

A large, faint, teal-colored illustration of a historical scene, possibly a festival or a public event. In the center, a banner reads "GÖTTEBOG 400 ÅR". The scene includes people on horseback, a carriage, and a boat on the water.

Green Bond Impact Report 2022

Stadsledningskontoret

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Titel: Green Bond Impact Report 2022

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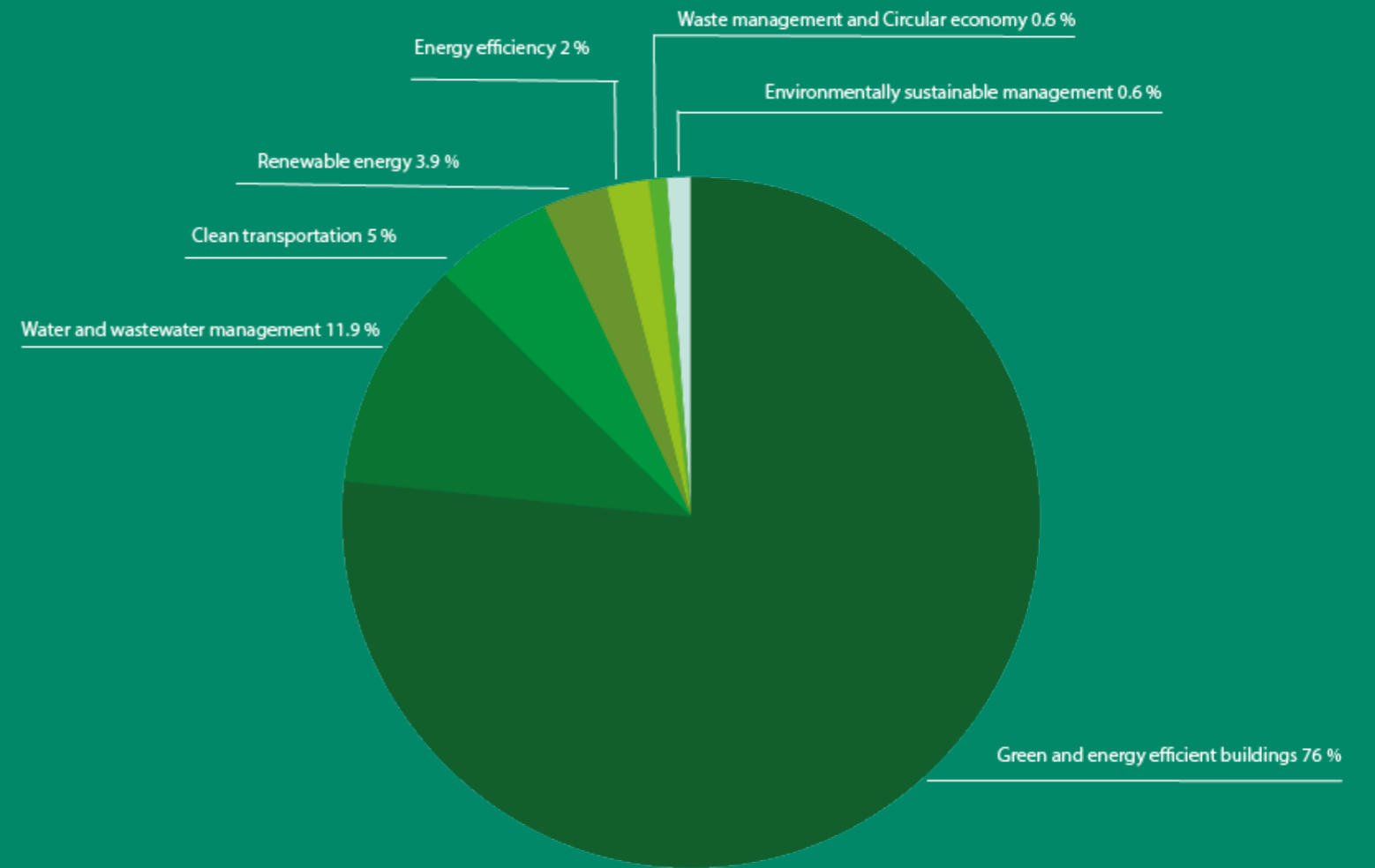
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Executive Summary, as of 31 Dec 2022

