City of Gothenburg

Green Bond Impact Report 2023

Sustainable city – open to the world

Stadsledningskontoret
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Titel: Green Bond Impact Report 2023
Författare: Nader Nadafan, Treasury Department, City Hall, City of Gothenburg

Contents

Executive Summary as of 31 Dec 2023

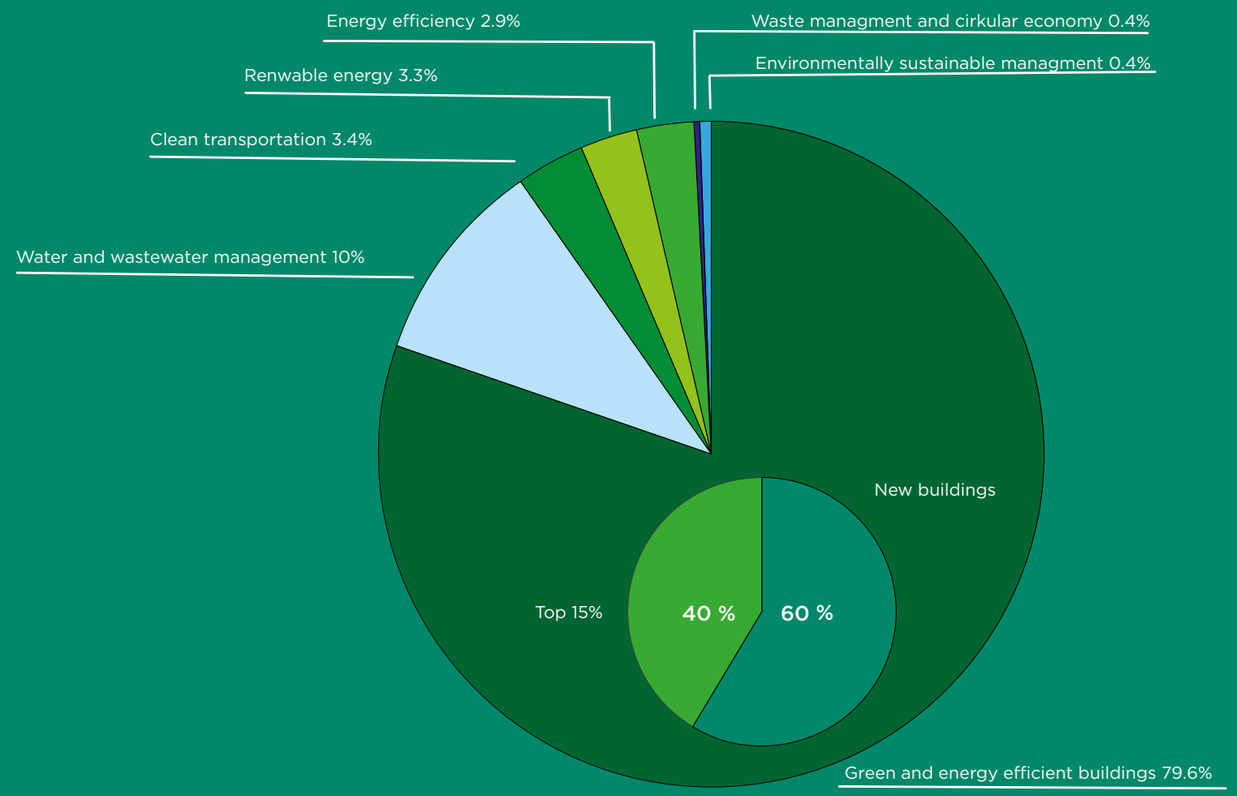
The City of Gothenburg reports in accordance with the recommendations in the Nordic Position Paper on Green Bonds Impact Reporting and will explain any deviations from them as needed.

Impact attribuatable to green bond investors	**82%**
Green Bonds SEK 500 mn maturing 5 November, 2024	1.7%
Green Bonds SEK 1000 mn maturing 5 November, 2024	3.3%
Green Bonds SEK 1500 mn maturing 24 September, 2025	5.0%
Green Bonds SEK 300 mn maturing 24 september, 2025	1.0%
Green Bonds SEK 1000 mn maturing 27 November, 2025	3.3%
Green Bonds SEK 1000 mn maturing 27 November, 2025	3.3%
Green Bonds SEK 1000 mn maturing 3 June, 2026	3.3%
Green Bonds SEK 500 mn maturing 3 June, 2026	1.7%
Green Bonds SEK 1000 mn maturing 18 November, 2026	3.3%
Green Bonds SEK 1000 mn maturing 16 Mars, 2027	3.3%
Green Bonds SEK 1000 mn maturing 16 Mars, 2027	3.3%
Green Bonds SEK 500 mn maturing 17 June, 2027	1.7%
Green Bonds SEK 1250 mn maturing 17 June, 2027	4.1%
Green Bonds SEK 1500 mn maturing 21 October, 2027	5.0%
Green Bonds SEK 1500 mn maturing 29 Mars, 2028	5.0%
Green Bonds SEK 500 mn maturing 29 Mars, 2028	1.7%
Green Bonds SEK 1250 mn maturing 12 June, 2028	4.1%
Green Bonds SEK 850 mn maturing 12 June, 2028	2.8%
Green Bonds SEK 1350 mn maturing 04 October, 2028	4.5%
Green Bonds SEK 650 mn maturing 04 October, 2028	2.1%
Green Bonds SEK 1850 mn maturing 12 December, 2028	6.1%
Green Bonds SEK 250 mn maturing 26 January, 2029	0.8%
Green Bonds SEK 1400 mn maturing 26 January, 2029	4.6%
Green Bonds SEK 500 mn maturing 03 April, 2029	1.7%
Green Bonds SEK 1800 mn maturing 10 October, 2029	5.9%

