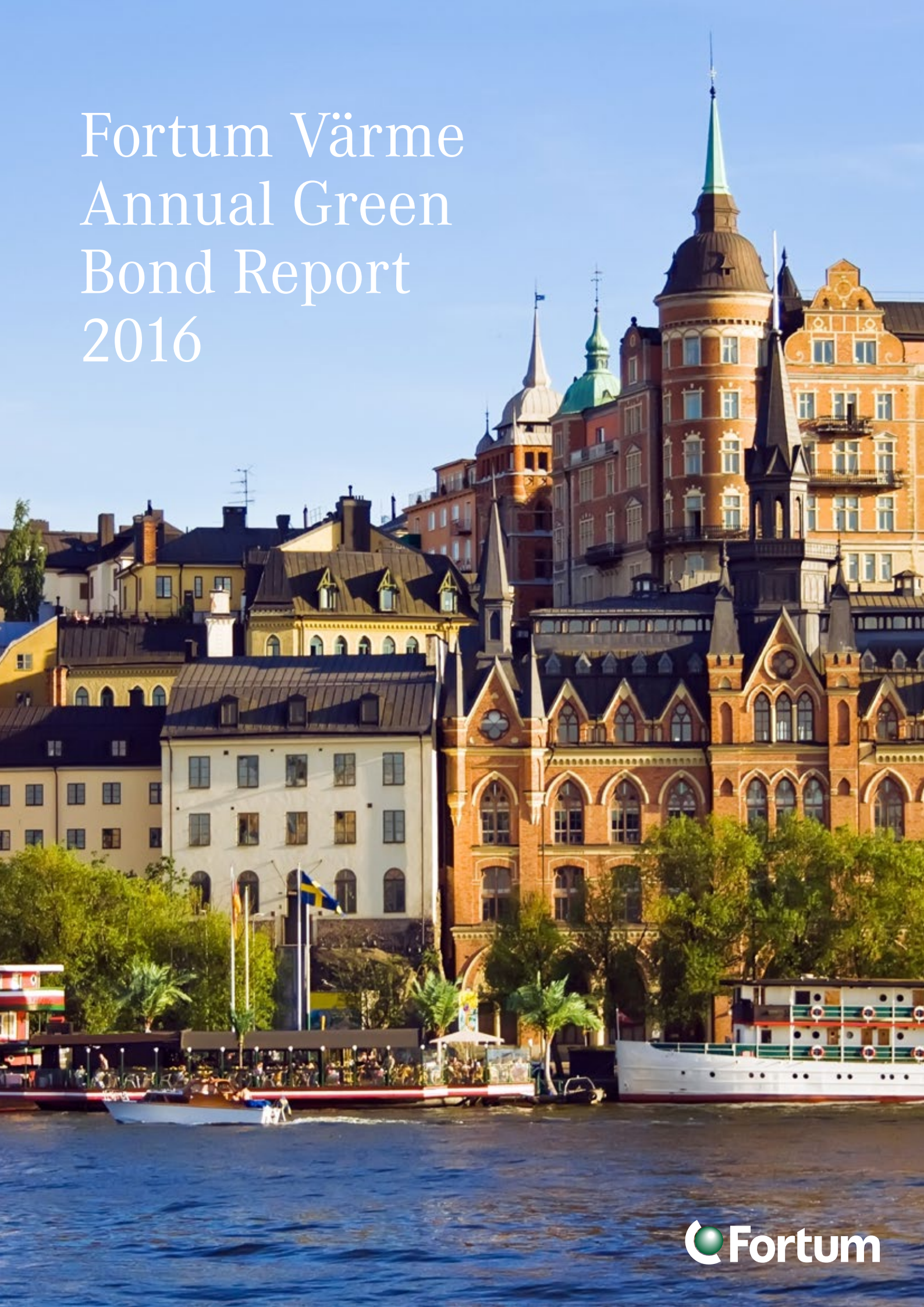


Fortum Värme Annual Green Bond Report 2016



Green Bond Report

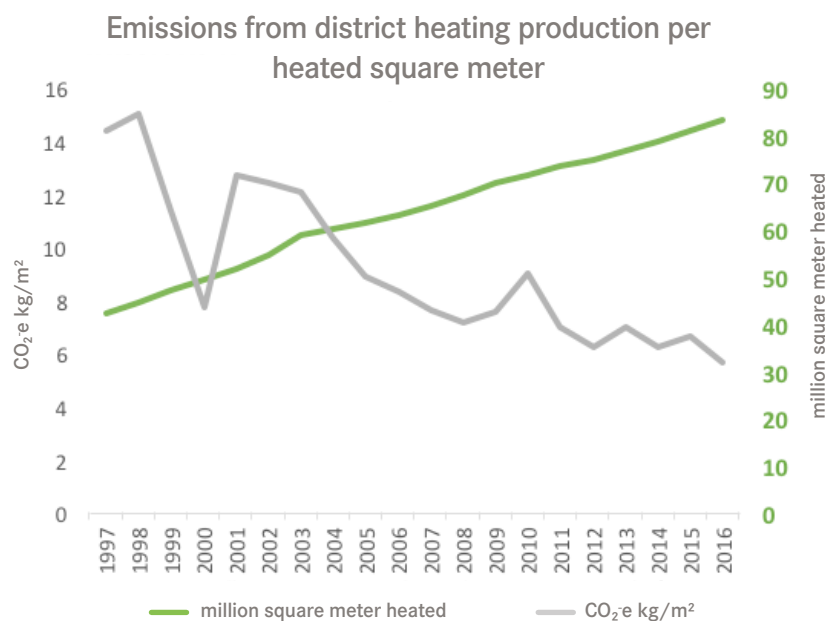
In May 2015, AB Fortum Värme Holding samägt med Stockholms stad (publ), made its first green bond issuance. Fortum Värme raised 2 500 MSEK in a dual tranche 6 and 7 years maturities and it is still considered the largest ever green bond transaction in SEK for corporates.

Issuing green bonds was a natural choice for Fortum Värme given the sustainable business and the ambitious investment in renewable energy production and carbon emission reductions.

Fortum Värme have established a funding where we are pleased to conclude that over 50 % of the funding is conditioned by the environmental benefits of our business, and green bonds represents approximately one third of that portion. For further information please visit Fortum Värme's website.

Radically Reduced Emission of Greenhouse Gases from Heating of Stockholm Area

District heating has a long history of strong expansion. The supply doubled since the beginning of 1990's and now covers well over 80 % of overall heating demand in Stockholm. A major part of the expansion is due to connection of existing properties. Through a combination of small oil boilers shut down, better environmental performance in the production, and energy efficiency in buildings, the overall climate impact due to heating of constructions in Stockholm, has been radically reduced.



Over the past 20 years, the heated area of buildings connected to district heating increased by almost double. At the same time, greenhouse gas emissions from district heating production has fallen by more than 20 %, which means that emissions from heating of buildings have decreased by 60 %. This, together with the building's own energy efficiency and remuneration of their earlier heat production is the reason that emissions from heating in Stockholm have decreased significantly.

Project's Financed With the Proceeds From the Green Bonds

All of the proceeds 2 500 MSEK was allocated during 2015. 2 254 MSEK was allocated to new projects and 246 MSEK to refinancing of older projects meeting the criteria's of the green bond framework.

The projects in the portfolio are eligible based on Fortum Värme's green bond framework from 2015, which also have a second opinion from the Norwegian climate research institute CICERO. The projects cover all areas in the framework – Renewable energy, Energy efficiency and Reduced environmental impact. The development in each project is described in the table below.

