

Kommuninvest Green Bonds Impact Report

December 2021



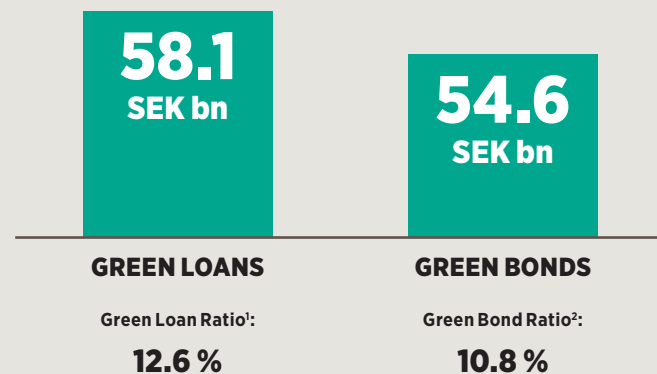
KOMMUNINVEST

This report in brief

Report on 491 Swedish local government investment projects financed by Kommuninvest Green Bonds as of year-end 2021.

At 31 December 2021, Kommuninvest had disbursed a total of SEK 58.1 (51.9) billion, equivalent to USD 6.4/EUR 5.7 billion, in Green Loans to investment projects aligned with our Green Bond Framework.

This report presents the expected impacts of these projects, the governance process to verify and select them and the impact reporting methodology we apply. Unless otherwise indicated, the reported impact is Scope 1 and 2 according to the Greenhouse Gas Protocol. Impact is reported for the aggregated portfolio of eligible assets as of 31 December 2021.



1) Total amount of Green Loans divided by total loan portfolio.

2) Total amount of Green Bonds outstanding divided by total amount of debt outstanding.



Annual greenhouse gas (GHG) emissions savings

602,522 tCO₂

575,127 tCO₂
avoided annual emissions³

27,395 tCO₂
reduced annual emissions⁴

12.7 tCO₂ per SEK mn

Impact
(relevant to 82 % of Green
Loan disbursements)



2.4
TWh
Annual renewable
energy generation,
incl. rooftop solar cells
on buildings

82.1 GWh

**Energy savings in buildings and
energy efficiency projects**



173,495

**Increase in number of people supplied by water
and wastewater facilities, (PE, share financed)**



164

tonnes per year

**Reduced nitrogen
emissions from water and
wastewater facilities**

Energy savings in green buildings

56.1 GWh

Whereof avoided
energy use³

44.8 GWh

Whereof reduced
energy use⁴

11.4 GWh



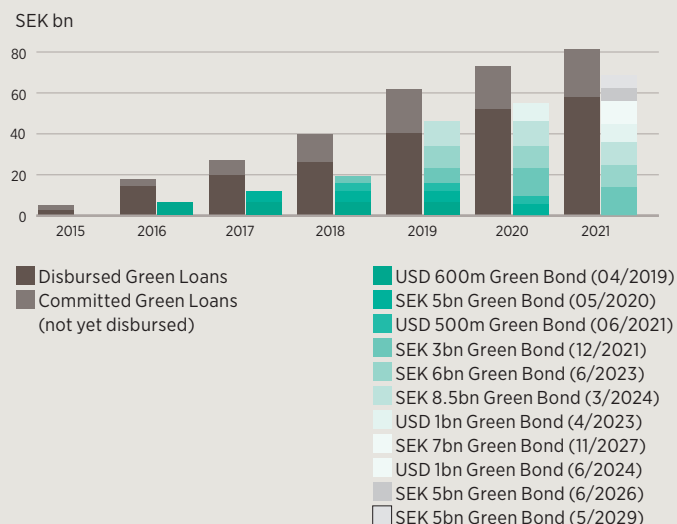
3) Refers to a baseline/alternative reference scenario.

4) Refers to a direct or absolute reduction in operation.

Executive Summary

as of 31 Dec 2021

Green Loans and Green Bonds

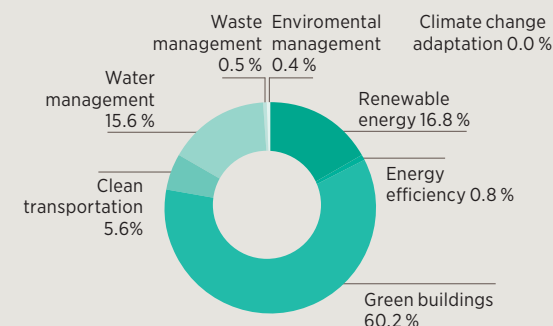


Basic information

Green Bond Frameworks applied	Report comprises projects financed under GB frameworks dated May 2021, March 2018, January 2016 and May 2015
Related Green Bond ISIN(s)	XS1897258098; XS2081157401 (RegS) / US50046PBL85 (144A); XS1968465572; XS2311395169 (Reg S) / US50046PBR55 (144A); XS2351401109; XS2259127269; XS2402061530
External verifier of allocation report	KPMG
Reporting period	Reporting for calendar year 2021. Comprises all eligible projects financed from GB programme start in 2015 until year-end 2021.
Report publication date	March 29, 2022
Frequency of reporting	Annual
Next reporting planned for	March 2023
Reporting approach	Portfolio-based and project-by-project reporting

Green project portfolio distribution

based on disbursed amounts



CO₂ impact and Green indicators

based on outstanding disbursed amounts¹

Project category	GHG emissions reduced/avoided, tonnes CO ₂ e/year	Outstanding disbursed amounts to projects, SEK mn	Impact, tonnes CO ₂ e per SEK mn
Renewable energy	541,391	9,738	56
Green buildings	8,037	34,992	0
Energy efficiency	33,379	470	71
Clean transportation	16,632	3,264	5
Waste management	1,219	273	4
Water and wastewater management	1,864	9,084	0
Climate change adaptation	n/a	16	n/a
Environmental management	n/a	246	n/a
Total	602,522	58,082	
Disbursed amounts with CO₂ impact		47,442	
Impact, tonnes CO₂e per SEK mn			12.7
Annual renewable energy generation, GWh			2,359,493 MWh p.a.
Annual energy reduced/avoided, MWh			82,138 MWh p.a.

¹) This table presents the calculated impact in terms of CO₂ reduced or avoided. Aggregated project data reported represent both *ex-ante* estimates and *ex-post* outcomes. Reporting methodology presented on pages 48–58. The complete project-by-project reporting is available in spreadsheet format at kommuninvest.se ==> For investors ==> Green Bonds ==> Impact Reporting.

Impact attributable to green bond investors¹

	94%
Whereof impact attributable to Green Bond SEK 11 bn, maturing 1 June, 2023	19%
Whereof impact attributable to Green Bond USD 1bn, maturing 24 April, 2024	16%
Whereof impact attributable to Green Bond SEK 8.5bn, maturing 27 March, 2024	15%
Whereof impact attributable to Green Bond USD 1bn, maturing 19 June, 2024	16%
Whereof impact attributable to Green Bond SEK 5bn, maturing 10 June, 2026	9%
Whereof impact attributable to Green Bond SEK 7bn, maturing 26 November, 2027	12%
Whereof impact attributable to Green Bond SEK 5bn, maturing 16 May, 2029	9%

* Total amount of outstanding green bonds divided by total outstanding disbursed amounts to projects (in SEK).

Key facts

- ➔ This report outlines the allocation of Green Bond proceeds to Green Loans that finance eligible green investment projects in Swedish municipalities and regions. Each investment project has been selected, reviewed and approved according to the process outlined on page 17. The complete framework is available online.
- ➔ As part of the annual impact reporting process, we may identify investment projects which no longer comply with framework requirements. Such projects are excluded from the reporting. We also consolidate those Green Loans that correspond to the same physical investment project. The above affects the number of reported projects, the disbursed Green Loan volume and the Green Loan Ratio. This report totals 491 projects at year-end 2021, compared with 513 projects reported in the Annual Accounts.
- ➔ Kommuninvest reports on a portfolio basis in Swedish kronor (SEK). Green Bonds issued in USD are converted to SEK using the F/X rate as per the date of issuance.
- ➔ Kommuninvest reports impact based on the share of the project's total investment cost financed with Green Loans. Impacts are based on outstanding disbursed amounts to projects (net of redemptions).
- ➔ Reporting is undertaken in accordance with recommendations outlined in the Nordic Public Sector Issuers: *Position Paper on Green Bonds Impact Reporting*.



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About Kommuninvest

Kommuninvest is a Swedish municipal cooperation set up in 1986 to provide cost-efficient and sustainable financing for local government investments in housing, infrastructure, schools, hospitals etc. The cooperation comprises 292 out of Sweden's 310 local governments, of which 280 municipalities and 14 regions. Kommuninvest is the largest lender to the Swedish local government sector and the sixth largest credit institution in Sweden. At year-end 2021, total assets were SEK 524 billion (USD 58 billion¹⁾, with a loan portfolio of SEK 461 billion (USD 51 billion). The head office is located in Örebro.

1) USD/SEK= 9.0437 as of 31 Dec, 2021

About this report

This report was written and compiled by: **Björn Bergstrand**, Head of Sustainability, **Hanna Leife**, Sustainability Strategist, and **Jonas Holm**, Sustainability Accounting

Any errors, omissions or otherwise are our responsibility. Project impact reporting is based on data collected from financed projects during Q1-2022. The data has been reviewed by Kommuninvest however their accuracy has not been verified by neither Kommuninvest nor a third party. Climate impact calculations have been made by Kommuninvest, and their accuracy has not been verified by a third party. The information has been reviewed and approved for publication by the Kommuninvest Environmental Committee, whose members are presented on page 17.

