



City of  
Gothenburg

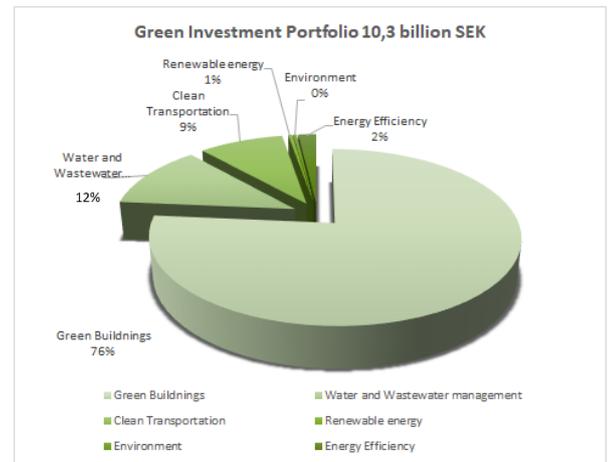
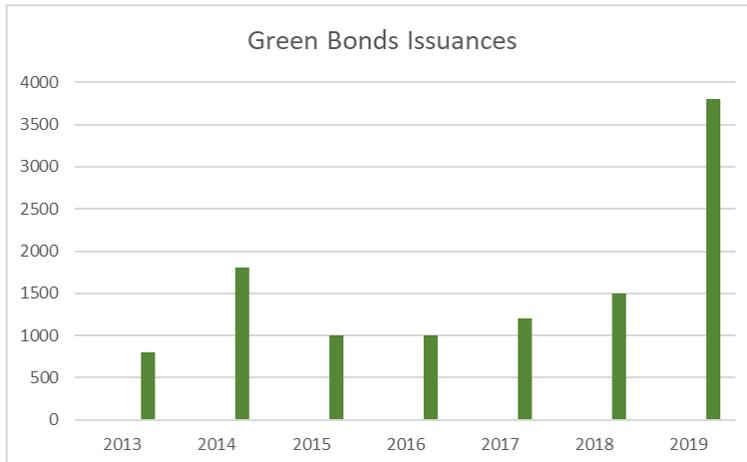
# Green Bond

## Impact Report

### 2019



# Executive Summary, as of 31 Dec 2019



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	2525	69	37
Sustainable building	1129	7852	0,1
Water management	n/a	1235	n/a
Sustainable transportation	1010	917	1,1
Energy efficiency	2653	194	14
Environmental management	n/a	40	n/a
<b>Total</b>	<b>7317</b>	<b>10307</b>	
Disbursed amounts with CO2 impact, SEKm		<b>9032</b>	
Impact, tonnes CO2e per SEK mn			<b>0,8</b>
Annual renewable energy generation, MWh			<b>8087</b>
Annual energy reduced/avoided MWh			<b>14545</b>

Impact attributable to green bond investors		99,5%
Total outstanding disbursed amounts to projects divided by total outstanding green bonds. Whereof impact attributable to following bonds:		
Green Bond SEK 1500 mn maturing 3 June, 2020		14,41%
Green Bond SEK 310 mn maturing 3 June, 2020		2,98%
Green Bond SEK 1050 mn maturing 3 June, 2021		10,08%
Green Bond SEK 1000 mn maturing 15 June, 2022		9,60%
Green Bond SEK 1200 mn maturing 14 June, 2023		11,52%
Green Bond SEK 500 mn maturing 5 Nov, 2024		4,80%
Green Bond SEK 1000 mn maturing 5 Nov, 2024		9,60%
Green Bond SEK 1500 mn maturing 24 Sept, 2025		14,41%
Green Bond SEK 300 mn maturing 24 April, 2025		2,88%
Green Bond SEK 1000 mn maturing 27 Nov, 2025		9,60%
Green Bond SEK 1000 mn maturing 27 Nov, 2025		9,60%