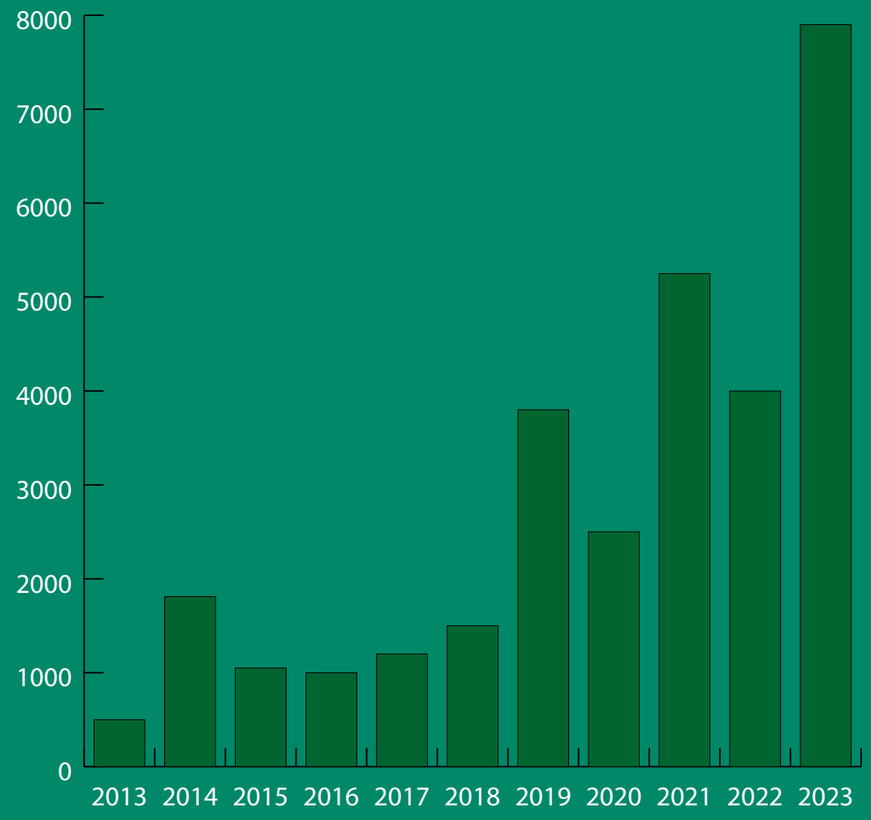
CO2 impact Green indicators, based on outstanding disbursed amount			
Project category	**GHG emissions reduced/ avoided, tonnes CO2e/ year**	**Outstanding disbursed amount to projects, SEK mn**	**Impact, tonnes CO2e per SEK mn**
Renewable energy	23 712	1 000	23.7
Green and energy efficient buildings	1 641	24 164	0.07
Energy efficiency	83	875	0.094
Clean transportation	743	1 030	0.72
Waste management and circular economy	N/A	115	N/A
Water and Wastewater Management	N/A	3 021	N/A
Sustainable Land Use and Environmental Management	N/A	124	N/A
Total	**26 179**	**30 329**	
Disbursed amounts with CO2 impact, SEKm		**27 069**	
Impact, tonnes CO2e per SEK mn			**0.97**
Annual renewable energy generation, MWh			**118 085**
Annual energy reduced/avoided MWh			**12 460**

Basic information	
Green Bond Framework applied	Report comprices projects financed under Green Bond Framework dated September 2022
Related Green Bond ISIN(s)	Please see list in the report
Extemal verifier of allocation report	EY
Reporting period	Reporting for calender year 2023. Comprises all eligible projects financed from GB programme start in 2013 until year-end 2023
Report publication date	June 2024
Frequency of reporting	Annual
Next reporting planned for	June 2025
Reporting approach	Portfolio and project-by-project reporting

Green Investment Portfolio 30 Billion SEK



Green Bond Issuances

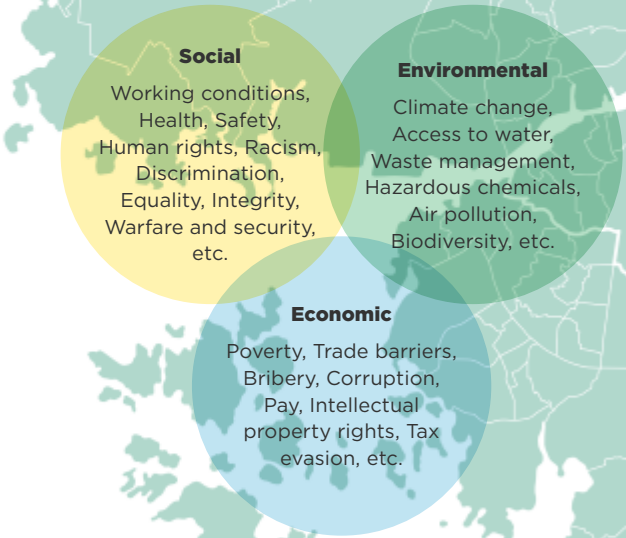


Sustainable City – Open to the World

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.