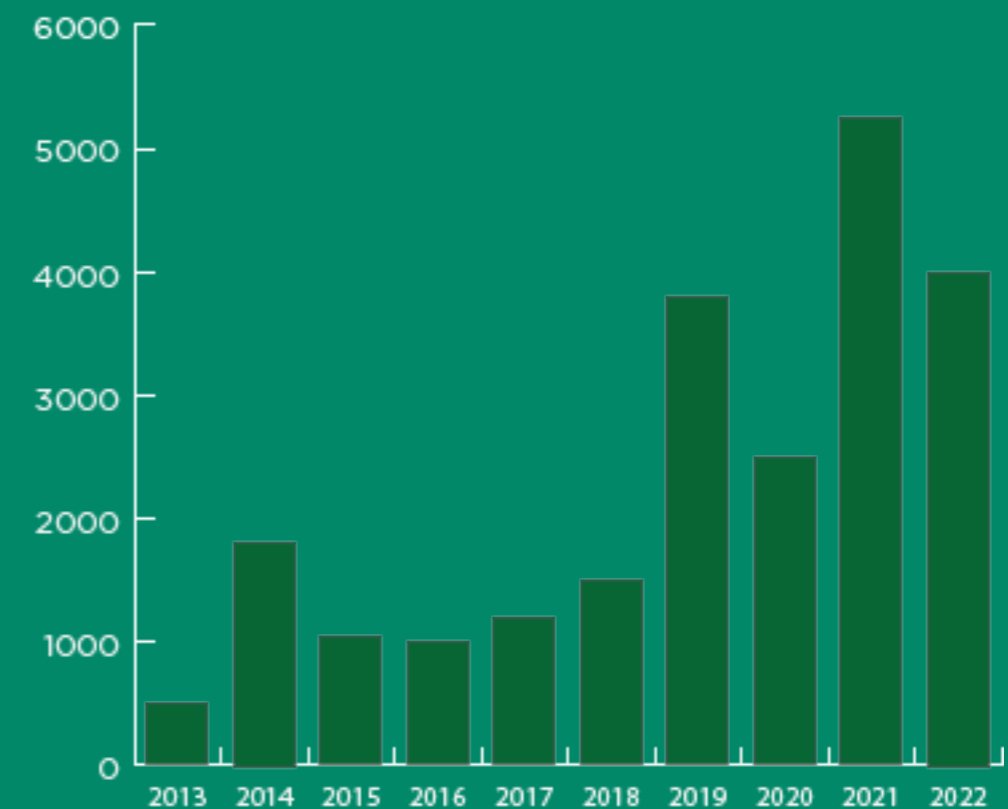
Impact attributable to green bond investors	99.3%
Green Bonds SEK 1200 mn maturing 14 June 2023	6.58%
Green Bonds SEK 500 mn maturing 5 November, 2024	2.74%
Green Bonds SEK 1000 mn maturing 5 November, 2024	5.48%
Green Bonds SEK 1500 mn maturing 24 September, 2025	8.22%
Green Bonds SEK 300 mn maturing 24 April, 2025	1.64%
Green Bonds SEK 1000 mn maturing 27 November, 2025	5.48%
Green Bonds SEK 1000 mn maturing 27 November, 2025	5.48%
Green Bonds SEK 1000 mn maturing 3 June, 2026	2.74%
Green Bonds SEK 500 mn maturing 3 June, 2026	5.48%
Green Bonds SEK 1000 mn maturing 18 November, 2026	5.48%
Green Bonds SEK 1000 mn maturing 16 Mars, 2027	5.48%
Green Bonds SEK 1000 mn maturing 16 Mars, 2027	5.48%
Green Bonds SEK 500 mn maturing 17 June, 2027	2.74%
Green Bonds SEK 1250 mn maturing 17 June, 2027	6.85%
Green Bonds SEK 1500 mn maturing 21 October, 2027	8.22%
Green Bonds SEK 1500 mn maturing 29 Mars, 2028	8.22%
Green Bonds SEK 500 mn maturing 29 Mars, 2028	2.74%
Green Bonds SEK 1350 mn maturing 04 October, 2028	7.39%
Green Bonds SEK 650 mn maturing 04 October, 2028	3.56%

Green Investment Portfolio 18,4 billion SEK



CO2 impact Green indicators, based on outstanding disbursed amount			
Project category	GHG emissions reduced/avoided, tonnes CO2e/year	Outstanding disbursed amount to projects, SEK mn	Impact, tonnes CO2e per SEK mn
Renewable energy	22 176	717	31
Green and energy efficient buildings	1495	13975	0.11
Energy efficiency	134	371	0.36
Clean transportation	469	914	0.51
Waste management and circular economy	N/A	111	N/A
Water and Wastewater Management	N/A	2178	N/A
Sustainable Land Use and Environmental Management	N/A	117	N/a
Total	24,274	18,383	
Disbursed amounts with CO2 impact, SEKmn		15,977	
Impact, tonnes CO2e per SEK mn			1.52
Annual renewable energy generation, MWh			98,052

Green Bond Issuances



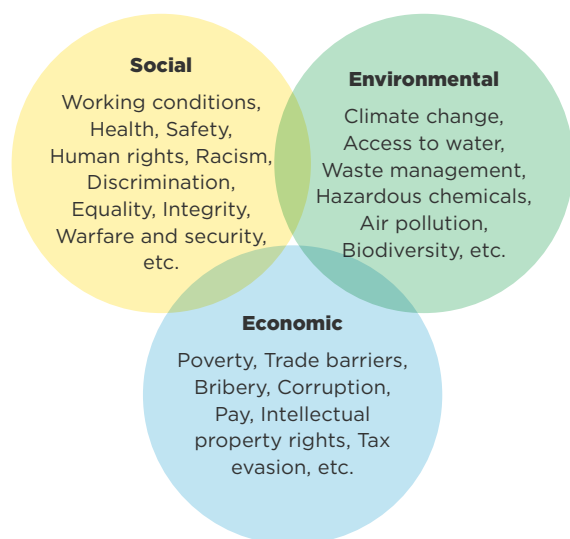
Basic information	
Green Bond Framework applied	Report comprises projects financed under Green Bond Framework dated September 2022
Related Green Bond ISIN(s)	Please see list in the report
External verifier of allocation report	EY
Reporting period	Reporting for calendar year 2022. Comprises all eligible projects financed from GB programme start in 2013 until year-end 2022
Report publication date	June 2023
Frequency of reporting	Annual
Next reporting planned for	June 2024
Reporting approach	Portfolio and project-by-project reporting

Sustainable City – Open to the world

The City of Gothenburg is a municipality on the west coast of Sweden, strategically located between Oslo and Copenhagen. With a population of just over half a million, Gothenburg is Sweden's second largest city and home to Scandinavia's largest port and a variety of strong industries. Swedish municipalities enjoy extensive fiscal autonomy and can issue bonds to fund the delivery of public services. The City is responsible for providing services such as education, social care, planning and building, health and environmental protection, waste collection, water supply and purification, energy supply and public transport.

Gothenburg's governance is based on three sustainability dimensions: social, environmental and economic sustainability - all of which are mutually dependent on one another. Collaboration for achieving our sustainability objectives spans the entire organization and include both the municipal and the company sector. As for economic sustainability, anti-corruption is a key priority for the City. We work actively to combat corruption and irregularities by continuously strengthening governance, control and transparency across all operations. As to social sustainability, our long-term goal is to reduce gaps in living conditions and health and ensure that the city develops in a way that is equal and socially sustainable.