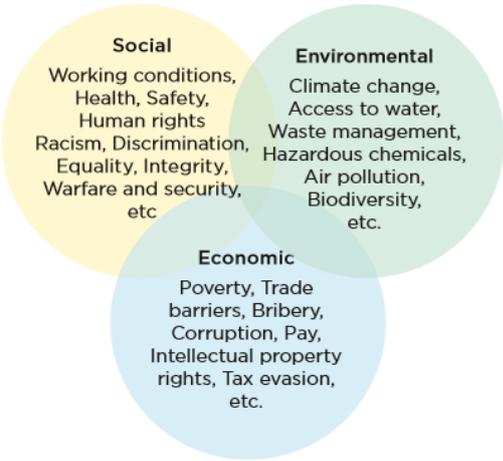
Basic information	
Green Bond Framework applied	Report comprises projects financed under Green Bond Framework dated September 2019.
Related Green Bond ISIN(s)	Please see list in the report
External verifier of allocation report	PWC
Reporting period	Reporting for calendar year 2019. Comprises all eligible projects financed from GB programme start in 2013 until year-end 2019.
Report publication date	December 2020
Frequency of reporting	Annual
Next reporting planned for	June 2021
Reporting approach	Portfolio and project-by-project reporting

- Key facts**
- City of Gothenburg reports on a portfolio basis in Swedish kronor (SEK).
  - City of Gothenburg reports impact based on the share of the project's total investment cost financed with green bonds. Impacts are based on outstanding disbursed amounts to projects.
  - Reporting is undertaken with the ambition in accordance with recommendations outlined in the Nordic Public Sector Issuers: Position Paper on Green Bonds Impact Reporting 2020.

## 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 is governed 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.



The ecological dimension of the sustainable development of Gothenburg is presented in our environmental programme. The programme includes 12 environmental goals with the overall aim to create a good living environment both now and in the future. These goals form the basis of our environmental work and they also have several sub-targets that we follow up on annually. A revision of the programme based on

the goal of limiting global warming to 1.5 °C has been presented. The programme suggests a target of a fossil-free local transport by 2030, a fossil-free district heating by 2025, and for the City to have a fossil-free vehicle fleet by 2023. We are determined to be one of the world's most progressive cities when it comes to tackling environmental issues and climate change.

The ecological dimension of the sustainable development of Gothenburg is presented in our environmental programme. The programme includes 12 environmental goals with the overall aim to create a good living environment both now and in the future. These goals form the

basis of our environmental work and they also have several sub-targets that we follow up on annually. A revision of the programme based on the goal of limiting global warming to 1.5 °C has been presented. The programme suggests a target of a fossil-free local transport by 2030, a fossil-free district heating by 2025, and for the City to have a fossil-free vehicle fleet by 2023.

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. Our environmental efforts have been recognized several times over the years. In 2015, Gothenburg was named the National Earth Hour Capital by the World Wildlife Fund (WWF) and in 2016, the City won the United Nation’s climate award Momentum for Change. Other credits include a number one ranking in the Global Destination Sustainability Index 2016, 2017, 2018 and 2019. 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.

**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 our new Green Bond Framework, you will find how our project categories are connected to the SDGs. Our 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 and 14 Life below water.



## City of Gothenburg's New Green projects

Full list of projects is listed in the appendix and here we present some of our new projects added to the portfolio during 2019.

### Electrical Buses

30 electrical buses owned by Göteborgs Spårvägar are now in use on the streets of Gothenburg. The buses are charged with green electricity and has a battery capacity of 200 kWh. Modell name is 7900e and was built by Volvo Buses. The operator Västtrafik has the ambition that all public transports in the city shall be electrified before the year 2030.



### Hotel



The amusement park Liseberg has decided to build Grand Curiosa Hotel, and the aim is to reach the building standard BREEAM-SE Excellent.

Budgeted cost is 1.179 MSEK.

The project will contribute to Liseberg's goal of 100 percent climate-neutral operations, primarily in the form of energy-efficient buildings with climate-neutral energy sources, but also by systematically choosing building materials with low CO<sub>2</sub> emissions from a life cycle perspective.