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 includes 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. In terms of 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.



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, and the Paris Agreement. It also considers 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[1] and 2025 as target years. This is because these are considered to be easier to achieve. Additionally, the transition in these areas needs to be accelerated, or 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.

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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 for seven consecutive years, from 2016 to 2023. 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.

[1]The outcome for the goal regarding the proportion of Gothenburg City's vehicles that are fossil-free ended up at 82% for the year 2023.

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.

Green Bond Framework

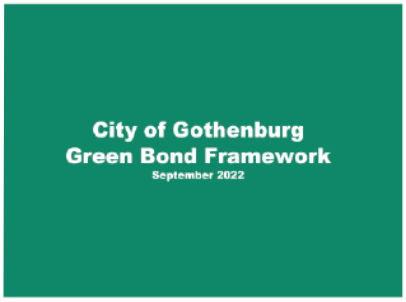
The City of Gothenburg updated the Green Bond Framework in September 2022, another significant step forward in our work with Green Bonds.

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 and EU Taxonomy Assessment

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 the Green Bond Principles. Based on information provided by the City of Gothenburg, it was also found to be likely aligned with the taxonomy mitigation criteria for most relevant taxonomy activities. An assessment of Do No Significant Harm and Social Safeguards was not conducted. Please read more in the full report.

However, Sweden annually enters into a large number of international agreements, including international treaties and conventions. The country has signed conventions on human rights, the ILO Conventions, international environmental conventions, as well as conventions against bribery and corruption. Municipal activities in Sweden are regulated by various laws, including the Constitution, the Local Government Act, and several special statutes. Rules of procedure, regulations, and other governing documents of the municipality complement the legislation. Since the City Council is the highest decision-making body in the City of Gothenburg, committees and boards of municipal companies must follow and implement the decisions of the City Council.

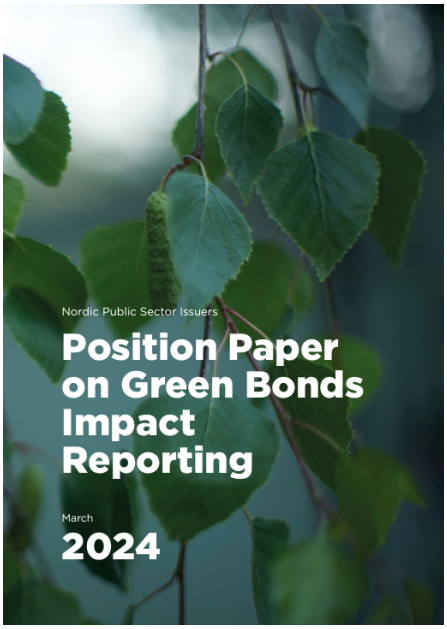
Position Paper on Green Bonds Impact Reporting

The Position Paper on Green Bonds Impact Reporting, first released in October 2017, was updated and republished in Mars 2024.

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. The City of Gothenburg aims to follow all key aspects in accordance with the recommendations in the Nordic Position Paper on Green Bonds Impact Reporting and will explain any deviations from them accordingly.

Please read more in the full report.



Project Categories and Use of Proceeds

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

Green Project Categories	Share allocated
Renewable Energy	3.3%
Green and energy efficient buildings	79,6%
Energy efficiency	2.9%
Clean transportation	3.4%
Waste management and circular economy	0.4%
Water and wastewater management	10%
Environmentally sustainable management	0.4%
Climate change adaptation	0%

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.

Photo: Framiden AB

In collaboration with Framtiden AB, the city has successfully identified buildings with a market value of 9.6 billion SEK that meet the top 15 percent criterion according to Gothenburg City's green framework.

Top 15% Buildings, Förvaltnings AB Framtiden

Category: Green and energy efficient buildnings

The EU's taxonomy regulation has established technical screening criteria to determine under which conditions an economic activity is considered to substantially contribute to climate change mitigation. Regarding buildings constructed before December 31, 2020, they should have at least an energy class A rating or be among the top 15 percent in terms of energy performance within the national or regional building stock, expressed as primary energy consumption during operation.

In Gothenburg City's updated green framework as of September 2022, the City acknowledges the importance of uniform requirements for activities to qualify as sustainable and strives to align the Green Use of Proceeds of the Framework with the Taxonomy to the extent possible. This implies that the eligibility criteria of the Green Project categories are based on, where relevant and applicable, the Substantial Contribution criteria for Climate Change Mitigation.