Green Bonds

Green Bonds outstanding

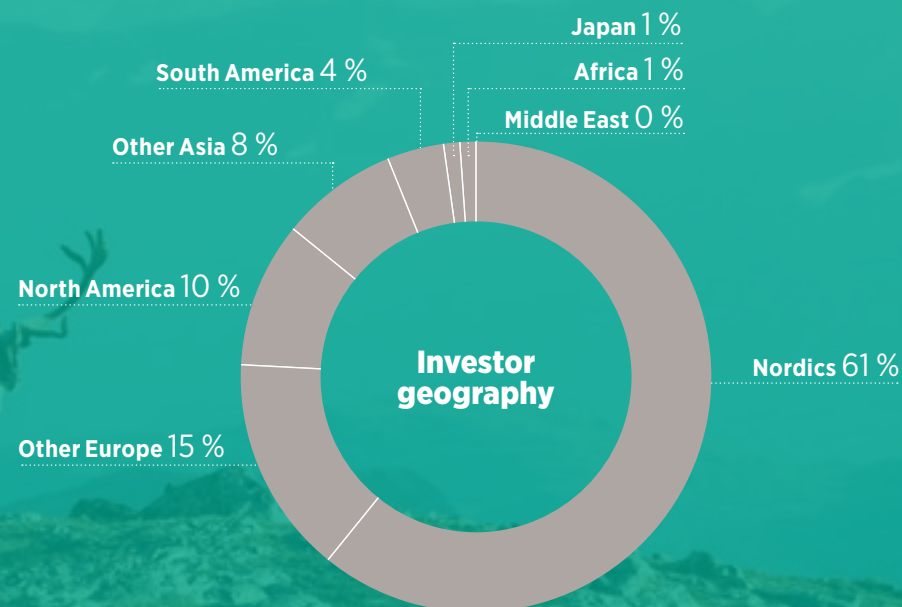
54.6

Billion SEK

Green Bond Ratio

10.8 %

(share of funding)



Kommuninvest issued its first green bond in 2016 and has since evolved to become one of the largest Nordic green bond issuers. Demand for our issuances is broad-based, encompassing dedicated green investors across the globe.

At year-end 2021, the equivalent of SEK 54.6 billion was outstanding in seven green bonds denominated in SEK and USD. This makes us Sweden's largest issuer of green bonds. The green bond framework allows financing in eight project categories. In the second opinion from CICERO, three of these are characterized as "dark green", signaling investment projects aligned with the 2050 climate targets. Overall, the framework has a "medium green" shading.

Outstanding Green Bonds

Issue date	Amount issued	Maturity	Coupon	ISIN
23 Oct, 2018; 17 Sep, 2019; 27 May, 2020*	SEK 11 billion	1 Jun, 2023	0.625% (annually)	XS1897258098
20 Nov, 2019	USD 1 billion	24 Apr, 2024	1.625% (semi-annually)	XS2081157401 (RegS)
27 Mar, 2019; 18 June, 2019**	SEK 8.5 billion	27 Mar, 2024	0.375 (annually)	XS1968465572
10 Mar, 2021	USD 1 billion	19 Jun, 2024	0.375 % (semi-annually)	XS2311395169
10 Jun, 2021	SEK 5 billion	10 Jun, 2026	0.375 (annually)	XS2351401109
19 Nov, 2020	SEK 7 billion	26 Nov, 2027	0.250% (annually)	XS2259127269
28 Oct, 2021	SEK 5 billion	16 May, 2029	0.875 (annually)	XS2402061530

* SEK 3 billion was issued on 23 October, 2018 and the bond was subsequently tapped for SEK 3 billion and SEK 5 billion, respectively.

** SEK 3.5 billion was issued in 2019 and the bond was tapped for SEK 5 billion.

Green Loans

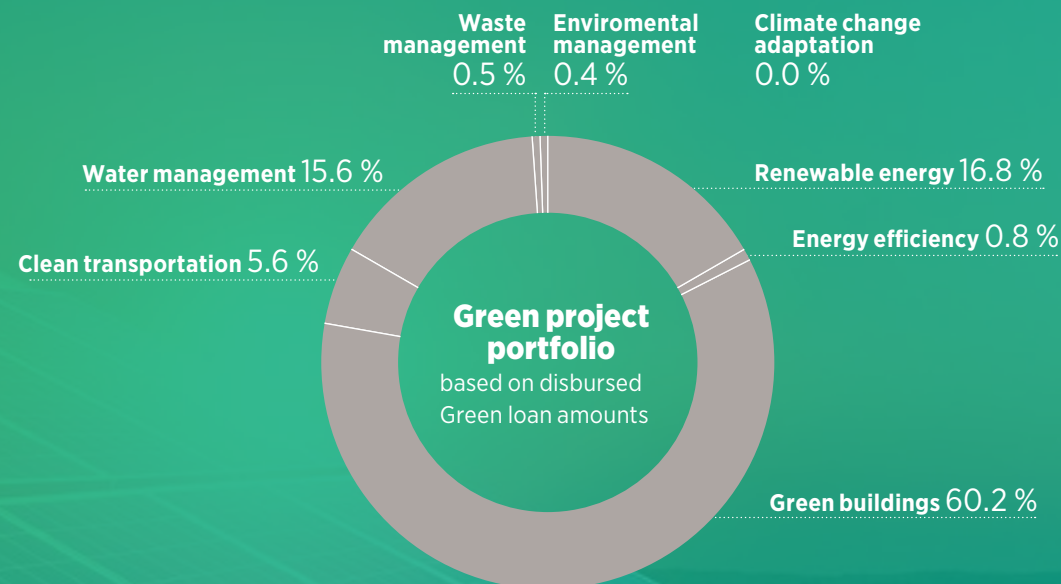
Green Loans
(disbursed and outstanding)

58.1

Billion SEK

Green Loan Ratio
(share of lending)

12.6 %

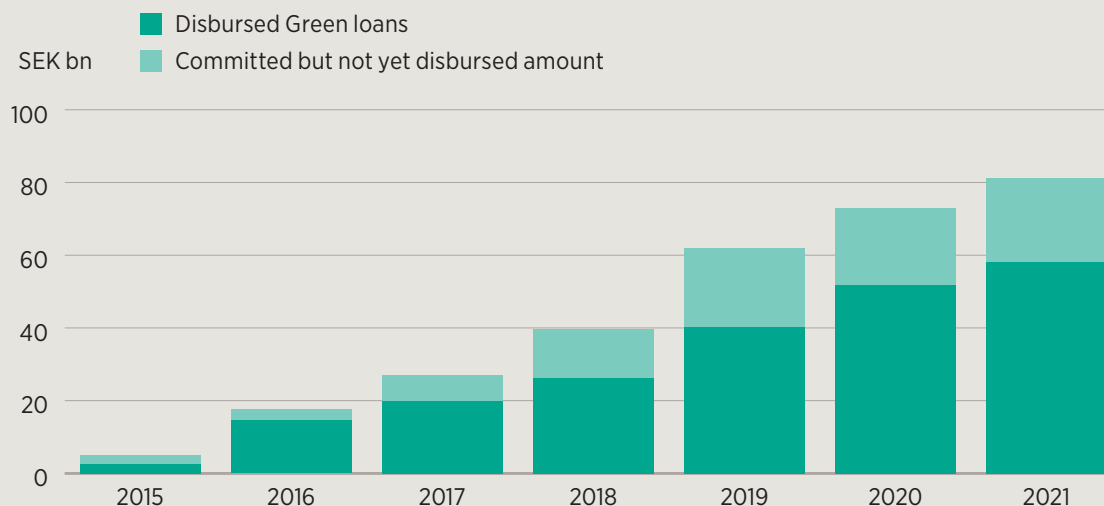


In 2015, Kommuninvest began offering reduced-rate Green Loans for investments that contribute to addressing local and regional climate and environmental objectives. The Green Loans are financed by Green Bonds.

The demand for Green Loans has increased substantially since launch, outpacing the general borrowing trend amongst Swedish municipalities and regions. In 2021, Kommuninvest's Green Loan portfolio increased by SEK 6.2 billion to a total of SEK 58.1 billion (based on disbursed amounts).

Growth of the Green Loan portfolio accounted for 40 per-cent of Kommuninvest's total lending growth, contributing to increasing the Green Loan Ratio to 12.6 (11.7) percent.

Green loans 2015-2021



2021 in review

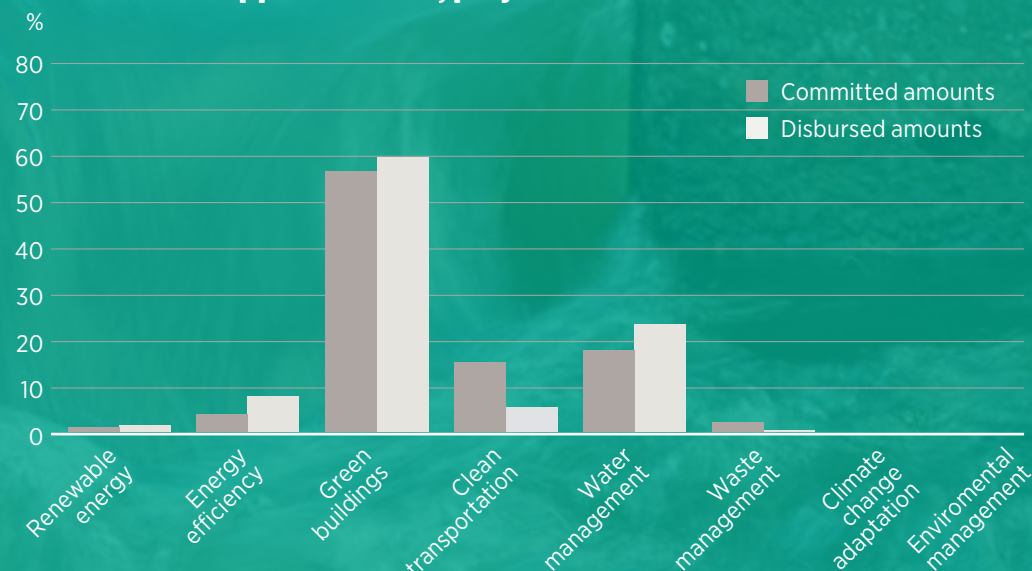
New Green Loan approvals

88

Green Bonds issued

3

Green Loan approvals 2021, project distribution



Kommuninvest's green financing framework has grown every year since inception. In 2021, 88 (88) investment projects were awarded Green Loan status and total Green Loan disbursements increased by 12 percent to SEK 58.1 (51.9) billion.

Three green bonds for a total of SEK 18.4 billion were issued, including two SEK 5 billion bonds and one USD bond, for USD 1 billion.

In order to accelerate the green transition in property construction, the largest Green Loan category, Kommuninvest has introduced new requirements for green buildings, addressing the climate-impact from the construction phase in addition to existing requirements for low energy use. From 2021, all new building projects must demonstrate that concrete measures are undertaken for the construction, for example by using a wooden frame. In early 2022, these requirements were complemented by a requirement to calculate the embedded impact in CO2 terms.

Pre-study to evaluate potential taxonomy alignment

Following the publication in 2021 of final delegated EU taxonomy acts regarding climate change mitigation and climate change adaptation, as well as a proposal for an EU Green Bond Standard, Kommuninvest has initiated pre-study work to evaluate the conditions for alignment of its Green Bonds framework.