Project	Fortum Värme Green Bond Framework	Improvement	Total Investment, MSEK	Allocated from Green Bonds, MSEK
New waste incinerated CHP in Sigtuna (Brista 2)	New capacity in waste to energy 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 71 GWh per year	2 200	1 250
New bio incinerated CHP in Värtan (KVV8)	New capacity for production of renewable energy (new plants or productions units, modification of existing facilities)	The plant was taken into operations during 2016. Based on a statistically normal year the reduction of CO ₂ -e-emissions are: <ul style="list-style-type: none"> • 170 000 ton in Stockholm area • 460 000 ton from the European electricity production 	5 000	812
New sales replacing old solutions	Investments in distribution systems that enables change in operations, or enables connecting end users with district heating and by that replacing local fossil supply	Annual reduction of 11 000 tons of CO ₂ -e and 58 % increased use of renewable or recovered energy	85	85
Flue Gas Condensation Brista and Högdalen	Flue gas and waste water cleaning. Energy recovery measures at production site	Water emissions were well within the scope of the environmental permit. 530 GWh of energy recovery	82	82
Heat recovery in Brista	Energy recovery measures at production site	20 GWh of energy recovery	25	25
Refinancing	Reinvestments in or refinancing of operations developed from eligible projects			246
			Total	2 500

Examples of Projects

100 % Renewable Energy in the New CHP Plant at Värtan, Stockholm



Investments and projects intended to increase new capacity for production of renewable energy in new plants or productions units or modification of existing facilities.

The new biofuel-based power plant in Värtan was taken in full operation. It annually produces 1 700 GWh heat and 680 GWh electricity and supplies 190 000 apartments with renewable district heating. The renewable electricity produced corresponds to the yearly need of approximately 150 000 electric vehicles. Reduces CO₂-emissions in Stockholm by 170 000 tons per year and within the EU by 460 000 tons per year through replacing fossilfuel-based electricity production.

Total investment ~ 5 000 MSEK

Energy Recovery and Reduction of Environmental Impact

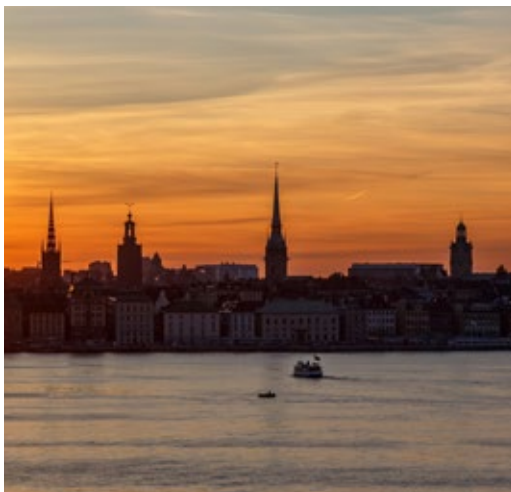


Investments and project intended to decrease emissions (other than CO₂), waste management, re-use of flue gas, waste water management and biodiversity.

Flue Gas Condensate enables 530 GWh of energy recovery. The water cleaning system reduces emissions of ammonium and heavy metals. Enabled construction of wetlands in Steningedalen nature park with additional water treatment and increased biodiversity.

Total investment ~ 82 MSEK

Small Scale Energy Efficiency – Replacing Old Solutions with District Heating and Cooling



Investments to replace old solutions based on fossil oil, electricity and cooling machines by expansion of district heating and cooling grid, new capacity for district cooling and demand side management, will increase recovered and renewable energy.

The Annual new sales for Fortum Värme is 100-200 GWh of heat and 10-15 GWh of cooling. Fortum Värme have during May 2014 to December 2015 invested in replaced fossil oil and small scale chillers, leading to an annual reduction of over 11 000 tons of CO₂ and over 58 % increased use of renewable or recovered energy.

Total investment ~ 85 MSEK

Fortum Värme – creating energy in tomorrow's cities

Fortum Värme creates a pleasant indoor climate for people living and working in the Stockholm region. The local energy company, ownership of which is shared equally between Fortum and the City of Stockholm, produces resource-efficient district heating, district cooling, and electricity. Working hand in hand with customers and Stockholmers, Fortum Värme has helped ensure that Stockholm is rated one of the most sustainable capital cities in the world.