Hence, according to the framework, residential buildings and premises (completed before January 1, 2021) qualifying within the top 15% most energy-efficient buildings of the national building stock in terms of Primary Energy Demand fulfill the eligibility requirements for green bonds.

The City of Gothenburg's approach to assessing this criterion is based on a study by Fastighetsägarna (via consultancy CIT Energy Management), which has interpreted the EU Taxonomy's 15% most energy-efficient buildings criterion in the Swedish context in terms of energy use thresholds for different building categories. Regarding thresholds for multi-family residential buildings, such as those built and managed by Sweden's largest public housing company Förvaltnings AB Framtiden, the established value as of December 14, 2022, is 81 kWh/sqm. In collaboration with Förvaltnings AB Framtiden, the city has successfully identified buildings with a market value of 9.6 billion SEK that meet the top 15 percent criterion according to Gothenburg City's green framework.

This is Göteborg Energi's largest climate investment ever, with the goal that all district heating in its own production by the end of 2025 should be based on renewable and recycled sources.

BKV Rya, Göteborg Energi AB

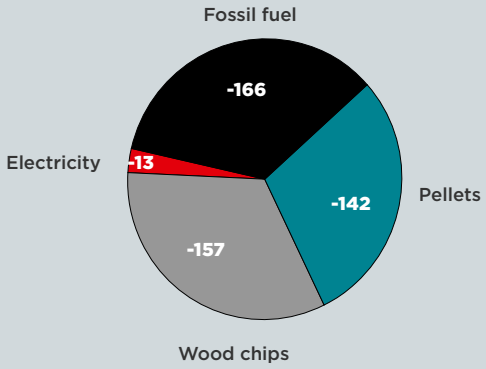
The investment in a new biofuel-fired steam boiler amounts to 2.53 billion SEK and will be integrated with Göteborg Energi's existing facility, the Rya CHP plant, where parts of the existing infrastructure can be co-utilized. The boiler is estimated to contribute 156 megawatts of heat and 39 megawatts of electricity to the local energy system. This means that the total capacity of the Rya CHP plant will be 465 megawatts of heat and 260 megawatts of electricity. The facility is flexible and can run on several different types of biofuels. Mainly, forest chips (GROT) and recycled waste wood (RT-chips) from the region will be used. This is Göteborg Energi's largest climate investment ever, with the goal that all district heating in its own production by the end of 2025 should be based on renewable and recycled sources. The planned commissioning for the facility is the heating season 2025/2026.

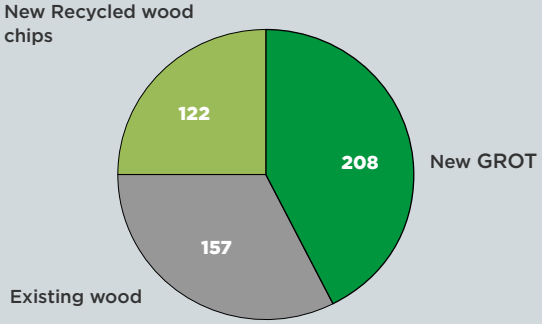
The transition of district heating is part of the City of Gothenburg's environmental and climate program and has been worked on for a long time. BKV Rya is the most important piece of the puzzle as the facility contributes to phasing out older fossil plants and reducing dependence on gas from Europe by primarily using domestic wood chips and wood waste in its fuel mix. Thus, BKV Rya will affect the overall fuel mix in the energy system. The facility will be prioritized to start when the recovered heat is no longer sufficient. This means that existing production facilities will be pushed up in the order of operation and will have less operating time, and the total fuel volume for these boilers will decrease correspondingly. In slightly colder temperatures (winter), all biofuel boilers will need to be in operation, and the heat addition from BKV Rya will then replace fossil fuels such as gas. Calculated over a whole year, in a base scenario, BKV Rya will replace approximately 166 GWh of fossil fuels, 13 GWh of electricity, 142 GWh of pellets, and 157 GWh of wood chips in the existing system.