Given the complexity and highly detailed nature of the taxonomy regulation, in combination with the broad scope of Kommuninvest's framework, this is a time-consuming task. Kommuninvest expects to be able to communicate its approach to the taxonomy and the EU Green Bond Standard during 2022.

Financing for climate neutrality

Efforts to harmonize and standardize Green Bonds issuance is under way. Kommuninvest's approach is guided by the need to balance regulatory objectives and feasibility at the local government level.

2021 was yet another year of growth for Kommuninvest's green financing programme, launched in 2015 with a Green Loan for a wind farm development in northern Sweden. Close to 500 green investment projects in Swedish cities and regions were financed at year-end, with SEK 58 billion in disbursed financing. The Green Loan ratio stood at nearly 13 percent.

In recognition of its rapid roll-out of an innovative new financing instrument, Kommuninvest was awarded the 2021 Swedish Environmental Objectives Award, instituted by the Swedish Environmental Protection Agency. We, who work inside local governments, can testify that instruments like Green Loans are useful. Well-deployed, they assist in integrating sustainability considerations into long-term planning, investment plans and governance.

The year also entailed reflecting about the future path of the green finance programme, as Kommuninvest initiated pre-study work related to the expected new EU Green Bond Standard. Kommuninvest welcomes further harmonization of Green Bonds issuance and an EU standard. However, balancing taxonomy objectives and feasibility of implementation at the local government level is key, as the taxon-

omy is highly detailed and generally challenging to deploy in the short term. Requiring alignment rapidly in a green financing programme risks being counter-productive.

In order to evaluate taxonomy feasibility, Kommuninvest is engaged in dialogue with a wide range of industry organisations, including for real estate, water management, waste management and energy production. For example, Kommuninvest collaborates closely with Public Housing Sweden and its climate initiative, under which participating public sector housing companies aim for climate-neutrality by 2030.

As a member of Viable Cities, a Swedish strategic innovation programme, Kommuninvest also supports the transition at the broader city level. Viable Cities now comprises 23 Swedish cities and five government agencies, which have jointly signed climate city contracts to accelerate development towards climate-neutral and sustainable cities. Many of the associated investment projects obtain green financing.

Finally, a word of thanks to Green Bond investors for your continued support. It has enabled the issuance of 14 Green Bonds since inception and the establishment of one of the largest green bond programmes in the Nordic countries.



The Kommuninvest Green Bonds Environmental Committee reviews and decides on Green Loan applications. Committee members are all external to Kommuninvest. During 2021, the committee was comprised of, from left to right:

1. Susanne Arneborg, City of Borås (chairperson)
3. Marta Fallgren, Region Uppsala
6. Andreas Hagnell, Swedish Association of Local Authorities and Regions
7. Hanna Ryman, Municipality of Örebro and
8. Lisa Järner, City of Mölndal.

Representatives from Kommuninvest's Lending Group and Sustainability Department are present at meetings:

2. Patrik Stenman
4. Björn Söderlundh and
5. Ann Sörman (retired as of January, 2022).

Please let us know what you think!
We invite your feedback at
sustainability@kommuninvest.se

Supporting sustainable local governments

Kommuninvest's sustainable finance solutions foster efficient use of tax revenues, financial stability and the local government sector's work with Agenda 2030.

Sweden has a decentralised societal model in which municipalities and regions are responsible for much of society's services. The basic tasks of municipalities and regions include, for example, healthcare, education, social care, urban planning and regional development responsibilities, which are directly or indirectly related to the implementation of the 2030 Agenda. They therefore manage much of the basic social infrastructure, in the form of housing, energy supply, public transport, water management, waste management, etc.

How we generate sustainable values

At year-end 2021, Kommuninvest had 294 out of Sweden's 310 local governments as members/owners and accounted for ~60 percent of their external financing. As the largest lender to the sector by far, we generate both direct and indirect values.

Crucially, the financing solutions, knowledge and debt management tools we provide benefit financial stability in Swedish municipalities and regions and help develop members' debt management expertise. Accordingly, essential investments in welfare and

sustainability can be made more efficiently and at a lower cost to taxpayers.

Specifically, we support our members' sustainability work with financing products clearly focused on environmental and social sustainability. Green Loans were launched in 2015 and accounted for nearly 13 percent of our lending at year-end 2021. Social Sustainability Loans have been introduced in a pilot phase during 2021 and seven loans and SEK 614 million in committed funding had been approved by the end of the year.

The 2030 Agenda in municipalities and regions

The 2030 Agenda has had a major impact in many municipalities and regions, including by integrating the Agenda into their regular targets and budget processes, monitoring systems, surveys and strategic plans. The Agenda is also incorporated in their strategic communication work and in regional development strategies. All in all, work performed at the local and regional level is an important contribution to the Agenda's impact at the national and international level.



A fossil-free welfare nation

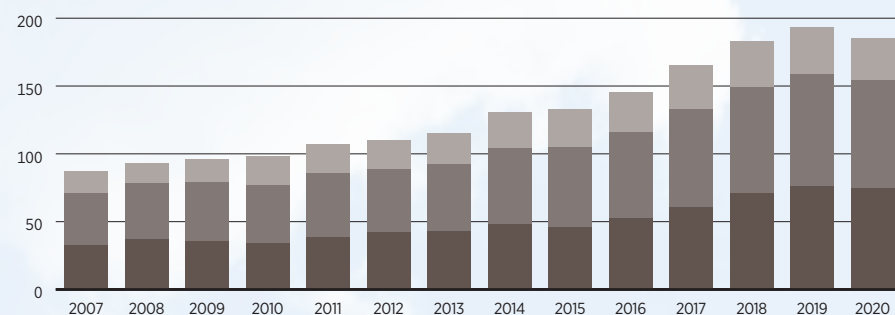
By 2030, Sweden aims to have reduced its carbon emissions by 63 percent compared with 1990; by 2045 Sweden should have no net emissions of greenhouse gases into the atmosphere. The ambition is to become one of the world's first fossil fuel-free welfare nations.

Given their broad mandate, Sweden's cities and regions play a key role in realizing this ambition. Many of them work together, including the 40+ cities joining forces through Klimatkommunerna (eng. Climate Cities). 23 cities that have joined the Viable Cities platform, to date the most ambitious research and innovation effort in Sweden focusing on climate neutral cities. Moreover, cities and regions are working in tandem with the private sector, which has set their own targets. Under the Fossil Free Sweden initiative, 22 different roadmaps have been developed, outlining how industries can improve their competitiveness by going fossil free or climate neutral.

Find out more:
klimatkommunerna.se
viablecities.se
fossilfrittssverige.se

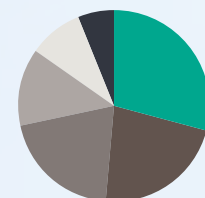
Local government investment volumes, total

SEK bn



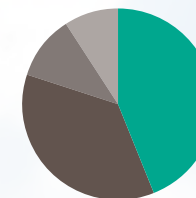
■ Municipalities
 ■ Municipal companies
 ■ County councils/regions and their companies

Municipal investments, distribution (2021)



■ Properties 29 %
 ■ Housing 22 %
 ■ Infrastructure 20 %
 ■ Water/sewerage 13 %
 ■ Energy 9 %
 ■ Other 6 %

Regional investments, distribution (2021)

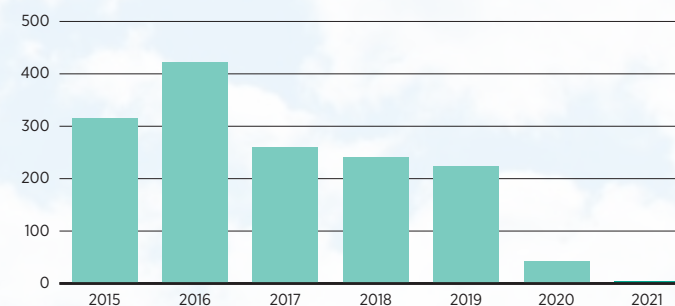


■ Properties 44 %
 ■ Infrastructure 36 %
 ■ Medical equipment 11 %
 ■ Other 9 %

ESG Ratings: Ranked among the top public credit institutions

	Rating	Rating Category	Peer Group Comparison
	B-	Prime	Top 5 out of 78 issuers rated
	AA	n/a	Maintained 2nd highest rating since 2017
	9.1	Negligible ESG risk	Top 12 out of 74 peers

CO₂ emissions from business travel, tonnes



Source: Big Travel, with processing by Kommuninvest (emission values have been multiplied by a so-called RFI factor of 1.9 for the aviation industry's high altitude effects).

ENVIRONMENTAL INDICATORS – KOMMUNINVEST GROUP

	Unit	2021	2020	2019
Energy consumption				
Total energy consumption (in buildings)	kWh	561,117	518,793	616,853
– of which, electricity	kWh	325,657	334,963	385,980
– of which, heating	kWh	235,460	183,830	230,873
Total CO ₂ impact of energy consumption (in buildings)	Tonnes	119	119	142
– of which, from electricity consumption ¹	Tonnes	103	106	122
– of which, from heating ²	Tonnes	16	13	20
Proportion of renewable energy in energy consumption of electricity	%	100	100	56
Change in electricity consumption compared to the preceding year	%	-3	-13	5
Proportion of renewable energy in energy consumption for heating	%	100	100	95
Total office space	m ²	2,217	2,217	2,217
Total energy consumption per m ²	kWh/m ²	253	234	278
Total energy consumption per employee ³	kWh	5,611	5,037	6,107
Resource usage				
Purchased office paper	Tonnes	0.11	0.39	0.45
– of which sustainability labelled paper (PEFC)	Tonnes	0.10	0.33	0.45
Proportion of sustainability labelled office paper, of total purchases	%	100	84	100
Total paper consumption per employee	Kg	1.1	3.8	4.5
Paper recycling, incl. purchased and delivered paper	Tonnes	2.0	1.6	2.0
CO ₂ emissions avoided through recycling	Tonnes	2.3	2.3	2.7
Business travel				
Total business travel	Km	76,865	228,922	911,699
Total business travel per employee	Km	769	2,223	9,027
Total air travel	Km	14,899	90,363	493,063
Rail travel in Sweden	Km	44,504	120,241	364,616
Total CO ₂ emissions from business travel	Tonnes	5	43	225
CO ₂ emissions from business travel, per employee ⁴	Tonnes	0.05	0.42	2.2
Total climate footprint				
Total climate footprint of the operations ⁵	Tonnes	124	162	367
Total climate footprint per employee, CO ₂ e	Tonnes	1.2	1.6	3.6

- 1) The climate impact from electricity consumption, calculated applying an emissions factor for electricity of 315 g CO₂e/kWh, in accordance with the principles for impact reporting applied by Kommuninvest for Green Bonds (Nordic Position Paper on Green Bonds Impact Reporting). The reported values are within Scope 2, in accordance with the Greenhouse Gas Protocol.
- 2) The climate impact from heating, calculated applying the latest available emissions factor for district heating in the Municipality of Örebro for 2021 of 68 g CO₂e/kWh, in accordance with the principles for impact reporting applied by Kommuninvest for Green Bonds (Nordic Position Paper on Green Bonds Impact Reporting). The reported values are within Scope 2, in accordance with the Greenhouse Gas Protocol.
- 3) The emissions avoided through recycling over the year break down between 745 kg plastics, 2,045 kg paper, 139 kg iron, 30 kg hazardous waste and 331 kg alternative raw materials, source: Stena Recycling. Kommuninvest does not include emissions avoided by recycling resources, as the climate impact of the purchases in question has not been calculated.
- 4) Values are adjusted for high altitude factor.
- 5) Includes CO₂ emissions from energy consumption, resource consumption and business travel. All emissions are included in Scope 1 and Scope 2 and emissions from business travel are included in Scope 3.