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The ecological dimension of the sustainable development of Gothenburg is presented in our environment and climate programme. The starting point of the programme is the UN Sustainable Development Goals Agenda 2030, Sweden's national environmental goals system, the Paris Agreement, and the challenges that Gothenburg as a community and the City of Gothenburg as an organization face in order to make the transition to an environmentally sustainable society. The objective of the programme is to transition Gothenburg to an environmentally sustainable city by 2030. It focuses on the greatest challenges for an environmentally sustainable Gothenburg, and it contains three environmental goals that addresses nature, climate and people. The three environmental goals cover the whole of Gothenburg, and the goals include twelve sub-goals that

focus on the City of Gothenburg's own organization. The programme is valid until 2030 and the indicators for the three environmental goals and most of the sub-goals also have 2030 as the target year. Some of the indicators for the sub-goals have 2023 and 2025 as target years. This is because these are considered to be easier to achieve, that the transition in these areas needs to be accelerated, or that the target value needs to be reached in order for another indicator's target value to be reached by 2030.

We are determined to be one of the world's most progressive cities when it comes to tackling environmental issues and climate change.

Gothenburg was the first city in the world to issue a green bond back in 2013 and the instrument has become an important tool to reach the City's climate and environmental goals. Additionally, in March 2022 Gothenburg became the first municipality in Sweden coupling its borrowing to the City's sustainability goals. The sustainability-linked RCF is coupled to four ambitious goals, three climate goals and one social goal. The first goal addresses energy usage improvement in buildings owned by the City premises administration. The second goal is connected to Göteborg Energi's own ambitious goal of achieving a production of district heating from fossil free sources by 2025. The third goal is tied to the City's goal of achieving a fossil free vehicle fleet by 2023. And the last goal, the social goal, is aiming at achieving the City's ambition of having zero areas classified as "highly vulnerable" in accordance with the Swedish Police definition. All goals will be followed up on a yearly basis. And if the target goals are met the City will receive an interest discount, if not the City will pay an interest penalty. Furthermore, the City's environmental efforts have been recognized several times over the years. In April 2022 the City was selected by the EU Commission as one of the 100 EU cities that will participate in the EU Mission for 100 climate-neutral and smart cities by 2030, the so-called Cities Mission. Other credits include a number one ranking in the Global Destination Sustainability Index 2016, 2017, 2018, 2019, 2021 and 2022. The award goes to the top performer amongst participating destinations in order to highlight the destination's exemplary commitment and efforts to becoming as sustainable as possible. In 2019, the City also won an award from the Swedish Environmental Protection Agency for our perseverance and long-term perspective related to waste prevention across different sectors of the City.

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The Global Goals for Sustainable Development

All the 17 global sustainable goals are relevant to the City of Gothenburg, but not all the 169 targets. The city has local goals and strategic documents that address the most important areas in the relevant targets. In the Green Bond Framework, you will find how the city's project categories are connected to the SDGs. The current portfolio primarily addresses the following goals: 3 Good health and well-being, 6 Clean water and sanitation, 7 Affordable and clean energy, 9 Industry, innovation and infrastructure, 11 Sustainable cities and communities, 12 Responsible consumption and production, 13 Climate action, 14 Life below water and 15 Life on land.

All the 17 global sustainable goals are relevant to the City of Gothenburg, but not all the 169 targets.