## Green Bond issuances, Green Account balance and proportion of refinancing

City of Gothenburg increased the issuance volume during 2019 to 3,8 billion SEK executed at two occasions. On September 24<sup>th</sup> the city issued two new green bonds, earmarked and dedicated to finance green projects defined within the city's framework for green bonds, and the transaction amounted to SEK 1,8 billion. On November the 27<sup>th</sup> the city issued another two new green bonds with the total transaction amount of 2 billion SEK. The first green bond issued in 2013 of 0,5 billion SEK with maturity date October 3<sup>rd</sup> 2019 was paid back to the investors. The outstanding amount as of December 31<sup>st</sup>, 2019 was therefore 10,036 billion SEK. The balance of the Green Account was at year end a surplus of 0,052 billion. The total proportion of net proceeds used to finance new projects is estimated at 95,3 percent. The proportion of refinancing is therefore estimated at 4,7 percent.

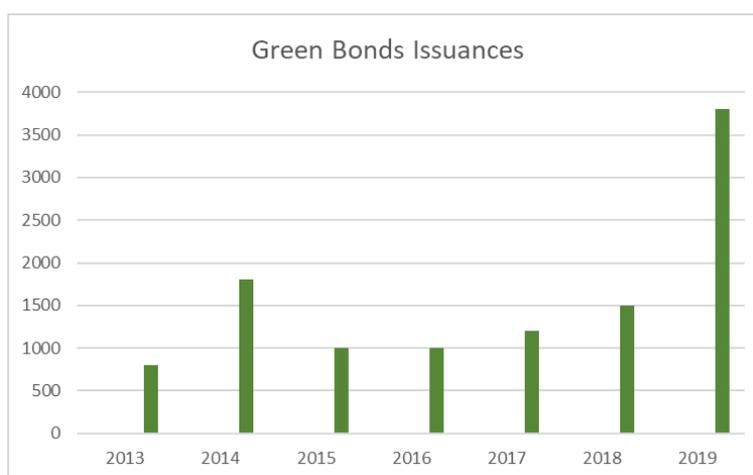


Chart: Yearly bonds issuance

SEK (bn)	Share of total outstanding green bonds	Issuance	Maturity	XS no
1,5	14,48%	2014-06-03	2020-06-03	XS1073521988
0,31	2,99%	2014-06-03	2020-06-03	XS1073488675
1,05	10,14%	2015-06-30	2021-06-03	XS1253847815
1	9,65%	2016-06-15	2022-06-15	XS1433082861
1,2	11,58%	2017-06-14	2023-06-14	XS1627778316
0,5	4,83%	2018-11-05	2024-11-05	XS1900629616
1	9,65%	2018-11-05	2024-11-05	XS1900633303
1,5	14,48%	2019-09-24	2025-09-24	XS2054601369
0,3	2,90%	2019-09-24	2025-04-24	XS2054601443
1	9,65%	2019-11-27	2025-11-27	XS2084421986
1	9,65%	2019-11-27	2025-11-27	XS2084423925

Table: Outstanding green bonds

**High credit ratings**

City of Gothenburg has received high credit ratings for the green bonds, E2 from Standard and Poor’s (the second highest rating).

Standard and Poor’s underline the city’s transparent reporting, the use of a variety of key performance indicators for selected projects, transparency of project impact and special accounts for greens funds as being of substantial weight when assessing the rating.

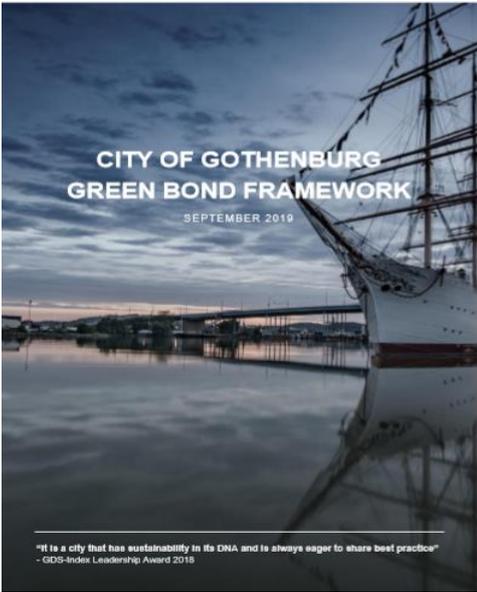
<b>S&amp;P Global</b> Ratings	E1	E2	E3	E4
	100	67	0	

Please read more at: [www.goteborg.se/investorrelations](http://www.goteborg.se/investorrelations)

**New Green Bond Framework**

City of Gothenburg has on September 12, 2019 updated the [Green Bond Framework](#), another big step forward in our work with Green Bonds.