**Find out more in our
Sustainability Report
2021, see Annual Report
2021 page 14-26.**



*Björn Söderlundh,
Head of Lending*



*Daniel Nykvist,
Deputy Head of Lending*



*Erik Törnblom,
Analyst*



*Tobias Landström,
Deputy Head of Debt
Management*



*Jonas Holm
Sustainability Accounting*



*Patrik Stenman,
Financial Advisor*



*Björn Bergstrand,
Head of Sustainability*



*Hanna Leife,
Sustainability Strategist*

The Kommuninvest Green Bonds and Green Loans Programme engages numerous staff across company functions, including lending, debt management, investor relations, sustainability, communications, IT, and research.

The smaller group of people presented here are more deeply involved in the Programme. The Programme is co-led by Björn Söderlundh, Head of Lending and Björn Bergstrand, Head of Sustainability.

Share of financing and refinancing

Kommuninvest Green Bond proceeds are used for financing of Green Loans, which in turn are used for new financing and refinancing of eligible investment projects. New financing is defined as the committed volume of Green Loans during the reporting year. Refinancing is defined as the committed volume of Green Loans before the reporting year.

Bottoms-up model, starting with the projects

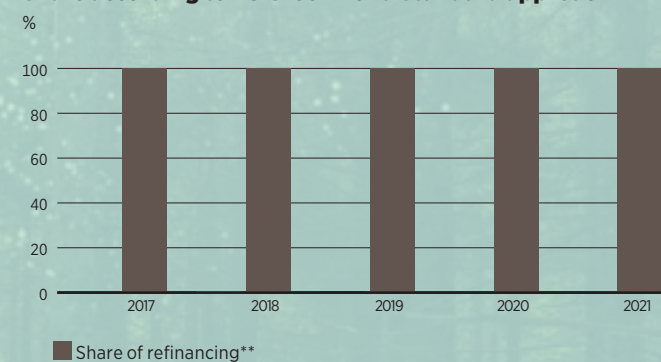
Kommuninvest deploys a bottom-up approach to green financing, whereby eligible investment projects are identified and pre-financed first, and Green Bonds are issued as the second step. This approach, we believe, has a number of distinct advantages:

- i) It enables Kommuninvest to manage its green framework in a conservative manner, with the size of the portfolio of approved Eligible Projects guiding the volume of Green Bonds issuance. As a rule, Kommuninvest aims for aggregated Green Bond Proceeds not to exceed total disbursements to Green Loans.
- ii) It provides investors with transparency regarding which Eligible Projects the Green Bonds will finance, including the composition of green assets, as well as assurance that Green Bond proceeds will be matched to actual Green Loan disbursements.

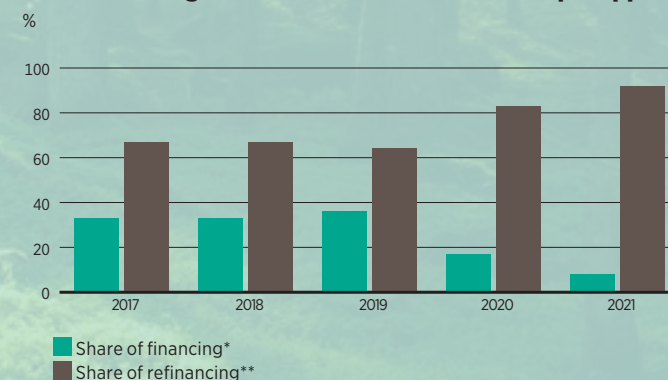
Reporting according to alternative approach

We report the share of financing and refinancing according to the alternative approach proposed in the Nordic Position Paper on Green Bonds Impact Reporting. We use this alternative approach because we find that the proposed reporting approach according to the EU Green Bond Standard, which is based on allocated amounts, is not directly applicable to our issuance model.

Share according to EU Green Bond Standard approach



Share according to alternative Nordic Position Paper approach



* Share of financing will always be 0%, given Kommuninvest's Green Bonds issuance model, whereby green bonds are issued in relation to the total volume of outstanding disbursed Green Loans.

** Committed amount is chosen over allocated/dispursed amount, as the committed amount captures disbursements that will be made in the future.

Share of financing and refinancing: EU GBS approach & Nordic Position Paper approach

Status per end of reporting year	2016	2017	2018	2019	2020	2021
Kommuninvest Green Bonds Framework						
Committed amount in Green Loans, SEK billion	17.8	26.6	39.7	61.8	74.7	81.3
Disbursed amount in Green Loans, SEK billion	14.5	19.9	25.8	40.3	52.5	58.1
Reporting according to EU GBS approach						
Share of financing (allocated amount to projects financed after bond issuance)*	0%	0%	0%	0%	0%	0%
Share of refinancing (allocated amount to projects financed before bond issuance)	100%	100%	100%	100%	100%	100%
Reporting according to alternative Nordic Position Paper approach						
Share of financing (committed amount** to projects during the year of reporting)	72%	33%	33%	36%	17%	8%
Share of refinancing (committed amount** to projects before the year of reporting)	28%	67%	67%	64%	83%	92%

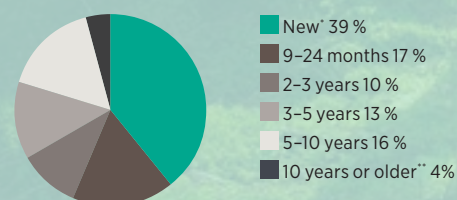
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** Committed amount is chosen over allocated/disbursed amount, as the committed amount captures disbursements that will be made in the future

Age distribution of Eligible Projects

as of 31 Dec 2021

based on project completion date and disbursed outstanding amounts

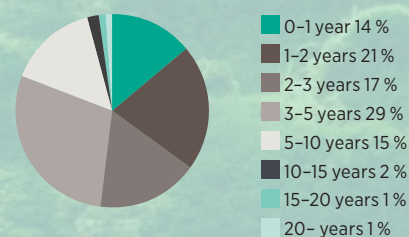


*Planned, on-going or a maximum of nine months has passed since completion

** Adjusted to include projects where project completion date refers to date of transaction (#12, #51, #144 - acquisition finance for hydro power stations).

Maturity profile Green Loans

as of 31 Dec 2021

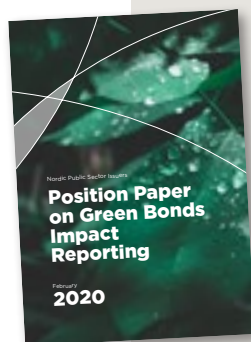


Key reporting methodology

Kommuninvest reports impact from financed green investment projects based on jointly established Nordic guidelines, which build on and complement international recommendations.

Since 2016, a group of Nordic public sector green bond issuers cooperate on impact reporting topics, with the aim of harmonising and advancing reporting practices across the Nordic region. The results of this work have been published in a Position Paper on Green Bonds Impact Reporting,

launched in October 2017 and most recently updated in February 2020. These Nordic reporting guidelines builds on and complement international recommendations, as outlined by the Green Bond Principles.



Kommuninvest's impact reporting is carried out in accordance with the principles and methodology presented in the Position Paper on Green Bonds Impact Reporting. The Position paper has been developed by a group of Nordic public sector green bond issuers, initiated and led by Kommuninvest.

Key reporting principles

- ➔ A project's impact is quantified based on the share of the investment cost that has been financed by Kommuninvest and on Green Loans disbursed and outstanding.
- ➔ Calculations are based on projected (ex-ante) values; unless actual outcomes (ex-post) are available.
- ➔ Projects which no longer comply with the requirements of the Green Bonds framework are excluded from the reporting.
- ➔ CO₂ emissions and emissions reductions are reported as scopes 1 and 2 as defined by the Greenhouse Gas Protocol, ie. direct emissions from projects and indirect emissions from the production of electricity and/or district heating.
- ➔ Greenhouse gas emissions savings from electrical energy production and electrical energy savings are calculated using an emission factor for electricity production in mainland EU and Norway of 315 CO₂/kWh.
- ➔ We report impact from activities financed by green bonds on a yearly basis.
- ➔ Please see pages 48-57 for further information about reporting methodology and baseline choices.



Project evaluation and selection

Green Loan applications are reviewed and finally approved by the Kommuninvest Green Bonds Environmental Committee, an advisory committee comprising Swedish local government climate specialists.

INVESTMENT PROJECTS are initially identified, verified and selected by the environmental functions and treasury departments in Kommuninvest's member municipalities and regions. Eligible projects are then screened by Kommuninvest's Lending department, and, on at least a quarterly basis, reviewed and finally approved by consensus vote in the Committee.

The Committee, which is elected by Board of Kommuninvest, consists of expert officials from at least three member municipalities and regions as well as experts from other relevant public sector organisations or academia/non-governmental organizations.

COMMITTEE MEMBERS

- ① **Susanne Arneborg**, Strategic Urban Planner, City of Borås
- ③ **Marta Fallgren**, Environmental Manager, Uppsala County Council
- ⑥ **Andreas Hagnell**, Senior Advisor Environment and Energy, Swedish Association of Local Authorities and Regions (SALAR)
- ⑦ **Hanna Ryman**, Sustainability Manager, Municipality of Örebro
- ⑧ **Lisa Järner**, Environmental Coordinator, City of Mölndal

KOMMUNINVEST STAFF

Kommuninvest staff are present at Committee meetings, including representatives from the Lending and Sustainability departments. Pictured here are representatives from the Lending department:

- ② **Patrik Stenman**, Client Relationship Manager
- ④ **Björn Söderlundh**, Head of Lending
- ⑤ **Ann Sörman**, Client Relationship Manager (retired at the end of 2021)



ASSURANCE REPORT PUBLISHED ANNUALLY

Kommuninvest regularly publishes an external assurance report regarding its Green Bonds Framework, in line with the recommendations of the Green Bond Principles. The report, performed by our external auditor, provides assurance on the management of proceeds obtained from the issuance of green bonds. Green Bond proceeds and disbursements to Green Loans are tracked by Kommuninvest according to internal instructions.