Photo: Göteborg Energi

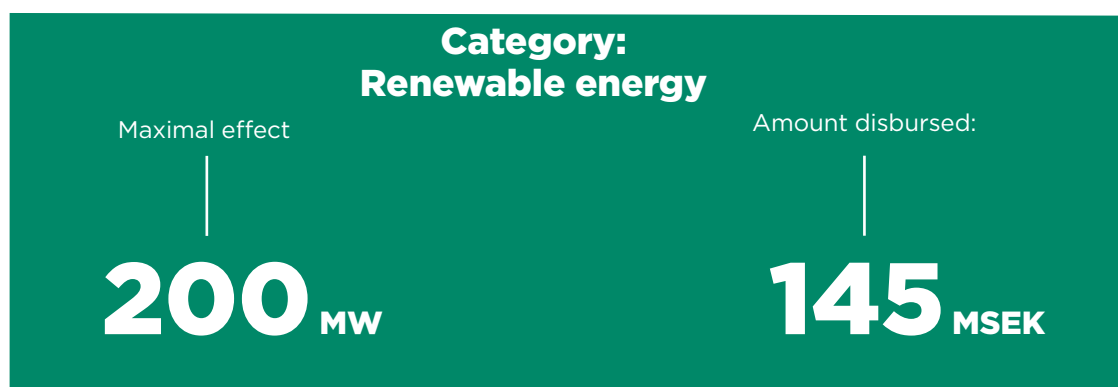
City of Gothenburg's new green projects

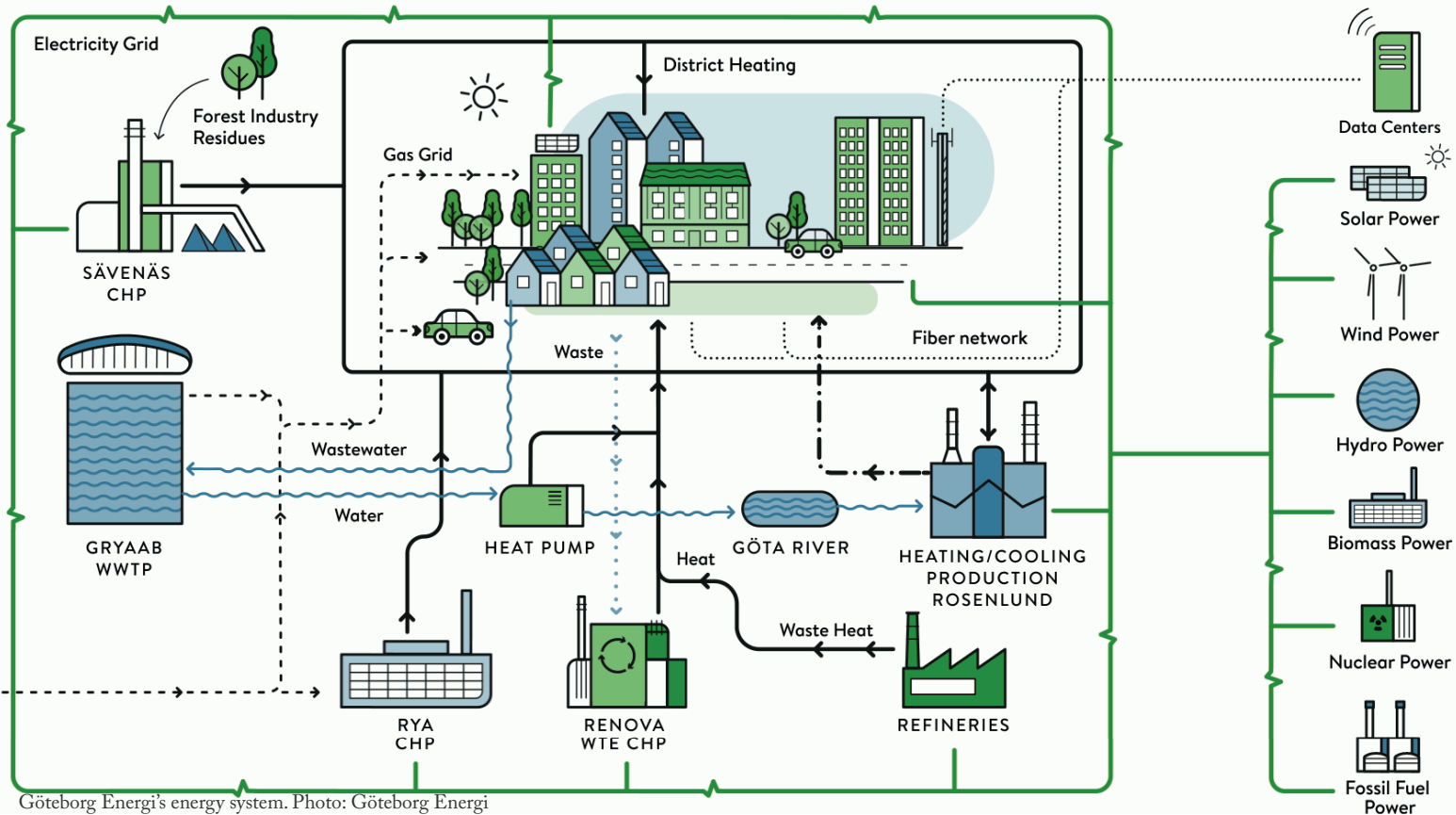
A complete list of projects can be found in the appendix. Below a selection of new projects in the investment portfolio is presented.

Göteborg Energi builds Gothenburg's largest thermos

Göteborg Energi, a wholly-owned municipal energy company in Gothenburg that sells and distributes, among other products, electricity and district heating, is investing around 150 million SEK in an accumulator tank. The 60-meter tall accumulator tank now stands completed at the mouth of the Göta River, where it flows into the Kattegat. The accumulator tank operates as a thermal storage unit. When the demand for district heating is lower, heat (up to 1000 MWh) is stored in the tank. This stored heat can subsequently be utilized when demand increases. Once the tank is discharged, it can typically deliver 130 MW (up to a maximum of 200 MW) of heat for approximately seven hours. In this manner, peak loads in district heating production can be reduced, effectively decreasing the reliance on fossil fuel-based facilities.

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Göteborg Energi's energy system. Photo: Göteborg Energi

Investment in district cooling facilities, Göteborg Energi

Göteborg Energi's district cooling technology is built upon the same foundational principle as its district heating counterpart. The company's district heating system serves as an expansive 1230-kilometer circulatory network, primarily powered by recycled or renewable energy sources. Key facilities, including Sävenäs WTE CHP, Rya CHP, and Rosenlund CHP, circulate heated water through an extensive underground piping infrastructure, supplying heat to 90% of multi-dwelling buildings, 10,000 villas, various industries, offices, retail establishments and other public structures.

District cooling production at Göteborg Energi relies predominantly on the utilization of recycled energy and the city's abundant surplus heat, which is repurposed to generate cooling. The system also capitalizes on the cooling capacity of the Göta älv river for a significant portion of the year. While electricity does contribute to the district cooling process, it is employed at a substantially lower volume compared to traditional cooling machinery. According to the environmental values published for delivered district cooling for the year 2022, the source of supplied energy for district cooling is as follows; 85% of the energy came from recovered energy, where all of it was generated from industrial waste heat (e.g., from refineries). The remaining 15% came from renewable energy sources.

Consequently, Göteborg Energi's district cooling presents a resource-efficient, comprehensive solution for indoor climate management, delivering quiet operation and virtually maintenance-free performance.

For more information regarding environmental values please click the following link : [Environmental values for delivered district cooling for the year 2022](#)

The system also capitalizes on the cooling capacity of the Göta älv river for a significant portion of the year.

Category:
Energy efficacy

Amount disbursed:

66 MSEK



Photo: Renova

Flue gas treatment, Renova Miljö

Renova Miljö is a wholly-owned subsidiary of the Renova Group which is owned by ten municipalities in the Gothenburg region: Ale, Gothenburg, Härryda, Kungälv, Lerum, Mölndal, Partille, Stenungsund, Tjörn and Öckerö. The company operates in a competitive market, providing services to companies, municipalities and businesses within the group's owner municipalities. The company's operations are organized into two business areas. The Logistics business area manages the collection and other logistics services for waste and recycling materials from households and businesses within the owner region. The Recycling business area sorts and treats waste from activities in the owner municipalities and other waste that is handed over to the company by others for recycling and treatment.

Most of the combustible waste is incinerated at the Sävenäs waste-to-energy plant. The heat energy released through the combustion is recovered by converting it to district heating and electricity. For instance, one kilogram of energy-recycled waste provides hot water for a seven-minute shower and electricity for approximately three hours of computer use. The facility accounts for about 30 % of Gothenburg's district heating and about 5% of Gothenburg's electricity needs.

However, environmental quality standards in Gothenburg impose requirements that include restrictions on the amount of nitrogen oxide in the air. Although a significant amount of emissions come from maritime and road traffic, the Sävenäs waste-to-energy plant is also a significant point source for nitrogen and nitrogen oxide emissions. One of the main purposes of the investment in this project is to implement a cost-effective modernization of the flue gas treatment on line 1 at the Sävenäs plant. This modernization will reduce, among other things, nitrogen emissions into the air and water in such a way that the combustion capacity and availability can be maintained while the modernization is carried out.