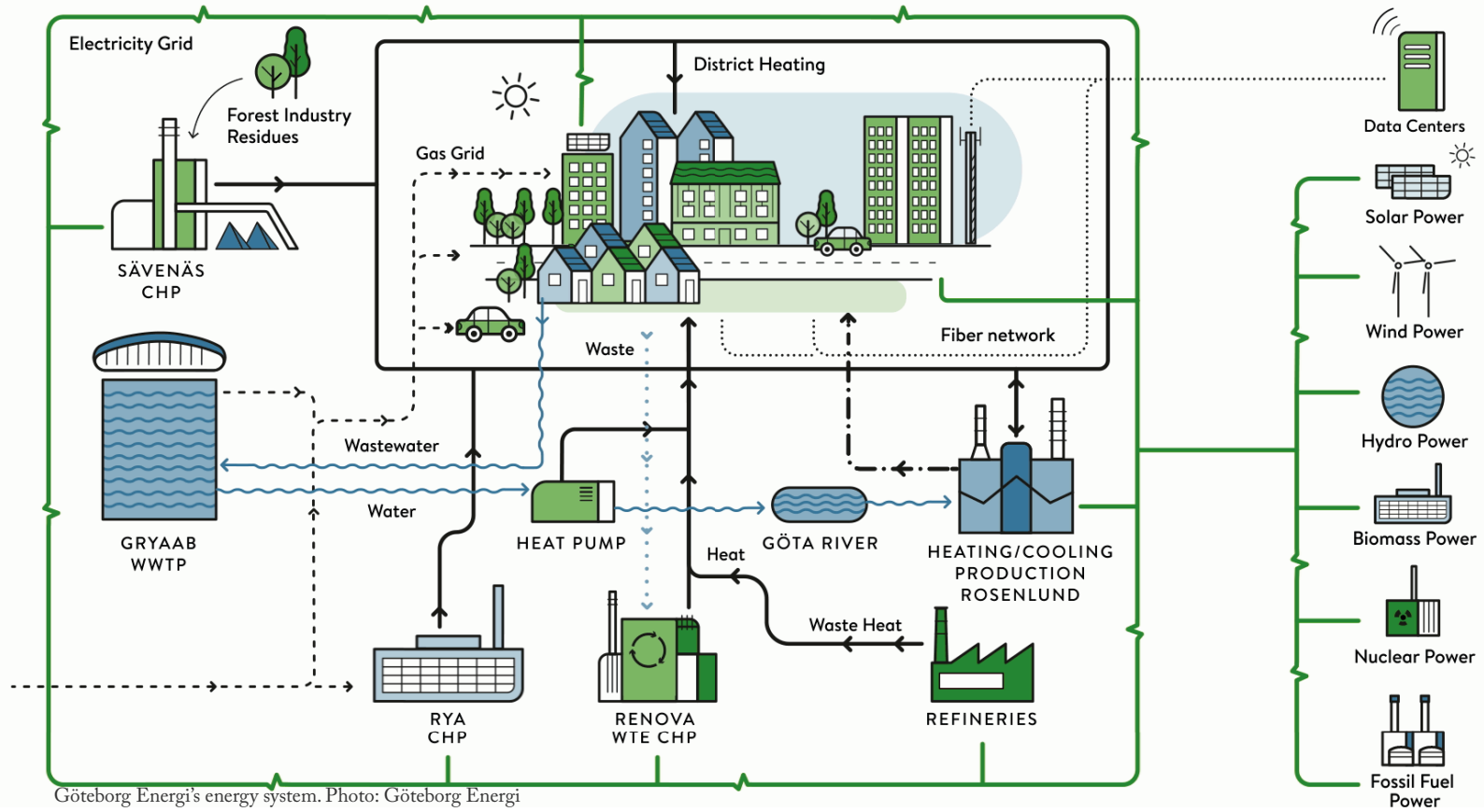
Category: Renewable energy

Amount disbursed:

192 MSEK







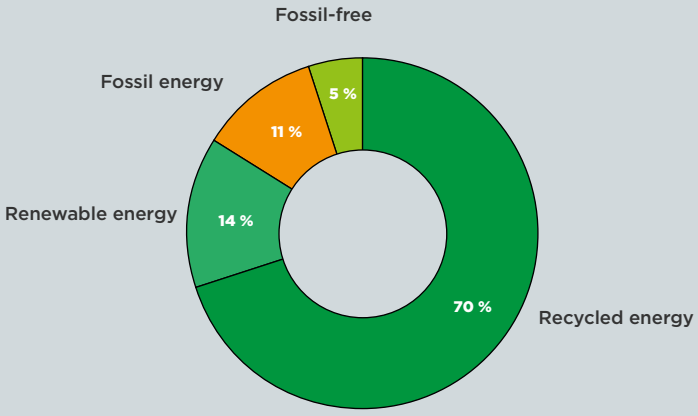
Göteborg Energi's energy system. Photo: Göteborg Energi

Investment in District Heating Network, Göteborg Energi AB

The district heating distribution network is a prerequisite for the benefits of district heating as a resource-efficient method for heating residential and commercial buildings. Göteborg Energi'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.

According to published environmental values, the vast majority of energy comes from recycled or renewable energy. See the diagram below.

For more information regarding environmental values please click the following link: [Environmental values for delivered district heating for the year 2023]