Project categories

Kommuninvest Green Bonds finance investment projects in Sweden undertaken by our member municipalities and regions. We finance projects within eight areas of investment and subject to meeting pre-determined sustainability criteria.

The following pages present an overview of the green project categories and their impact, as well as lists of the approved projects which were approved during 2021. The complete project-by-project reporting, covering all investment projects in the Green Loan portfolio as of year-end 2021, is available at the Green Bonds section of Kommuninvests website, kommuninvest.se

All projects must

Promote the transition to a low-carbon and climate-resilient society

- ✓ Be part of the systematic environmental work in the applicant municipality or region
- ✓ Be related to Sweden's national environmental objectives, or to regional environmental goals
- ✓ Target either mitigation of climate change, adaptation to climate change, or be a project related to environmental management in other areas than climate change



Renewable energy 20

Facilitating implementation of renewable energy sources



Energy efficiency in energy systems 22

Reducing energy requirements in existing energy systems



Green buildings 24

Low-energy buildings for residential and non-residential use



Clean transportation 35

Transport solutions that result in minimal or zero emissions



Waste management 37

Measures to increase reuse and recycling, minimize waste and improve energy recovery



Water and wastewater management 40

Water and wastewater investments with a climate and environmental profile



Climate change adaptation 46

Making local communities better adapted to current and future climate change, including reducing physical climate risk.


























Environmental management 47

Ensuring sustainable land use, including biodiversity restoration and cleaning up of harmful substances.

PROJECTS

Project portfolio summary

Project category	Sustainable Development Goals	EU Environmental Objectives	Total # projects	New projects in 2021	Disbursed Green Loans, outstanding, SEK mn	Renewable energy production (MWh/year)	Energy reduced and avoided (MWh/year)*	GHG emissions reduced/avoided, tonnes CO ₂ e/year ¹	Committed Green Loans, SEK million	Disbursed Green Loans, SEK million	Impact, tonnes CO ₂ e per SEK mn
Renewable energy	 	Climate change mitigation	64	7	9,738	2,358,781	n/a	541,391	13,655	9,738	56
Energy efficiency	   	Climate change mitigation	10	2	470	n/a	26,001	33,379	657	470	71
Green buildings	   	Climate change mitigation	292	48	34,992	712	56,136	8,037	44,447	34,992	0
Clean transportation	  	Climate change mitigation	19	3	3,264	n/a	n/a	16,632	7,596	3,264	5
Waste management	 	Transition to a circular economy, waste prevention, and recycling	16	6	273	n/a	n/a	1,219	685	273	4
Water management	 	Sustainable use and protection of water and marine resources	81	21	9,084	6,692	n/a	1,864	13,805	9,084	0
Climate change adaptation	  	Climate change adaptation	1	0	16	n/a	n/a	n/a	16	16	n/a
Environmental management	  	Protection of healthy ecosystems	8	1	246	n/a	n/a	n/a	399	246	n/a
Total			491	88	58,082	2,366,185	82,137	602,522	81,260	58,082	
Disbursements with quantified CO ₂ impact, SEK mn											47,442
Share of disbursements with quantified CO ₂ impact											82%

1) A number of Green Loans refer to the same physical investment project. As a consequence, Kommuninvest's detailed project by project reporting, available at kommuninvest.se, lists 495 projects, compared with the 491 projects included in this reporting.

PROJECTS

Renewable energy

Investments in this category aim to reap the energy potential of the wind, the sun, the ground, the sea, biomaterials and other renewable energy carriers, and to replace non-sustainable energy sources. Projects include production and distribution of renewable energy including wind, wave, solar, hydro, geothermal, bioenergy, biogas and excess heat.

Green loans to Renewable energy

Total number of projects:

64

Total amounts disbursed and outstanding:

9,738 MSEK

Estimated annual impact of Green Loans¹

Estimated installed effect (total): 117,086 MW

Estimated annual energy production: 2,358,781 MWh

Greenhouse gas emissions avoided, per year: 541,391 tonnes CO₂e

1) Refers to the Green Loan share of project impacts. The impact attributable to Green Bond investors is presented on page 3.



PROJECTS

Renewable energy: Projects approved in 2021

Borrower	Project ID	Sub-category	Project description	Construction period ending	Kommuninvest share of financing, %	Committed amount, SEK million	Disbursed amount, SEK million	Estimated impact, Kommuninvest share	
								Renewable energy generation **	GHG-emissions reduced/avoided ***
Växjö Kommunföretag AB	1096	Wind Power	Acquisition of wind turbines to increase renewable energy production and replace fossil energy sources.	2020	95%	43	42	13 115	4 131
Kalmar Municipality	1137	Solar Power	Installation of rooftop solar cells on municipal properties. Part of the municipal objective of being fossil fuel free by 2030.	2020	73%	3	3	161	51
Åsele Kraft AB	1146	Hydropwer	Renewal of existing hydropower stations with replacement of supply turbines, turbines and generators. The project is expected to achieve a 20 percent efficiency improvement.	2021	58%	14	12	3 339	1 052
Nybro Värmecentral AB	1153	Wind Power	New construction of wind turbines.	2011	0%	18	0	n/a	n/a
Nybro Värmecentral AB	1154	District Heating	Biofuel-powered district heating plant.	2009	0%	7	0	n/a	n/a
Nybro Värmecentral AB	1155	District Heating	Acquisition of biofuel-powered combined heating and power plant.	2009	0%	26	0	n/a	n/a
Lidköpings Municipality	1182	Solar Power	Installation of rooftop solar cells.	2018	0%	2	0	n/a	n/a

Complete project-by-project-reporting in spreadsheet format is available in the impact reporting section for Green Bonds at kommuninvest.se

PROJECTS

Energy efficiency in energy systems

Projects within this category reduce the energy requirements in existing (predominantly fossil-free) energy systems and phase out the use of fossil energy sources. Projects may be related to district heating/cooling, electricity grids/smart grids, energy recovery and storage.

Green loans to energy efficiency

Total number of projects:

10

Total amounts disbursed and outstanding:

470 MSEK



Estimated annual impact of Green Loans¹

Total energy savings:	26,001 MWh
- whereof Avoided energy use ²	0 MWh
- whereof Reduced energy use ³	26,001 MWh

Greenhouse gas emissions reduced, per year :

33,379 tonnes CO₂e

1) Refers to the Green Loan share of project impacts. The impact attributable to Green Bond investors is presented on page 3.

2) Avoided energy use refers to a baseline/alternative reference scenario. Net value, inclusive of energy production in green buildings.

3) Reduced energy use refers to a direct or absolute reduction in operation.



PROJECTS

Energy efficiency: Projects approved in 2021

Borrower	Project ID	Project description	Construction period ending	Kommuninvest share of financing, %	Committed amount, SEK million	Disbursed amount, SEK million	Estimated annual impact, Kommuninvest share	
							Energy savings MWh **	GHG-emissions reduced/avoided ***
Glysisvallen AB	1088	Energy efficiency project in ice rink with unusually high electricity consumption, in the Swedish context. The project mainly consists of the replacement of cooling systems but also in the renovation of ice rinks and capacity expansion for dehumidification and managing ventilation flows in changing rooms.	2022	0%	15	0	n/a	n/a
Gävle Municipality	1117	Expansion of a pipeline for municipal district between Gävle and Sandviken. This allows the scrapping of the a fossil-fuel-based plant in Sandviken in favor of district heating produced from renewable sources in Gävle.	2024	62%	340	340	0	30 935

Complete project-by-project-reporting in spreadsheet format is available in the impact reporting section for Green Bonds at kommuninvest.se

PROJECTS

Green buildings

New or existing residential and non-residential buildings with an energy performance per sq.m. that is at least 20 percent better than the Swedish building code. Also major renovations of buildings that reduce energy use by at least 30 percent or to compliance with the Swedish building code, and energy efficiency measures in partial systems that reduce energy use by at least 30 percent.

Green loans to green buildings

Total number of projects:

292

Total amounts disbursed and outstanding:

34,992 MSEK

Estimated annual impact of Green Loans¹

Total energy savings:
- whereof avoided energy use² 56,137 MWh
- whereof reduced energy use³ 44,767 MWh
11,370 MWh

Energy production in buildings: 712 MWh

Greenhouse gas emissions savings, per year : 8,037 tonnes CO₂e

- whereof avoided/reduced CO₂e 6,643/1,394 tonnes

¹ Refers to the Green Loan share of project impacts. The impact attributable to Green Bond investors is presented on page 3.

² Avoided energy use refers to a baseline/alternative reference scenario. Net value, inclusive of energy production in green buildings.

³ Reduced energy use refers to a direct or absolute reduction in operation.





CASE: GREEN BUILDINGS

Financed buildings are highly efficient

As per 31 December 2021, Kommuninvest Green Bonds financed 292 green building projects, of which 262 were new buildings (residential, non-residential and other), 5 were energy efficiency projects in existing buildings and 25 were major renovations of existing buildings. Total energy use in the 100 residential building projects, expected or actual, is 25,270 MWh per annum, or on average 54 kWh per sq.m and year. This equates to **37 percent less than Swedish building requirements**. Had these buildings solely been built to meet national building regulations, total energy consumption would have been 40,238 MWh. The total heated surface area for these buildings is 470,800 sq.m.

For the 148 non-residential building projects, the total expected or actual energy use is 40,947 MWh per annum, or on average 47 kWh per sq.m and year. This equates to **50 percent less** than building requirements. Had these buildings solely been built to meet national building regulations, total energy consumption would have been 82,423 MWh. The total heated surface area for these buildings is 879,740 sq.m.

Please note that data above refer to the total for the projects, irrespective of how much has been financed with Green Loans. For both residential and non-residential building projects the reference to the Swedish building regulation is to the regulation in force upon approval of the project, either national building regulation BBR 21, until March 2018, or BBR 25, from March 2018 until May 2021, and BBR 29 from June 2021.