Nitrogen emissions to air and water will be reduced in such a way that combustion capacity and availability can be maintained while the modernization is being carried out.

**Category:
Water and wastewater management**

Amount disbursed:

111 MSEK



Photo: Renova

Facility for recovery of zinc, Renova Miljö

Renova's ash washing facility with zinc recovery at the waste-to-energy plant in Sävenäs was completed in the spring of 2022. Throughout the autumn and winter, equipment calibration and flow adjustment through the facility were in progress. The ash washing facility with zinc recovery, one of the first of its kind in the world, started as an extensive laboratory experiment with promising results. Subsequently, a pilot facility was built to test the method on a larger scale, and the results showed significant potential, with approximately 70% of all zinc being recoverable. In 2019, Renova's board decided to construct a full-scale facility where 10,000 tons of ash per year will be managed.

In brief, the process is as follows: The fly ash, i.e. the ash that accompanies the flue gas from waste incineration is washed out with hydrochloric acid, transferring the zinc to the liquid. The ash is then separated. After that, lye is added to the liquid for the zinc to precipitate and form flocks. Finally, when the liquid is pressed out a solid zinc product is obtained that can be returned to society. The washed ash is then burned again to become slag which after refinement may be used as construction material.

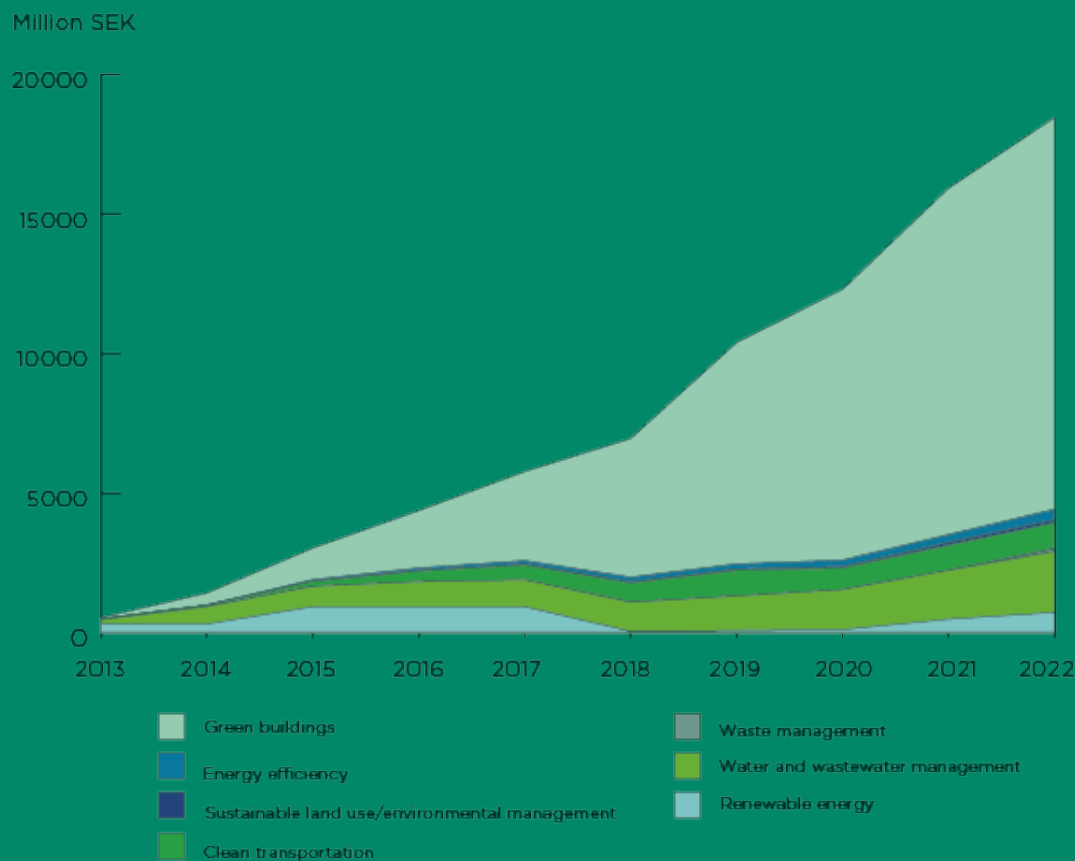
The ash washing facility with zinc recovery, one of the first of its kind in the world, started as an extensive laboratory experiment with promising results

Category:
Waste management and Circular economy

Amount disbursed:

63 MSEK

Green bond portfolio growth



Green Bonds
57%
of outstanding bonds

Green Bond issuances, Green Account balance and proportion of refinancing

In 2022, the City of Gothenburg issued four green bonds earmarked for financing green projects, as defined within the city's framework for green bonds. The bonds were issued in two instances. The first issuance took place on March 29th, with the combined value of the transaction reaching 2 billion SEK. Subsequently, on October 10th, two additional green bonds were issued, also amounting to a total of 2 billion SEK.

However, one green bond with a maturity date of June 15th, 2022, and with a principal amount of 1 billion SEK, was paid in full. Since the City of Gothenburg issued its inaugural green bond in 2013, the issuance has experienced consistent growth. As of December 31, 2022, the total amount outstanding was 18.4 billion SEK, representing 57 percent of the City's outstanding bond volume..

The balance of the Green Account was at year end a deficit of 0.1 billion SEK. The total proportion of net proceeds used to finance new projects is estimated at 86 percent. The proportion of refinancing is therefore estimated at 14 percent.

Since the city of Gothenburg issued its inaugural green bond in 2013 the issuance has experienced consistent growth.