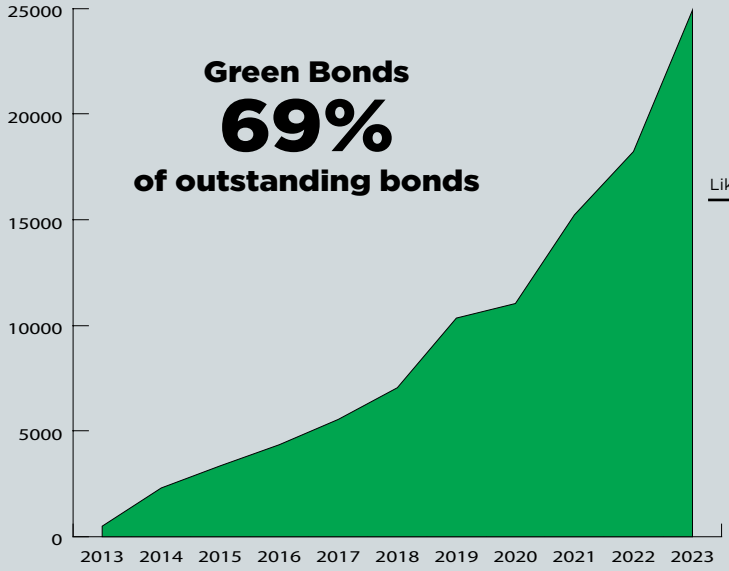


Category: Energy efficicy

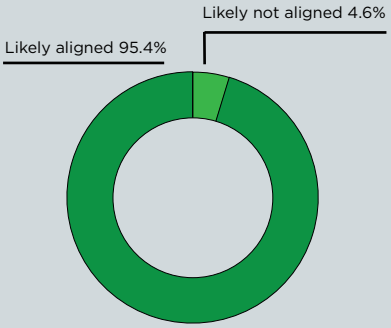
Amount disbursed:

419 MSEK

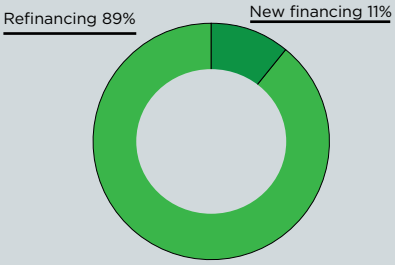
Green Bond Portfolio Growth



The City of Gothenburg strives to follow best market practices and updated its Green Bond Framework in September 2019 and again in September 2022. Hence, projects in the city's asset pool have been approved under different frameworks. However, since 2022, projects have solely been included in the portfolio based on the most recent framework. Consequently, 35 percent of the aggregated bond issuance has been allocated to the most recent framework, whereas 65 percent has been allocated to the previous ones.



Proportion of green projects that are likely aligned with the taxonomy mitigation criteria.



The distribution between new financing and refinancing: New financing is defined as allocated amounts to capital expenditures in green projects financed within the reporting year. Refinancing is defined as allocated amounts to capital expenditures in green projects financed prior to the reporting year. A Look-back period is not deployed for the capital expenditures.

Green Bond Issuances, Green Account Balance and Proportion of Refinancing

In 2023, the City of Gothenburg issued seven green bonds earmarked for financing green projects, as defined within the city's framework for green bonds. The bonds were issued on five occasions. The first issuance took place on January 26 with two green bonds, the combined value of the transaction reaching 1.625 billion SEK. The second issuance, amounting to 0.5 billion SEK, occurred on April 3. The third issuance involved two green bonds totaling 2.1 billion SEK on June 12. The fourth issuance, amounting to 1.8 billion SEK, took place on October 25. Lastly, on December 5, one additional green bond was issued, amounting to 1.850 billion SEK.

However, one green bond with a maturity date of June 4, 2023, and with a principal amount of 1.2 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, 2023, the total amount outstanding was 24.95 billion SEK, representing 69 percent of the City's outstanding bond volume.

The balance of the Green Account was, at year-end, a deficit of 5.382 billion SEK. The total proportion of net proceeds used to finance new projects is estimated at 11 percent. The proportion of refinancing is therefore estimated at 89 percent.

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

Outstanding Green Bonds

SEK (bn)	Share of total outstanding green bonds as of 31 Dec 2023	Issuance date	Maturity date	XS no
0.5	2.0%	2018-11-05	2024-11-05	XS1900629616
1	4.0%	2018-11-05	2024-11-05	XS1900633303
1.5	6.0%	2019-09-24	2025-09-24	XS2054601369
0.3	1.2%	2019-09-24	2025-09-24	XS2054601443
1	4.0%	2019-11-27	2025-11-27	XS2084421986
1	4.0%	2019-11-27	2025-11-27	XS2084423925
1	4.0%	2020-06-03	2026-06-03	XS2180083136
0.5	2.0%	2020-06-03	2026-06-03	XS2180083052
1	4.0%	2020-11-18	2026-11-18	XS2259797079
1	4.0%	2021-03-16	2027-03-16	XS2317293053
1	4.0%	2021-03-16	2027-03-16	XS2317289291
0.5	2.0%	2021-06-17	2027-06-17	XS2355244653
1.25	5.0%	2021-06-17	2027-06-17	XS2355549333
1.5	6.0%	2021-10-21	2027-10-21	XS2400595687
1.5	6.0%	2022-03-29	2028-03-29	XS2463122577
0.5	2.0%	2022-03-29	2028-03-29	XS2463121769
1.25	5.0%	2023-06-12	2028-06-12	XS2634077841
0.85	3.4%	2023-06-12	2028-06-12	XS2634361567
1.35	5.4%	2022-10-04	2028-10-04	XS2541621673
0.65	2.6%	2022-10-04	2028-10-04	XS2541621756
1.85	7.4%	2023-12-05	2028-12-05	XS2729726211
0.25	1.0%	2023-01-26	2029-01-26	XS2580731771
1.4	5.6%	2023-01-26	2029-01-26	XS2580731938
0.5	2.0%	2023-03-04	2029-04-03	XS2607194599
1.8	7.2%	2023-10-25	2029-10-25	XS2708698746

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 2024, 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 the identified green bonds issued during 2023, 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 amounts not yet used for the total green bonds, against separate bank account.	With respect to item 2, we found the amounts not yet used were consistent with the bank statement.
3.	We have compared the attached summary of issued Green Projects regarding the amounts with the amounts paid according to the bank statement.	With respect to 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 projects was approved by the "City of Gothenburg Green Bond Committee".	With respect of item 4, we found that the "City of Gothenburg Green Bond Committee" has approved the new projects of 2023 according to the summary, at 02-02-2024 and 22-03-2024.