We issued our inaugural green bond in 2013 as the first city in the world. Our previous green bond framework was updated in 2015 but as the green bond market has evolved, with new market constructs such as the Green Bond Principles updated in June 2018 by the International Capital Market Association, this green bond framework is an update to the 2015 version. It is the City of Gothenburg’s intention to follow best practices as new market standards develop.



By setting up this Green Bond Framework, the City of Gothenburg offer 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.

## Second opinion

On September 7, 2019, CICERO, an independent research institute at the University of Oslo, issued a second opinion regarding the city's new framework for green bonds. They rated the framework Medium Green and the governance procedures Excellent. They also found the framework in alignment with the Green Bond Principles. Please read more in the [full report](#).



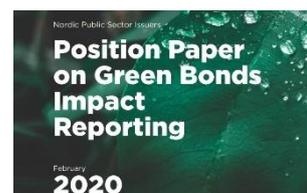
## Green Account Audit

According to the new Green Bond Framework published in September 2019, 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 2020 PWC was appointed auditor, and their “Report of Factual Findings” is attached in Appendix 2. In summary, their report verified the following points together with the following observations;

- We have verified the attached summaries of issued “green bonds” with regard to the principal loan amount against relevant data. We found the principal loan amount stated was consistent with the relevant data.
- We have verified the attached summaries of issued “green bonds” with regard to amounts not yet used per bond loan against separate bank account(s) and separate account(s) respectively in the accounting. We found the amounts not yet used per bond loan stated were consistent with the balance(s) in separate bank account(s) and separate account(s) respectively in the accounting.
- We have verified the attached summaries of “green projects” with regard to the validity of the amounts used per “green project”. We found the amount stated per “green project” was consistent with a separate report per green project.
- We have verified that the attached summary of “green projects” decided in 2019 were approved by the City of Gothenburg Green Bond Committee. We found the City of Gothenburg Green Bond Committee had approved these.

## 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, has been published in an updated version in February 2020.



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

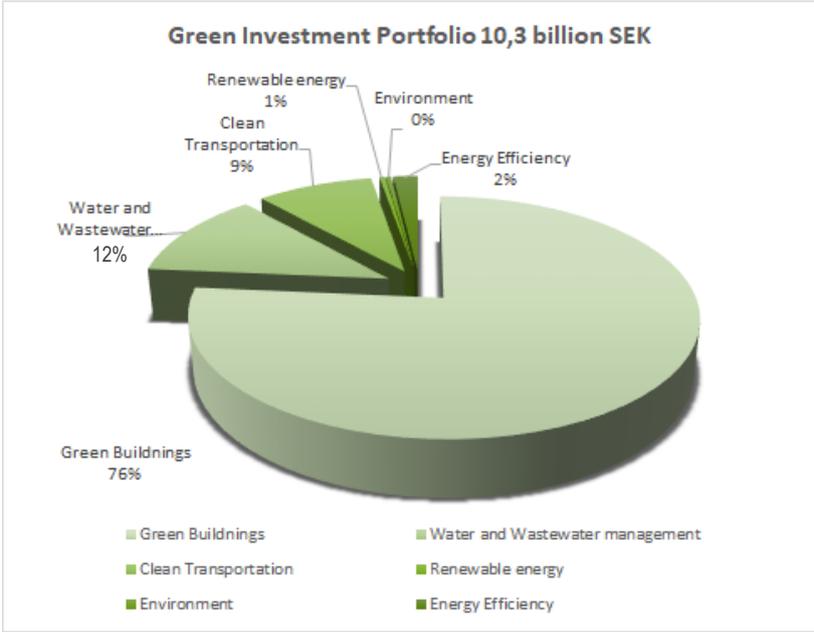
Moreover, the Paper provides suggestions for metrics and indicators relevant to eight different project categories. The effort builds upon reporting approaches suggested by the Green Bond Principles and multilateral development banks, as outlined in the GBP Handbook – Harmonized Framework for Impact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