SEK (bn)	Share of total outstanding green bonds	Issuance	Maturity	XS no
1.2	6.58%	2017-06-14	2023-06-14	XS1627778316
0.5	2.74%	2018-11-05	2024-11-05	XS1900629616
1	5.48%	2018-11-05	2024-11-05	XS1900633303
1.5	8.22%	2019-09-24	2025-09-24	XS2054601369
0.3	1.64%	2019-09-24	2025-04-24	XS2054601443
1	5.48%	2019-11-27	2025-11-27	XS2084421986
1	5.48%	2019-11-27	2025-11-27	XS2084423925
0.5	2.74%	2020-06-03	2026-06-03	XS2180083052
1	5.48%	2020-06-03	2026-06-03	XS2180083136
1	5.48%	2020-11-18	2026-11-18	XS2259797079
1	5.48%	2021-03-16	2027-03-16	XS2317293053
1	5.48%	2021-03-16	2027-03-16	XS2317289291
0.5	2.74%	2021-06-17	2027-06-17	XS2355244653
1.25	6.85%	2021-06-17	2027-06-17	XS2355549333
1.5	8.22%	2021-10-21	2027-10-21	XS2400595687
1.5	8.22%	2022-03-29	2028-03-29	XS2463122577
0.5	2.74%	2022-03-29	2028-03-29	XS2463121769
1.35	7.39%	2022-10-04	2028-10-04	XS2541621673
0.65	3.56%	2022-10-04	2028-10-04	XS2541621756

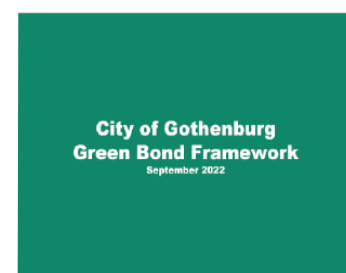
Green Bond Framework

The City of Gothenburg updated the Green Bond Framework in September 2022, another significant step forward in our work with Green Bonds.

The City of Gothenburg has been committed to sustainable finance for a long time and was the first city in the world to issue a green bond in 2013. The City's previous green bond framework was updated in September 2019. However, the sustainable finance market continues to evolve with new standards and regulations such as the updated versions of the Green Bond Principles, published by the International Capital Market Association (ICMA), and the EU Taxonomy Regulation. The City of Gothenburg strives to follow best market practice and updated its Green Bond Framework in September 2022. Projects financed under this Framework will strive to contribute to at least one of the six environmental goals of the EU Taxonomy. The Framework has also been developed to align with ICMA's Green Bond Principles published in 2021

By setting up this Green Bond Framework, the City of Gothenburg offers investors the opportunity to further support the transition towards a low-carbon, climate change-resilient and ecologically sustainable society.

This Framework defines the projects and investments eligible for financing by green bonds issued by the City of Gothenburg. In addition, the Framework outlines the process used to identify, evaluate, select and report on eligible projects and the set-up for managing the Green Bond proceeds.



Projects financed under this Framework will strive to contribute to at least one of the six environmental goals of the EU Taxonomy.

Second opinion

In September 2022 CICERO, an independent research institute at the University of Oslo, issued a second opinion regarding the City’s new framework . The framework was rated Medium Green and the governance procedures Excellent. Furthermore, it was found to be in alignment with Green Bond Principles. Based on information provided by the City of Gothenburg, it was also found to be aligned with the taxonomy mitigation criteria for most relevant taxonomy activities. Please read more in the [full report](#).

Green Account Audit

According to the City of Gothenburg’s Green Bond Framework, an independent external auditor shall be appointed to annually provide a limited assurance that an amount equal to the Green Bond net proceeds has been allocated to Green Projects. During the spring of 2023, EY was appointed auditor, and their “Agreed-Upon Procedures Report on the City of Gothenburg’s Green Bond” can be found in the link below. In summary, their report verified the following points together with the following observations:

	Procedures	Findings
1.	We have for each of the identified green bonds issued during 2022 in the attached summary of issued Green Bonds, compared the principal loan amount against the loan agreement.	With respect to item 1, we found the principal loan amount stated in the summary of issued Green Bonds, was consistent with the loan agreement.
2.	We have compared the summary of issued green bonds, regarding the amount not yet used for the total green bonds, against separate bank account.	With respect to item 2, we found the amount not yet used stated were consistent with the closing balance according to the bank statement.
3.	We have compared the attached summary of issued Green Projects regarding the amounts with the amounts paid out according to the bank statement.	With respect of item 3, we found the amount stated per green project was consistent with the bank statement.
4.	We have verified that the attached summary of green project issued during 2022, was approved by the “City of Gothenburg Green Bond Committee”	With respect of the item 4, we found that the “City of Gothenburg Green Bond Committee” had approved the new projects of 2022 according to the summary.

For more information please visit: [Limited assurance green account](#)

SHADES OF GREEN



GOVERNANCE ASSESSMENT



GREEN BOND AND LOAN PRINCIPLES
Based on this review, this framework is found aligned with the principles.

Position paper on Green Bonds Impact Reporting

The Position Paper on Green Bonds Impact Reporting, originally launched in October 2017 by a group of ten Nordic public sector issuers, was published in an updated version in February 2020.

The Nordic Position Paper proposes an outline for reporting the environmental benefits of green bond investments. It also provides guidance on general matters, such as distinguishing between reduced and avoided emissions, as well as reporting impact in relation to disbursed green bond allocations.

Moreover, the Paper provides suggestions for metrics and indicators relevant to eight different project categories. This effort builds upon reporting approaches suggested by the Green Bond Principles and multilateral development banks, as outlined in the GBP Handbook – Harmonized Framework for Impact Reporting. Please read more in the [full report](#).



Project categories and use of proceeds

The City of Gothenburg finance projects within eight project categories outlined below:

Green Project Categories	Share allocated
Renewable Energy	3.9%
Green and energy efficient buildings	76%
Energy efficiency	2%
Clean transportation	5%
Waste management and circular economy	0.6%
Water and wastewater management	11.9%
Environmentally sustainable management	0.6%
Climate change adaptation	0%

Reporting approach and how to interpret the results

The City of Gothenburg is committed to transparent reporting of the projects financed within the City's framework for green bonds. The purpose of this impact report is to provide a more detailed understanding of the climate and environmental impacts that can be expected or are projected to result from the Green Bond eligible projects. Gothenburg has been a progressive stakeholder of developing the green bond market and investor reporting as an important part of that process. The City aims to follow all the key aspects of the Position Paper from the Nordic Public sector, but it will be a continuous process of development.