PROJECTS

Green buildings: Projects approved in 2021

Borrower	Project ID	Sub-category	Project description	Construction period ending	Kommuninvest share of financing, %	Committed amount, SEK million	Disbursed amount, SEK million	Estimated annual impact, Kommuninvest share		
								Renewable energy generation, MWh	Energy savings, MWh	GHG-emissions reduced/avoided, tCO ₂ e
Oxelösund Municipality	1073	New buildings	New construction of specialty housing with a focus on low energy use.	2021	100%	60	60	0	94	8
Torsby Bostäder AB	1076	New buildings	New multi-family housing with a focus on reducing climate impact in construction and using sustainable materials.	2021	66%	40	40	0	39	12
Karlskrona Municipality	1083	Energy efficiency	Energy efficiency project where heat recovery from excess heat from refrigerators and installation of heat pump heaters for hot water preparation have contributed to significant energy savings.	2021	0%	0	0	n/a	n/a	n/a
Karlskrona Municipality	1084	Energy efficiency	Energy efficiency project based on heat recovery from the exhaust air in school kitchen ventilation. Resulting in significant energy savings in building subsystems.	2021	0%	3	0	n/a	n/a	n/a
Bostadsstiftelsen Platen	1091	New buildings	Newly multi-family housing with a focus on low energy use, e.g. by recycling wastewater heat and optimizing ventilation.	2022	95%	275	262	0	104	10
Borås City	1093	New buildings	Multi-family housing using wood throughout. In addition to a wooden frame, the interior walls of the apartments are formed by the inside of the frame, reducing the need for material such as plasterboards that is normally used as cladding of the walls.	2015	0%	73	0	n/a	n/a	n/a
Kristinehamns-bostäder AB	1094	New buildings	New multi-family housing with a focus on low energy use and sustainable materials. Green roofs on ancillary buildings and local management of stormwater.	2022	45%	100	50	5	59	6

Complete project-by-project-reporting in spreadsheet format is available in the impact reporting section for Green Bonds at kommuninvest.se

PROJECTS

Green buildings: Projects approved in 2021

Borrower	Project ID	Sub-category	Project description	Construction period ending	Kommuninvest share of financing, %	Committed amount, SEK million	Disbursed amount, SEK million	Estimated annual impact, Kommuninvest share		
								Renewable energy generation, MWh	Energy savings, MWh	GHG-emissions reduced/avoided, tCO ₂ e
EBA, Emmaboda Bostads AB	1095	New buildings	New multi-family housing with a focus on low energy use.	2021	94%	60	60	0	61	19
Karlsborgsbostäder AB	1098	New buildings	New housing for the elderly. Solar cells installed.	2021	87%	50	45	19	80	25
Karlshamnshälsö AB	1103	Greater renovations	Improving energy efficiency through installation of solar cells, replacement of ventilation units and connection to control and regulation equipment. Also replacement of district heating substations, culverts and thermostats.	2020	100%	6	6	16	808	117
Karlshamnshälsö AB	1104	Greater renovations	Improving energy efficiency through installation of solar cells, replacement of ventilation units and connection to control and regulation equipment. Also replacement of district heating substations, culverts and thermostats.	2020	94%	3	2	28	165	21
Karlshamnshälsö AB	1105	Greater renovations	Improving energy efficiency through installation of solar cells, replacement of ventilation units and connection to control and regulation equipment. Also replacement of district heating substations, culverts and thermostats. This project also includes new geothermal heating integrated with the existing solar panel system.	2020	100%	2	2	51	140	44
Finnvedsbostäder AB	1107	New buildings	New multi-family houses built according to Miljöbyggnad silver. Miljöbyggnad (Environmental Building) Silver, careful choice of construction materials, rooftop solar cells and sedum plants.	2019	100%	28	28	5	16	2

Complete project-by-project-reporting in spreadsheet format is available in the impact reporting section for Green Bonds at kommuninvest.se

PROJECTS

Green buildings: Projects approved in 2021

Borrower	Project ID	Sub-category	Project description	Construction period ending	Kommuninvest share of financing, %	Committed amount, SEK million	Disbursed amount, SEK million	Estimated annual impact, Kommuninvest share		
								Renewable energy generation, MWh	Energy savings, MWh	GHG-emissions reduced/avoided, tCO ₂ e
Finnvedsbostäder AB	1108	New buildings	New multi-family houses built according to Miljöbyggnad silver. Miljöbyggnad (Environmental Building) Silver, careful choice of construction materials, rooftop solar cells and sedum plants.	2019	15%	118	18	5	11	1
Finnvedsbostäder AB	1110	New buildings	New multi-family houses built according to Miljöbyggnad silver. Miljöbyggnad (Environmental Building) Silver, careful choice of construction materials, rooftop solar cells and sedum plants.	2019	100%	36	36	5	19	2
Finnvedsbostäder AB	1112	New buildings	New multi-family houses built according to Miljöbyggnad silver. Miljöbyggnad (Environmental Building) Silver, careful choice of construction materials, rooftop solar cells and sedum plants.	2019	100%	97	97	5	65	8
Finnvedsbostäder AB	1114	New buildings	New multi-family houses built according to Miljöbyggnad silver. Miljöbyggnad (Environmental Building) Silver, careful choice of construction materials, rooftop solar cells and sedum plants.	2018	100%	30	30	3	15	2
Mariestad Municipality	1115	New buildings	New construction of preschool with a focus on low energy use and energy self-sufficiency. Energy from solar cells is stored in hydrogen for used during the autumn/winter.	2022	100%	85	85	30	103	32
Gävle Municipality	1118	New buildings	New construction of apartment buildings with a focus on low climate impact and energy performance. The buildings are dressed i.a. with wood paneling and solar cells installed on the roofs.	2023	63%	400	250	0	230	23

Complete project-by-project-reporting in spreadsheet format is available in the impact reporting section for Green Bonds at kommuninvest.se



Kumla

CASE: GREEN BUILDINGS

Halving energy use in 1960s building

Reducing energy use in a building by more than 50 percent typically means reviewing all options for achieving efficiencies. Many of these can now be found in a residential housing block in Kumla built in the 1960s.

92 apartments in two apartment blocks have been completely overhauled, including new windows and a new FTX ventilation system, resulting in improved air tightness in the building. Additional insulation of exterior walls and other critical parts of the core construction contribute to reducing energy use. All installations have been replaced in order to streamline the distribution of energy, new radiators have been installed and there are now solar cells on the roofs. The buildings now consume 25 percent less energy than the requirements for new similar buildings in Sweden.

Client: Kumla Bostäder AB (Kumla Municipal Housing Company)

Project category:

Green buildings – energy efficiency

Objectives: Significantly reduce energy use in 1960s residential building block, in connection with necessary upgrade to prolong technical life

Total investment:

SEK 155 million

Green loans from Kommuninvest (committed):

SEK 155 million

Green loans from Kommuninvest (disbursed amounts):

SEK 155 million

Completed (year):

2022

Total energy use/year (Atemp), BEFORE implemented measures

110 kWh/m²

Total energy use/year (Atemp), AFTER implemented measures

55 kWh/m²

Estimated CO₂ emissions reductions (in use):

40 tCO₂e a year

PROJECTS

Green buildings: Projects approved in 2021

Borrower	Project ID	Sub-category	Project description	Construction period ending	Kommuninvest share of financing, %	Committed amount, SEK million	Disbursed amount, SEK million	Estimated annual impact, Kommuninvest share		
								Renewable energy generation, MWh	Energy savings, MWh	GHG-emissions reduced/avoided, tCO ₂ e
Ramunderstaden AB	1127	New buildings	New multi-family housing where rooftop solar energy production is stored in batteries to be used as household electricity for tenants.	2021	0%*	54	0	n/a	n/a	n/a
Norra Dalarnas Fastighets AB	1128	New buildings	New construction of energy-efficient apartments, wood construction.	2022	0%*	36	0	n/a	n/a	n/a
Bengtsforshus AB	1133	New buildings	New construction of multi-family housing and premises for public dental care. Parts of the houses have a wooden frame and have been built with low energy performance and low climate impact in mind.	2021	80%	40	40	0	24	2
AB Väsbyhem	1136	New buildings	New multi-family housing with a focus on low energy use.	2022	97%	408	398	0	166	20
AB Vingåkershem	1138	New buildings	New multi-family housing with wooden frame and geothermal heating.	2021	67%	18	12	0	8	2
Hammarö Municipality	1140	New buildings	New school built according to Miljöbyggnad (Environmental Building) Silver, with careful choice of construction materials and rooftop solar cells.	2021	0%*	87	0	n/a	n/a	n/a
Kil Municipality	1141	New buildings	New school with low energy use and careful choice of construction materials. Sedum on roof.	2021	0%	190	0	n/a	n/a	n/a
Kkl Fastigheter AB	1143	New buildings	New construction of public service building, built according to Miljöbyggnad (Environmental Building) Gold. Geothermal heating, rooftop solar cells and sedum roof.	2023	64%	234	150	7	156	26

* This project forms part of a portfolio for the same customer, where the total committed amount is not fully utilized and the disbursed financing is allocated to other project(s) in the portfolio. Hence, this project has no reported impact.

Complete project-by-project-reporting in spreadsheet format is available in the impact reporting section for Green Bonds at kommuninvest.se

PROJECTS

Green buildings: Projects approved in 2021

Borrower	Project ID	Sub-category	Project description	Construction period ending	Kommuninvest share of financing, %	Committed amount, SEK million	Disbursed amount, SEK million	Estimated annual impact, Kommuninvest share		
								Renewable energy generation, MWh	Energy savings, MWh	GHG-emissions reduced/avoided, tCO ₂ e
Kumla Bostäder AB	1147	New buildings	New production of apartments through extensions to existing buildings. Careful choice of materials (SundaHus) and rooftop solar cells.	2022	100%	60	60	5	66	6
Kumla Bostäder AB	1148	Greater renovations	Renovation of apartment buildings with a reduction in energy use by > 50% as a result.	2022	100%	155	155	4	476	40
Älmhult Municipality	1151	New buildings	New school with low energy use. Roof partly with sedum plants, partly solar cells.	2022	0%	245	0	n/a	n/a	n/a
Eskilstuna Municipality	1158	New buildings	Energy efficient new construction built according to Miljöbyggnad (Environmental Certification) Gold.	2018	0%*	347	0	n/a	n/a	n/a
Vara Municipality	1159	New buildings	Reconstruction and new construction of primary school with modern technology for control of heating and ventilation.	2018	0%	51	0	n/a	n/a	n/a
Vara Municipality	1161	New buildings	New construction of high school with a focus on low energy use.	2018	0%	58	0	n/a	n/a	n/a
Vara Municipality	1162	New buildings	Renovation and extension of upper secondary school with a focus on low energy use	2019	0%	49	0	n/a	n/a	n/a
Vara Municipality	1163	New buildings	New building for culture and conference with a focus on low energy use.	2019	0%	85	0	n/a	n/a	n/a
Eskilstuna Municipality	1164	New buildings	Newly built short-term housing with i.a. preheating of ventilation air with the help of borehole energy and installation of solar cells	2022	0%*	230	0	n/a	n/a	n/a

* This project forms part of a portfolio for the same customer, where the total committed amount is not fully utilized and the disbursed financing is allocated to other project(s) in the portfolio. Hence, this project has no reported impact.