### New project categories and use of proceeds

In accordance with the Nordic Position Paper on impact reporting new project categories has been implemented in our new framework and in this year's impact report. The new project categories are as follows:

Green Project Categories
Renewable Energy
Green Buildings
Energy Efficiency
Clean Transportation
Waste Management
Water and Wastewater Management
Sustainable Land Use and Environmental Management
Climate Change Adaptation

Use of proceeds are allocated by sectors as shown in chart below.



### 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

- Electricity: 315 g CO<sub>2</sub>/kWh (Position paper on Green Bonds Impact Reporting)
- District heating: 67 g CO<sub>2</sub> ekv/kWh (Environmental values for district heating delivered 2019, Göteborg Energi AB) <https://www.goteborgenergi.se/DxF-64187640/Miljovarden-for-fjarrvarme-2019-Prel.pdf?TS=637160498181668095>
- Cars: Baseline emission 150 g CO<sub>2</sub>/km (<https://www.anskaffelser.no/verktoy/effektkalkulator-varebiler>), mileage per car average 10000 km/year and 0,2 kWh/km
- Busses: CO<sub>2</sub> emissions per km for diesel buses 1.16 kg CO<sub>2</sub> as baseline.

## Contacts

Please do not hesitate to contact us for additional information or if any questions regarding this report.

Fredrik Block, Portfolio Manager, [fredrik.block@stadshuset.goteborg.se](mailto:fredrik.block@stadshuset.goteborg.se)

## Appendix 1

### Impacts and allocated amounts

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)
<b>Electric cars</b>	Göteborgs Stads Leasing AB	2013	M	Clean transportation	9, 11, 13	n/a	n/a	n/a	189 Reduced	<ul style="list-style-type: none"> <li>250 electric cars in the city carpool</li> <li>85 new cars in 2019</li> </ul>	123
<b>Celsius</b>	Göteborg Energi AB	2014	M	Energy efficiency	7, 9, 11, 13	1015 Reduced	n/a	n/a	320* Reduced	<ul style="list-style-type: none"> <li>District heating to ship and to white goods.</li> <li>Better air quality (ship)</li> <li>Less noise (ship)</li> <li>Project promotes the use and optimization of district heating technology in Europe</li> </ul>	5
<b>Traffic lights energy efficiency</b>	Road Traffic administration	2015	M	Energy efficiency	7, 9, 11, 13	7406 Reduced	n/a	n/a	2333** Reduced	<ul style="list-style-type: none"> <li>Replacements of ineffective fittings have resulted in energy savings of over 60 %.</li> <li>Increased urban safety.</li> </ul>	189
<b>Energy efficient schools and preschools</b>	City premises administration	2014	M	Green buildings	7, 11, 12, 13	2618 Avoided	n/a	n/a	577** Avoided	<ul style="list-style-type: none"> <li>Portfolio of new, energy efficient preschools, schools and retirement homes.</li> <li>The buildings use green electricity</li> </ul>	3368