Estimations of impact indicators and projections of impacts are based on certain assumptions. The City of Gothenburg aims to make sound and conservative assumptions that are reasonably based on information available at the time. However, actual environmental impacts of projects may diverge from initial projections. Examples of this can be changes in law requirements, baseline conditions, behavior and slow start-up periods. Because of this, calculation methods and baseline assumptions may vary.

Collected data and baselines

Project Type	Emission Factor	
Electricity consumption in Green Buildings	315 g CO2/kWh	Position paper on Green Bonds Impact Reporting
District Heating consumption in Green Buildings	60 g CO2/kWh	Environmental values for district heating 2022 Göteborg Energi AB
District heating projects, biofuel	200 g CO2/kWh	The Swedish Environmental Protection Agency
Electricity generation, solar power	315 g CO2/kWh	Position paper on Green Bonds Impact Reporting
Cars	145 g CO2/km	Weighted average emission for registered passenger cars in 2021, Transportstyrelsen

Contact

For more information or questions regarding this report please do not hesitate to contact:

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Appendix: Impacts and allocated

Name of Project	Administration/ Municipal company	Project start	Adaption/ Mitigation/ Environment	Project Category	SDG	Annual energy savings Reduced/Avoided MWh	Annual energy produced MWh	Renewable capacity added MW	Annual GHG emissions Reduced/ Avoided tons of CO2 eq.	Project information	Allocated amounts (msek)
Electric cars	Göteborgs Stads Leasing AB	2013	M	Clean transportation	9, 11, 13	n/a	n/a	n/a	469 Reduced	»583 electric cars in the city carpool »268 new cars in 2022	277
Celsius	Göteborg Energi AB	2014	M	Energy efficiency	7, 9, 11, 13	1015* Reduced	n/a	n/a	n/a Reduced	» District heating to ship and to white goods. » Better air quality (ship) » Less noise (ship) » Project promotes the use and optimization of district heating technology in Europe	5
Traffic lights energy efficiency	Urban Environment Committee/Road Traffic administration ¹	2015	M	Energy efficiency	7, 9, 11, 13	427 Reduced	n/a	n/a	134 Reduced	» Replacements of ineffective fittings have resulted in energy savings of 33 percent in 2022 » Increased urban safety.	300
Energy efficient schools and preschools	City Property Committee/City premises administration ¹	2014	M	Green and energy efficient buildings	7, 11, 12, 13	3221** Avoided	n/a	n/a	606** Avoided	» Portfolio of new, energy efficient preschools, schools and retirement homes. » The buildings use green electricity	3925
Energy efficient housing ²	Förvaltnings AB Framtiden	2015	M	Green and energy efficient buildings	7, 11, 12, 13	4135** Avoided	n/a	n/a	768** Avoided	» Portfolio of new, energy efficient apartment buildings. » The buildings use green electricity. » Some buildings labeled Svanen and Miljöbyggnad Silver	7955
Energy efficient commercial buildings - Alelyckan	Higab AB	2019	M	Green and energy efficient buildings	7, 11, 12, 13	176* Avoided	n/a	n/a	55* Avoided	» New energy efficient office building. » Miljöbyggnad Guld	250
Energy efficient commercial buildings - Hotel	AB Liseberg Skår	2019	M	Green and energy efficient buildings	7, 11, 12, 13	1259* Avoided	n/a	n/a	66* Avoided	» New energy efficient hotel » Aim to reach BREEAM-SE Excellent » Part of Lisebergs investment for Gothenburg's 400th anniversary.	1845
Nya Solevi/Solar Panels	Göteborg Energi AB	2018	M	Renewable energy	7, 13	n/a	5 800	5,5	1827 Avoided	» Gothenburg's first solar park. » Situated on an old airport. » When installed, Sweden's largest solar park.	44
Utby solcellspark/Solar Panels	Göteborg Energi AB	2020	M	Renewable energy	7, 13	n/a	5 600	5,5	1764 Avoided	» Gothenburg's second solar park built by Göteborg Energi » Smaller in size than Gothenburg first solar park but with the same capacity	45
Solar panels on roofs	City Property Committee/City premises administration ¹	2019	M	Renewable energy	7, 13	n/a	11 000**		3465** Avoided	» Solar panels installed on roofs of existing schools and preschools.	48
New bio boiler - Rya HVC	Göteborg Energi AB	2018	M	Renewable energy	7, 13	n/a	75 652	30	15 120** Avoided	» Replacement of two existing boilers which had reached the end of their technical service life » Installed capacity increased from 100 MW to 130 MW	436

* Projected results

** Projected and actual results

¹New organisation for urban development In November 2021. The City Council decided to go ahead with changes in the City's organisation for urban development. The purpose of the changes is to provide a more integrated urban development process - for planning, implementation and administration of the City. The changes will contribute to increased efficiency and transparency in urban development, for residents, visitors and the business community. The decision meant that four new administrations were established and five were discontinued.

²Förvaltnings AB GöteborgsLokaler, which in the previous year were itemized separately, will henceforth be included in the reported figures of Förvaltnings AB Framtiden.