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PROJECTS

Green buildings: Projects approved in 2021

Borrower	Project ID	Sub-category	Project description	Construction period ending	Kommuninvest share of financing, %	Committed amount, SEK million	Disbursed amount, SEK million	Estimated annual impact, Kommuninvest share		
								Renewable energy generation, MWh	Energy savings, MWh	GHG-emissions reduced/avoided, tCO ₂ e
Lidköping Municipality	1167	New buildings	New preschool designed for low energy use.	2020	3%	44	1	0	1	0
Äle Municipality	1168	New buildings	New preschool build according to non-toxic guidelines from the Swedish Society for Nature Conservation. Certification according to Miljöbyggnad (Environmental Building) Silver and Passive House standard FEBY 18 Gold.	2022	0%*	86	0	n/a	n/a	n/a
Eskilstuna Municipality	1169	New buildings	New construction of dementia housing with low energy use and rooftop solar cells.	2022	30%	246	75	6	78	9
Lidköping Municipality	1170	New buildings	Energy efficiency project expected to reduce energy use by more than half after implemented measures.	2022	100%	143	143	6	369	38
Lidköping Municipality	1171	New buildings	New construction of dementia housing with low energy use and rooftop solar cells.	2023	100%	175	175	6	340	39
Lidköping Municipality	1172	New buildings	New building with certification according to Miljöbyggnad (Environmental Building) Silver. Low energy use and installation of solar cells	2020	100%	9	9	7	12	1
Lidköping Municipality	1173	Greater renovations	Renovation and extension of existing building. Installation of solar cells and replacement of pellet boiler for geothermal heat pumps.	2019	100%	43	43	11	400	13
Eskilstuna Municipality	1174	New buildings	New construction of three low-energy house, based on the Kombo Mini housing concept developed by the Swedish Association of Public Housing Companies.	2018	0%*	46	0	n/a	n/a	n/a

* This project forms part of a portfolio for the same customer, where the total committed amount is not fully utilized and the disbursed financing is allocated to other project(s) in the portfolio. Hence, this project has no reported impact.

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PROJECTS

Green buildings: Projects approved in 2021

Borrower	Project ID	Sub-category	Project description	Construction period ending	Kommuninvest share of financing, %	Committed amount, SEK million	Disbursed amount, SEK million	Estimated annual impact, Kommuninvest share		
								Renewable energy generation, MWh	Energy savings, MWh	GHG-emissions reduced/avoided, tCO ₂ e
Lidköping Municipality	1175	Greater renovations	Renovation of the Fredriksdal school with a focus on energy efficiency and production of solar energy.	2021	100%	37	37	8	90	6
Lidköping Municipality	1176	Greater renovations	Renovation of the Ågården nursing home and preschool with a focus on energy efficiency. Installation of solar cells, improved climate shell and improving efficiency in heating and ventilation systems.	2019	100%	100	100	11	372	62
AB Stora Tunabyggen	1177	New buildings	New multi-family housing with measures to achieve low energy performance.	2021	0%	161	0	n/a	n/a	n/a
Sala Municipality	1183	New buildings	New school, certification according to Miljöbyggnad (Environmental Building) Silver, careful choice of construction materials. Wooden frame, brick facade and rooftop solar cells.	2020	0%*	179	0	n/a	n/a	n/a

* This project form part of a portfolio for the same customer, where the total committed amount is not fully utilized and the disbursed financing is allocated to other project(s) in the portfolio. Hence, this project has no reported impact.

Complete project-by-project-reporting in spreadsheet format is available in the impact reporting section for Green Bonds at kommuninvest.se



Mariestad

CASE: GREEN BUILDINGS

Going self-sufficient with solar energy and hydrogen

In order to meet the needs of a growing population and the city's sustainable transition objectives, the municipality of **Mariestad** has built the first preschool in Sweden designed to be disconnected from the electricity network, except for peak demand situations.

Rooftop solar cells generate most of the energy needs for the building, with the excess electricity used to produce hydrogen, which is stored externally on the premises. During the winter months, the hydrogen is converted into electrical energy that is used for operation and heating. At certain times in the year, it may be necessary to use the grid for the school kitchen.

After deducting energy produced on-site, energy consumption is estimated at 0.1 kWh per sq.m. Building code requirements for a similar traditional building is >100 kWh per sq.m.

Client: Mariestads kommun (Municipality of Mariestad)

Project category:

Green buildings

Objectives: Preschool powered by solar energy, deploying hydrogen storage to balance seasonal energy demands.

Total investment:

SEK 85 million

Green loans from Kommuninvest (committed):

SEK 85 million

Green loans from Kommuninvest (disbursed):

SEK 85 million

Completed (year):

2022

Total energy use/year:

0.1 kWh/m²

Total energy requirement (BBR25, Atemp):

103 kWh/m²

Estimated CO₂ emissions savings (in use):

32 tonnes CO₂ e per year

PROJECTS

Clean transportation

Transport solutions that result in minimal or zero emissions. Project examples may include trains, underground, trams and hybrid buses. Also infrastructure supporting public transportation and other sustainable transportation, such as pedestrian and cycle paths, charging points for electric vehicles and fueling stations for renewable fuels.

Green loans to clean transportation

Total number of projects:

19

Total amounts disbursed and outstanding:

3,264 MSEK

Estimated annual impact of Green Loans¹

Greenhouse gas emissions avoided, per year:

16,632 tonnes CO₂e

1) Refers to the Green Loan share of project impacts. The impact attributable to Green Bond investors is presented on page 3.



PROJECTS

Clean transportation: Projects approved in 2021

Borrower	Project ID	Project description	Construction period ending	Kommuninvest share of financing, %	Committed amount, SEK million	Disbursed amount, SEK million	Estimated annual impact, Kommuninvest share	
							Renewable energy generation, MWh	GHG-emissions reduced/avoided, tCO ₂ e
AB Transitio	1150	Investment in seven new larger regional train sets, replacing five older trains. The added capacity is expected to increase the number of passengers by 10 percent compared to 2019 levels.	2025	34%	770	265	n/a	51
Eskilstuna Municipality	1157	New train depot allowing increased capacity for train journeys. Estimated that new depot has enabled 1.5 million additional train journeys, an increase of approximately 20 percent.	2018	0%	617	0	n/a	n/a
Lidköping Municipality	1187	Installation of charging infrastructure in nursing homes to enable the conversion of the home care vehicle fleet to electric cars.	2021	0%	1	0	n/a	n/a

Complete project-by-project-reporting in spreadsheet format is available in the impact reporting section for Green Bonds at kommuninvest.se

PROJECTS

Waste management

Investments are intended to ensure sustainable, energy efficient and resource-saving waste management. Eligible projects include the construction of new waste management facilities, upgrades/expansion of existing ones; waste collection systems that minimise transport requirements and increase recycling scope, etc.

Green loans to Renewable energy

Total number of projects:

16

Total amounts disbursed and outstanding:

273 MSEK

Estimated annual impact of Green Loans¹

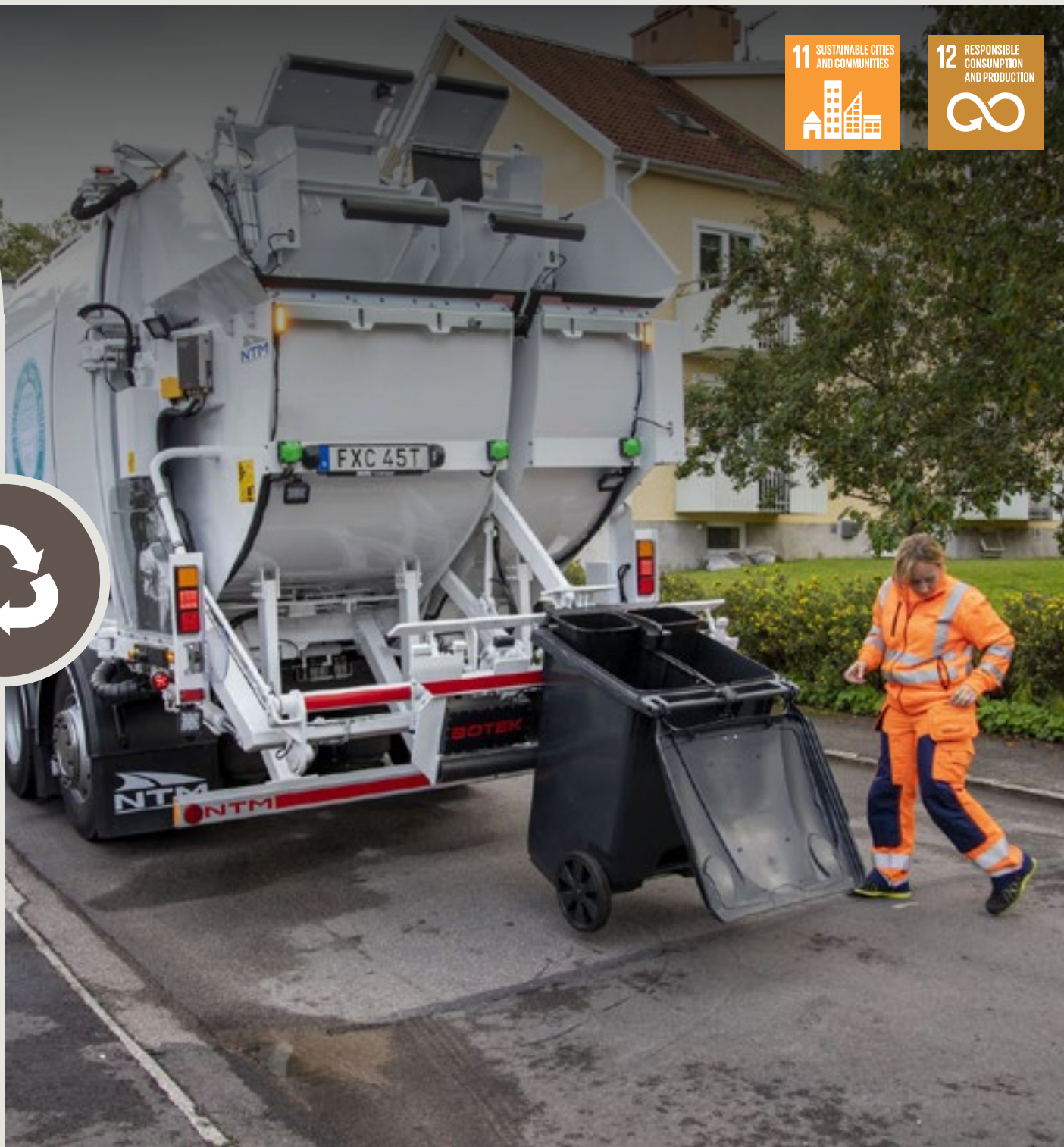
Increase in capacity:

n/a

Greenhouse gas emissions reduced and avoided, per year:

1,219 tonnes CO₂e

1) Refers to the Green Loan share of project impacts. The impact attributable to Green Bond investors is presented on page 3.