<b>Energy efficient housing</b>	Förvaltnings AB Framtiden	2015	M	Green buildings	7, 11, 12, 13	1386 Avoided	n/a	n/a	258** Avoided	<ul style="list-style-type: none"> <li>Portfolio of new, energy efficient apartment buildings.</li> <li>The buildings use green electricity.</li> <li>Some buildings labeled Svanen</li> </ul>	3822
<b>Energy efficient commercial buildings – Selma Torg</b>	Förvaltnings AB Göteborgs-lokaler	2018	M	Green buildings	7, 11, 12, 13	1075 Avoided	n/a	n/a	217* Avoided	<ul style="list-style-type: none"> <li>New, energy efficient building, Selma Town Hall.</li> <li>Miljöbyggnad Silver</li> </ul>	453
<b>Energy efficient commercial buildings - Alelyckan</b>	Higab AB	2019	M	Green buildings	7, 11, 12, 13	635 Avoided	n/a	n/a	72* Avoided	<ul style="list-style-type: none"> <li>New energy efficient office building.</li> <li>Miljöbyggnad Guld</li> </ul>	144
<b>Energy efficient commercial buildings – Hotel</b>	AB Liseberg Skår	2019	M	Green buildings	7, 11, 12, 13	198 Avoided	n/a	n/a	5* Avoided	<ul style="list-style-type: none"> <li>New energy efficient hotel</li> <li>Aim to reach BREEAM-SE Excellent</li> <li>Part of Lisebergs investment for Gothenburg's 400th anniversary.</li> </ul>	65
<b>Trams</b>	Göteborgs stads Leasing AB		M	Clean transportation	9, 11, 13	72 Reduced	n/a	n/a	23* Reduced	<ul style="list-style-type: none"> <li>New trams that are more energy efficient and can load more passengers.</li> <li>Calculated to be 30 % more energy efficient.</li> <li>Less noise in urban areas.</li> </ul>	311
<b>Nya Solevi/Solar Panels</b>	Göteborg Energi AB	2018	M	Renewable energy	7, 13	n/a	5500	5500	1733* Avoided	<ul style="list-style-type: none"> <li>Gothenburg's first solar park.</li> <li>Situated on an old airport.</li> </ul>	44

										<ul style="list-style-type: none"> <li>When installed: Sweden's largest solar park.</li> </ul>	
<b>Solar panels on roofs</b>	City premises administration	2019	M	Renewable energy	7, 13	n/a	2821	2587	792** Avoided	<ul style="list-style-type: none"> <li>Solar panels installed on roofs of existing schools and preschools.</li> </ul>	25
<b>Electric buses</b>	GS Buss AB	GS Buss AB	M	Clean transportation	9, 11, 13	n/a	n/a	n/a	798* Reduced	<ul style="list-style-type: none"> <li>Replacement of hybrid buses by purchases of 30 electric buses</li> <li>Powered by green electricity</li> <li>Noise is significantly reduced in urban areas.</li> </ul>	92

\* Projected results

\*\* Projected and actual results

## Impacts and allocated amounts

Name of Project	Administration/ company	Project start	Adaption/ Mitigation/ Environment	Sector	UN global goals	Project	Allocated amounts (msek)
<b>Ultrafilter Alelyckan and Lackarebäck</b>	Department of sustainable waste and water	2013	A	Water and wastewater management	3, 14	<ul style="list-style-type: none"> <li>• Making the production of drinking water more resilient to climate change.</li> <li>• Prevented sick days which also entails lower social costs.</li> </ul>	597
<b>Denitrification</b>	Gryaab AB	2014	E	Water and wastewater management	6, 14	<ul style="list-style-type: none"> <li>• Expansion of water treatment plant to reach a higher denitrification rate.</li> <li>• Estimated reduction of nitrogen emissions is 350 tonnes/year</li> </ul>	356
<b>Tree planting</b>	Parks and landscape administration	2014	E (A/M)	Sustainable land use/environmental management	11, 14, 15	<ul style="list-style-type: none"> <li>• Trees are planted in the city annually.</li> <li>• The project improves biodiversity, promotes a green cityscape and has a positive effect on urban air quality.</li> </ul>	40
<b>The Pedestrian City</b>	Road traffic administration	2015	M	Clean transportation	9, 11, 13	<ul style="list-style-type: none"> <li>• Improved conditions for pedestrians traveling in urban areas.</li> <li>• Examples include improved traffic security and accessibility for pedestrians traveling in the city.</li> </ul>	126
<b>The Bicycle City</b>	Road traffic administration	2015	M	Clean transportation	9, 11, 13	<ul style="list-style-type: none"> <li>• 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.</li> </ul>	264
<b>Sewage pump station, Kodammarna</b>	Eco-cycle and water administration	2017	M/A/E	Water and wastewater management	6, 14	<ul style="list-style-type: none"> <li>• Replacing Gothenburg's largest pump station.</li> <li>• Decrease energy consumption at the pump station by 30 %, approx. 0,5 GW/year.</li> <li>• Decrease the overflow of sewage to the river Göta älv.</li> </ul>	179