Name of Project	Administration/company	Project start	Adaption/Mitigation/Environment	Sector	UN global goals	Project information	Allocated amounts (msek)
Ultrafilter Alelyckan and Lackarebäck	Department of sustainable waste and water	2013	A	Water and wastewater management	3, 14	» Making the production of drinking water more resilient to climate change. » Prevented sick days which also entails lower social costs.	707
Denitrification	Gryaab AB	2014	E	Water and wastewater management	6, 14	» Expansion of water treatment plant to reach a higher denitrification rate. » Increased capacity by approximately 1300 tons/year » Reduction of nitrogen emissions by 650 tons in 2022	356
Tree planting	Urban Environment Committee/ Parks and landscape administration ¹	2014	E (A/M)	Environmentally sustainable management of living natural resources and land use	11, 14, 15	» Trees are planted in the city annually. » The project improves biodiversity, promotes a green cityscape and has a positive effect on urban air quality.	70
The Pedestrian City	Urban Environment Committee/ Road traffic administration ¹	2015	M	Clean transportation	9, 11, 13	» Improved conditions for pedestrians traveling in urban areas. » Examples include improved traffic security and accessibility for pedestrians traveling in the city. » Total area of improved pedestrian paths (in square meters): approx. 39 000 m2	146
The Bicycle City	Urban Environment Committee/ Road traffic administration ¹	2015	M	Clean transportation	9, 11, 13	» Project includes several improvements to the city's bicycle infrastructure such as new bike lanes but also other measures to make it safer and more accessible to travel by bike in the City. » During 2022, weather-protected bicycle parking has been established at seven stops, with five bollards per location. This arrangement accommodates parking for 70 bicycles at the specified sites. As part of the "Bicycle Parking at Drottningtorget" initiative, 290 new spaces have been added, including designated areas for electric scooters. » Cycling network - Total area of improved bicycle lanes (in square meters): approx. 37 000 m2 in 2022 » Bicycle network - 3 km of new bicycle lanes	473
Sewage pump station, Kodammarna	Department of sustainable waste and water	2017	M/A/E	Water and wastewater management	6, 14	» Replacing Gothenburg's largest pump station. » Decrease energy consumption at the pump station by 30 %, approx. 0,5 GW/year. » Decrease the overflow of sewage to the river Göta älv. » Making the plant resilient to climate change, higher water levels. » Possible to install solar cells on the roof.	441
Water management	Department of sustainable waste and water	2019	A/E	Water and wastewater management	6, 14	» Water pipes: 1130 meters in 2022 » Increase resilience of drinking water supply.	190
Stormwater management	Department of sustainable waste and water	2019	A/E	Water and wastewater management	6, 14	» Installations for handling stormwater » Improved resilience to handling increased rainfall.	53
Brudaremassen landfill	Department of sustainable waste and water	2019	E	Water and wastewater management	11, 14	» Reduce emissions to recipients from old landfill. » Approximately 115,000 cubic meters of treated effluent water in 2022.	46
Wetland at Torsviken	Port of Gothenburg	2019	E/M	Environmentally sustainable management of living natural resources and land use	15	» Cover of contaminated dredged material in Torsviken near the port at Hisingen » As far as possible, restoration of the area's original character with a rich natural and bird life.	47
500 new public charging stations for electric cars	Göteborg Energi AB	2020	M	Clean transportation	9, 11, 13	» 500 new charging stations will be available around the city » Normal charger up to 22 kW	19
Pump station – Björlanda pumpkedja	Department of sustainable waste and water	2019	M/A/E	Water and wastewater management	6, 14	» Reconstruction of two wastewater pump stations and one water pump station » Extension of about six km of wastewater and water pipes between Skra bro and Kärrdalen. » Reduced risk of overflow of sewage to the watercourse Osbäck-en	160

Name of Project	Administration/company	Project start	Adaption/Mitigation/Environment	Sector	UN global goals	Project information	Allocated amounts (msek)
Renewal of water pipeline	Department of sustainable waste and water	2021	A/E	Water and wastewater management	6, 14	» Pipeline renewal aimed at reducing the number of operational disruptions and minimizing leakage. » A water supply pipeline designed to last approximately 100 years, ensuring reliable delivery and sustainable water supply	145
Recovery of Zn(OH) ₂	Renova AB	2020	E	Waste management and circular economy	11, 12	» Plant for recovery of Zn(OH) ₂ from municipal and industrial solid waste incineration fly ash. Significant potential with about 70% of all zinc recovered. » The follow-up results of the recycled amount of zinc will be presented in forthcoming reports.	111
Flue gas cleaning	Renova AB	2022	M/E	Water and wastewater management	6, 14	» The purpose of the project is to cost-effectively modernize the flue gas cleaning on line 1 at the Sävenäs plant in order to reduce nitrogen emission to air and water. » The follow-up results of the reduced amount of nitrogen emissions relative to the levels before the investment will be presented in upcoming reports.	63
Distric cooling	Göteborg Energi AB	-	M	Energy efficiency	7, 9, 11, 13	» District cooling is one of Gothenburg Energy's products and is based on the same idea as district heating - that it is better to have a central, environmentally adapted facility do the work, rather than having many small cooling installations and air conditioning units. In the district cooling network, it is cold water instead of hot water that circulates in the pipeline system. » Delivered district cooling 87 GWh distributed by production method as follows: » Free Cooling (Free cooling from the Göta River and cooling towers) : 20% » Absorption Cooling (Heat-driven cooling with recovered energy): 43% » Cooling Machine (Electrically driven cooling production): 37%	66
Accumulator tank	Göteborg Energi AB	2018	M	Renewable energy	7, 13	» The accumulator tank functions as a thermal storage unit. During periods of reduced heat demand excess heat is stored within the tank. Subsequently, this stored heat is utilized when demand increases, effectively reducing the reliance on fossil fuel-based facilities. Maximal effect 200 MW.	145
Connection Pipeline for Mölndalsån	Gryaab AB	2021	M/A/E	Water and wastewater management	6, 14	» Sewage water from Lerum, Partille, Härryda, and Mölndal is led to Gryaab through a tunnel system that passes under Mölndalsån. Under Mölndalsån, sewage water is directed through a connection pipeline. The pipeline lacks redundancy and is highly capacity-loaded. By adding two new pipelines, emergency release of untreated sewage water to sensitive recipients during high flows or maintenance can be avoided. Operational availability is ensured, and redundancy is created. The measure is also a prerequisite for being able to receive wastewater from Bollebygd according to Gryaab's environmental permit.	16

¹New organisation for urban development In November 2021. The City Council decided to go ahead with changes in the City's organisation for urban development. The purpose of the changes is to provide a more integrated urban development process - for planning, implementation and administration of the City. The changes will contribute to increased efficiency and transparency in urban development, for residents, visitors and the business community. The decision meant that four new administrations were established and five were discontinued.