For more information please visit: Limited assurence green

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 in developing the green bond market, and investor reporting is an important part of that process. 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, the actual environmental impacts of projects may diverge from initial projections. Examples of this can include changes in legal 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	Source
Electricity consumption in Green Buildings	191 g CO2/kWh	Position paper on Green Bonds Impact Reporting 2024
District Heating consumption in Green Buildings	69 g CO2/kWh	Environmental values for district heating 2023 Göteborg Energi AB
Distric heating projects, biofuel	202 g CO2/kWh	The Swedish Environmental Protection Agency
Electricity generation, solar power	191 g CO2/kWh	Position paper on Green Bonds Impact Reporting 2024
Cars	145 g CO2/km	Weighted average emission for registered passenger cars in 2022, Transportstyrelsen
Energy performance top 15% residental buildings	81 Kwh/sqm	Fastighetsägarna (via consultancy CIT energy management)

Contact

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

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Appendix: Impacts and Allocated

The City of Gothenburg reports in accordance with the recommendations in the Nordic Position Paper on Green Bonds Impact Reporting and will explain any deviations from them as needed.

Name of Project	Administration/ Municipal company	Project start/in-cluded	Adaption/ Mitiga-tion/En-vironment	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	743[1] Reduced	»706 electric cars in the city carpool »362 new cars in 2023	356
Traffic lights energy effi-ciency	Urban Environment Committee/Road Traffic administration	2015	M	Energy efficiency	7, 9, 11, 13	435 Reduced	n/a	n/a	83 Reduced	»Replacements of ineffective fittings have resulted in energy savings of 29 percent in 2023 »Increased urban safety.	354
Energy efficient schools and preschools	City Property Commit-tee/City premises administration	2014	M	Green and energy efficient buildings	7, 11, 12, 13	3325** Avoided	n/a	n/a	439** Avoided	»Portfolio of new, energy efficient preschools, schools and retirement homes. »The buildings use green electricity	4651
Energy efficient housing	Förvaltnings AB Framtiden	2015	M	Green and energy efficient buildings	7, 11, 12, 13	3370** Avoided	n/a	n/a	596** Avoided	»Portfolio of new, energy efficient apartment buildings. »The buildings use green electricity. »Some buildings labeled Svanen and Miljöbyggnad Silver	8382
Energy efficient commer-cial buildings - Alelyckan	Higab AB	2019	M	Green and energy efficient buildings	7, 11, 12, 13	161 Avoided	n/a	n/a	30 Avoided	»New energy efficient office building. »Miljöbyggnad Guld	250
Energy efficient commer-cial buildings – Hotel	AB Liseberg Skår	2019	M	Green and energy efficient buildings	7, 11, 12, 13	1396* Avoided	n/a	n/a	169* Avoided	»New energy efficient hotel »Liseberg Grand Curiosa Hotel is certified according to BRE-EAM and meets the EXCELLENT level. »Part of Lisebergs investment for Gothenburg's 400th anniver-sary.	1223*
Nya Solevi/Solar Panels	Göteborg Energi AB	2018	M	Renewable energy	7, 13	n/a	5 500	5,5	1050 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	5 200	5,5	993 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 Commit-tee/City premises administration[1]	2019	M	Renewable energy	7, 13	n/a	9 530		1820 Avoided	»Solar panels installed on roofs of existing schools and preschools.	86

* Projected results
** Projected and actual results

[1] The increase compared to the last reporting period is due to the increased number of cars in the pool, in addition to the updated emission factor from 315 gCO2/kWh to 191 gCO2/kWh in accordance with the Nordic Position Paper. The updated emission factor has a significant impact on the calculation of CO2 savings, not least for the city's green buildings, where the new factor leads to a lower result.

Name of Project	Administration/ Municipal company	Project start/in-cluded	Adaption/ Mitiga-tion/En-vironment	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	Alloca-ted amounts (msek)
New bio boiler – Rya HVC	Göteborg Energi AB	2018	M	Renewable energy	7, 13	n/a	83 965*	30*	17 042* Avoided	»Replacement of two existing boilers which have reached the end of their technical service life »Installed capacity increased from 100 MW to 130 MW	483
BKV Rya - bio cogenera-tion plant	Göteborg Energi AB	2019	M	Renewable energy	7, 13	n/a	13 890*	175*	2 807* Avoided	»The biofuel-fired steam boiler will be integrated with Göteborg Energi's existing Rya cogeneration plant. The boiler is expec-ted to contribute 156 megawatts of heat and 39 megawatts of electricity to the local energy system. The plant is flexible and can operate on several different types of biofuels. Primarily, forest residues (GROT) and recycled wood (RT chips) from the region will be used.	192
Energy efficient housing - existing buildings	Förvaltnings AB Framtiden	2023	M	Green and energy efficient buildings	7, 11, 12, 13	3 773 Avoided	n/a	n/a	406** Avoided	»Residential buildings and premises (completed before January 1, 2021) qualifying within the top 15% most energy-efficient buil-dings of the national building stock in terms of Primary Energy Demand. »The City of Gothenburg's approach to assessing this criterion is based on a study by Fastighetsägarna (via consultancy CIT energy management), which has interpreted the EU Taxonomy's 15% most energy-efficient buildings criterion in the Swedish context in terms of energy use thresholds for different building categories. »The market value of buildings as of 2023 is 9 658 MSEK.	9 658 [2]