						<ul style="list-style-type: none"> <li>• Making the plant resilient to climate change, higher water levels.</li> <li>• Possible to install solar cells on the roof.</li> </ul>	
<b>Water management</b>	Department of sustainable waste and water	2019	A/E	Water and wastewater management	6, 14	<ul style="list-style-type: none"> <li>• Water pipes etc</li> <li>• Increase resilience of drinking water supply.</li> </ul>	69
<b>Stormwater management</b>	Department of sustainable waste and water	2019	A/E	Water and wastewater management	6, 14	<ul style="list-style-type: none"> <li>• Installations for handling stormwater</li> <li>• Improved resilience to handling increased rainfall.</li> </ul>	6
<b>Brudaremsen landfill</b>	Department of sustainable waste and water	2019	E	Water and wastewater management	11, 14	<ul style="list-style-type: none"> <li>• Reduce emissions to recipients from old landfill.</li> </ul>	28



## REPORT OF FACTUAL FINDINGS

To the Executive Office of the City of Gothenburg

We have performed the procedures agreed with you and as described below concerning the "City of Gothenburg Green Bond Committee" as of 31 December 2019 according to the attached summaries. Our engagement was undertaken in accordance with the International Standard on Related Services 4400 *Engagements to perform agreed-upon procedures regarding financial information*. The procedures were performed solely to assist you in verifying the validity of the summary of "green" bonds issues are used for "green projects" and are summarised as follows:

1. We have verified the attached summaries of issued "green bonds" with regard to the principal loan amount against relevant data.
2. We have verified the attached summaries of issued "green bonds" with regard to amounts not yet used per bond loan against separate bank account(s) and separate account(s) respectively in the accounting.
3. We have verified the attached summaries of "green projects" with regard to the validity of the amounts used per "green project".
4. We have verified that the attached summary of "green projects" decided in 2019 were approved by the City of Gothenburg Green Bond Committee.

We made the following observations:

- a) With respect to item 1, we found the principal loan amount stated was consistent with the relevant data.
- b) With respect to item 2, we found the amounts not yet used per bond loan stated were consistent with the balance(s) in separate bank account(s) and separate account(s) respectively in the accounting.
- c) With respect to item 3, we found the amount stated per "green project" was consistent with a separate report per green project.
- d) With respect to item 4, we found the City of Gothenburg Green Bond Committee had approved these.

Because the above procedures do not constitute either an audit in accordance with International Standards on Auditing or a review made in accordance with ISRE, we do not express any assurance on "green bonds" as per 31 December 2019.

Had we performed additional procedures or had we performed an audit in accordance with the International Standards on Auditing or a review made in accordance with ISRE, other matters might have come to our attention that would have been reported to you.

Our report is solely for the purpose set forth in the first paragraph of this report and for your information and is not to be used for any other purpose or to be distributed to any other parties. This report relates only to the "Green bonds" and items specified above and does not extend to any financial statements of the City of Gothenburg, taken as a whole.

This report has been prepared by Öhrlings PricewaterhouseCoopers AB on behalf of the Executive Office of the City of Gothenburg in accordance with the conditions pursuant to the engagement agreement between them. Öhrlings PricewaterhouseCoopers AB is not responsible without a separate written undertaking to any other party than the Executive Office of the City of Gothenburg that reads and relies on this report. *h>*

2020-04-20

A handwritten signature in blue ink, appearing to read 'M. Johansson', is written over a light blue horizontal line.

Öhrlings PricewaterhouseCoopers AB  
Mattias Johansson  
Authorised Public Accountant