* Projected results
** Projected and actual results

[2] Refers to the market value of the buildings as of 2023.

Name of Project	Administration/company	Project start/included	Adaption/ Mitigation/ Environment	Project Category	SDG	Likely aligned with the taxonomy mitigation criteria	Project information	Allocated amounts (msek)
Ultrafilter Alelyckan and Lackarebäck	Department of sustainable waste and water	2013	A	Water and wastewater management	3, 14	Yes	»Making the production of drinking water more resilient to climate change. »Prevented sick days which also entails lower social costs.	841
Denitrification	Gryaab AB	2014	E	Water and wastewater management	6, 14	Yes	»Expansion of water treatment plant to reach a higher denitrification rate. »Increased capacity by approximately 1300 tons/year »Reduction of nitrogen emissions by 550 tons in 2023	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	Yes	»Trees are planted in the city annually. »The project improves biodiversity, promotes a green cityscape and has a positive effect on urban air quality.	79
Pedestrian and bicycle traffic [3]	Urban Environment Committee/ Road traffic administration[1]	2015	M	Clean transportation	9, 11, 13	Yes	»Examples include improved traffic security and accessibility for pedestrians and bicycle traveling in the city. »During 2023, as part of the project "Sidewalk and Bicycle Lane under the Hisingsbron to the Jubileumsparken," 18 bicycle parking spaces have been added. »Cycling network: Total area of improved bicycle lanes (in square meters): approx. 52,500 m^2 in 2023 »Bicycle network: 2.8 km of new bicycle lanes in 2023 »Total area of improved pedestrian paths (in square meters): approx. 68,000 m^2	655
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.	511
Water management	Department of sustainable waste and water	2019	A/E	Water and wastewater management	6, 14		»Water pipes: 2200 meters in 2023 »Increase resilience of drinking water supply.	294
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.	64
Brudaremossen landfill	Department of sustainable waste and water	2019	E	Water and wastewater management	11, 14	Yes	»Reduce emissions to recipients from old landfill. »Approximately 215 262 cubic meters of treated effluent water in 2023.	54
Wetland at Torsviken	Port of Gothenburg	2019	E/M	Environmentally sustainable management of living natural resources and land use	15	Yes	»Cover of contaminated dredged material in Torsviken near the port at Hisingen »As much as possible, restore the area to its original character, rich with diverse wildlife and birdlife.	47
500 new public charging stations for electric cars	Göteborg Energi AB	2020	M	Clean transportation	9, 11, 13	Yes	»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 Osbäcken	220

[3] The administration has renamed the two projects The Pedestrian City and The Bicycle City to Pedestrian and Bicycle Traffic. The reporting for both is now done on the same line.

Name of Project	Administration/company	Project start/included	Adaption/ Mitigation/ Environment	Project Category	SDG	Likely aligned with the taxonomy mitigation criteria	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	375
Recovery of Zn(OH)2	Renova AB	2020	E	Waste management and circular economy	11, 12	Yes	»Plant for recovery of Zn(OH)2 from municipal and industrial solid waste incineration fly ash. »In 2023, 1 112 tons of zinc hydroxide cake were produced. The zinc content in this cake is around 30%. »Th e zinc hydroxide cake is stored at the Fläskebo landfill.	115
Flue gas cleaning	Renova AB	2022	M/E	Water and wastewater management	6, 14	Yes	»The purpose os 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 before the investment will be presented in upcoming reports.	225
Distric cooling	Göteborg Energi AB	2022	M	Energy efficiency	7, 9, 11, 13	Yes	»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, instead of hot water, that circulates in the pipeline system. »Delivered district cooling 90 GWh distributed by production method as follows: »Free Cooling (Free cooling from the Göta River and cooling towers) : 21% »Absorption Cooling (Heat-driven cooling with recovered energy): 49% »Electrically driven cooling production: 30% »COP value of the district cooling system: 7.7	97
Accumulator tank	Göteborg Energi AB	2018	M	Renewable energy	7, 13	Yes	»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 130 MW.	147
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.	51
District heating distribution	Göteborg Energi AB	2023	M	Energy efficiency	7, 9, 11, 13	Yes	»Refers to investments in Göteborg Energi's district heating network. The distribution network for district heating is a prerequisite for the benefits of district heating such as resource-efficient heating of homes and business premises »Delivered district heating 3 305 GWh.	419

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