PROJECTS

Waste management: Projects approved in 2021

Borrower	Project ID	Project description	Construction period ending	Kommuninvest share of financing, %	Committed amount, SEK million	Disbursed amount, SEK million	Estimated annual impact, Kommuninvest share	
							Renewable energy generation, MWh	GHG-emissions reduced/avoided, tCO ₂ e
Sydnärkes kommunal-förbund	1116	New recycling center for waste recycling. Through increased fraction sorting, the unsorted waste quantities are estimated to decrease by 20 percent.	2018	0%*	34	0	n/a	n/a
Sydnärkes kommunal-förbund	1144	New recycling center to enable increased fraction sorting of waste by up to 20 percent.	2018	0%*	24	0	n/a	n/a
Sydnärkes kommunal-förbund	1145	New recycling center to enable increased fraction sorting of waste by up to 20 percent.	2018	0%*	34	0	n/a	n/a
Sydnärkes kommunal-förbund	1152	Acquisition of a recycling center for waste recycling. Through increased fraction sorting, the unsorted waste quantities are estimated to decrease by 20 percent.	2021	99%	25	25	n/a	n/a
Nybro Värmecentral AB	1156	New waste recycling facility that annually processes approx. 60,000 tonnes of locally collected residual waste. Through crushing and subsequent metal separation, approximately 1,500 tonnes of metals can be recycled from the residual waste.	2021	0%	107	0	n/a	n/a
Lidköping Municipality	1179	Introduction of complete waste sorting in municipally owned properties, e.g. through the expansion of facilities and capacity for sorting in recyclable fractions.	2021	0%	5	0	n/a	n/a

* This project forms part of a portfolio for the same customer, where the total committed amount is not fully utilized and the disbursed financing is allocated to other project(s) in the portfolio. Hence, this project has no reported impact.

Complete project-by-project-reporting in spreadsheet format is available in the impact reporting section for Green Bonds at kommuninvest.se



Askersund,
Hallsberg, Laxå
and Lekeberg.

CASE: WASTE MANAGEMENT

Climbing the waste hierarchy

Sydnärke Municipal Waste Management Association is responsible for waste management in four member municipalities in southern Sweden: **Askersund, Hallsberg, Laxå and Lekeberg**. The association has recently invested in upgrades to its four recycling centers.

Promoting reuse and recycling, with the aim of moving higher up the waste hierarchy, the upgrades are expected to increase the recycling rate by 20 percent, principally by sorting into more fractions. This corresponds to improved circularity for 1,555 tons of unsorted waste yearly. The projects also includes establishment of second-hand retail sales within the recycling centers, as well as plans for recycling of building materials. Households with a garbage subscription can leave their bulky waste at any of these recycling centers free of charge.

To allow access 24/7, the gates can be opened after hours through scanning of citizens' driving licenses. Access is permitted after attending an onsite recycling course. To maintain a high level of recycling quality the facilities are monitored by cameras and visitors that do not comply with instructions risk getting barred from access to the facility.

Client: Sydnärkes Kommunalförbund (Sydnärke Municipal Water and Waste Management Association).

Project category:

Waste management

Objectives: Increase of reuse and recycling

Total investment:

SEK 117 million

Green loans from Kommuninvest
(committed):

SEK 117 million

Green loans from Kommuninvest
(disbursed amounts):

SEK 25 million

Completed (year):

2021

PROJECTS

Water and waste-water management

Construction and upgrading of freshwater and wastewater systems to accommodate population growth and higher precipitation levels and to meet environmental regulations. Project that apply innovative technologies to reduce levels of harmful substances and make good use of the resources contained in wastewater. Examples: water and wastewater networks, water treatment plants, treatment of discharges to watercourses, and investment in energy and heat recovery from water and wastewater networks.

Green loans to water and wastewater management

Total number of projects:

81

Total amounts disbursed and outstanding:

9,084 MSEK

Estimated annual impact of Green Loans¹

Increase in capacity:

173,495 | 388,258 PE

1) Refers to the financed vs. total impact of the financed projects, and where we have access to such data (40 out of 81 financed projects).



PROJECTS

Water and wastewater management: Projects approved in 2021

Borrower	Project ID	Project description	Construction period ending	Kommuninvest share of financing, %	Committed amount, SEK million	Disbursed amount, SEK million	Estimated annual impact, Kommuninvest share		
							Renewable energy gener. MWh	GHG-emissions reduced/avoided, tCO ₂ e	Population equivalents change
Trollhättan Energi AB	1032	Expansion of municipal water supply and sewerage network to secure water supply and reduce environmental impact of individual sewers on Lake Trehörningen.	2022	100%	44	44	n/a	n/a	432
Trollhättan Energi AB	1033	Improved sludge management and increased bio-treatment in municipal sewage treatment plant. Previous sludge handling took place in rock chambers but is now on ground level, resulting in reduced number of sludge transports, improving the working environment and ensuring more stable operations. Increased bio-treatment expected to reduce environmental impact on the recipient.	2022	0%*	115	0	n/a	n/a	n/a
Trollhättan Energi AB	1038	Replacement of older sewerage networks to separate pipe systems for wastewater and stormwater. This reduces the risk of flooding in pumping stations and sewage treatment plants, in turn contributing to reduced environmental impact on the recipient. Also reduced risk of flooding in buildings.	2019	0%*	24	0	n/a	n/a	n/a
Strängnäs Municipality	1092	Decommissioning of sewage treatment plant, replacing with a transmission pipe to an existing plant. The sludge management in the receiving plant rebuilt to ensure capacity, meet permit requirements and prepare for future stricter treatment conditions.	2025	20%	350	70	6 692	1,861	4,018
Falköping Municipality	1099	Climate adaptation of wastewater piping infrastructure by replacing older sewage networks with separate wastewater and stormwater piping systems. This reduces risk of flooding in pumping stations and sewage treatment plants, thus reducing environmental impact on the recipient. Also reduced risk of flooding in buildings.	2021	92%	25	25	n/a	n/a	646
Falköping Municipality	1100	Climate adaptation of wastewater piping infrastructure by replacing older sewage networks with separate wastewater and stormwater piping systems. This reduces risk of flooding in pumping stations and sewage treatment plants, thus reducing environmental impact on the recipient. Also reduced risk of flooding in buildings.	2021	90%	31	30	n/a	n/a	9
Falköping Municipality	1101	Climate adaptation of wastewater piping infrastructure by replacing older sewage networks with separate wastewater and stormwater piping systems. This reduces risk of flooding in pumping stations and sewage treatment plants, thus reducing environmental impact on the recipient. Also reduced risk of flooding in buildings.	2019	93%	10	10	n/a	3	n/a

* This project forms part of a portfolio for the same customer, where the total committed amount is not fully utilized and the disbursed financing is allocated to other project(s) in the portfolio. Hence, this project has no reported impact.

Complete project-by-project-reporting in spreadsheet format is available in the impact reporting section for Green Bonds at kommuninvest.se

PROJECTS

Water and wastewater management: Projects approved in 2021

Borrower	Project ID	Project description	Construction period ending	Kommuninvest share of financing, %	Committed amount, SEK million	Disbursed amount, SEK million	Estimated annual impact, Kommuninvest share		
							Renewable energy gener. MWh	GHG-emissions reduced/avoided, tCO ₂ e	Population equivalents change
Falköping Municipality	1102	Closure of older sewage treatment plant with an unsatisfactory degree of treatment. Previous sewage pipes are being replaced with separate pipe networks for stormwater and wastewater. The wastewater is pumped via transmission lines to another existing treatment plant with a better degree of treatment. Also reduces the risk of overflow of untreated wastewater.	2022	91%	26	26	n/a	n/a	n/a
Orust Municipality	1106	Renovation and expansion of sewage treatment plant to replace six older plants within the same catchment area. Former plants replaced with new pumping stations and pipe networks. The expanded plant will be supplemented with a new nitrogen treatment step.	2025	0%	200	0	n/a	n/a	n/a
Borlänge Energi AB	1119	Expansion of municipal water supply and sewerage system in an area near Lennheden water source, in order to protect Borlänge and Falun's joint water source from long-term contamination caused by individual sewage systems.	2024	75%	210	210	n/a	n/a	n/a
Trollhättan Energi AB	1120	Expansion of sewage treatment plants to meet higher treatment requirements for a growing city. The project focuses mainly on the expansion of nitrogen purification steps but also complements the mechanical and chemical purification steps. The expansion provides redundancy in wastewater treatment as well as increased operational reliability and reduced emissions of nitrogen, phosphorus and BOD.	2026	94%	129	121	n/a	n/a	n/a
Trollhättan Energi AB	1121	Replacement of older sewerage networks to separate pipe systems for wastewater and stormwater. When stormwater is treated separately from the wastewater, the amount of additional water and the risk of flooding in pumping stations and sewage treatment plants decreases, reducing environmental impact on the recipient. Also reduces risk of flooding in buildings.	2022	100%	2	2	n/a	n/a	n/a
Trollhättan Energi AB	1122	Replacement of older sewerage networks to separate pipe systems for wastewater and stormwater. When stormwater is treated separately from the wastewater, the amount of additional water and the risk of flooding in pumping stations and sewage treatment plants decreases, reducing environmental impact on the recipient. Also reduces risk of flooding in buildings.	2026	100%	119	119	n/a	n/a	n/a

Complete project-by-project-reporting in spreadsheet format is available in the impact reporting section for Green Bonds at kommuninvest.se

PROJECTS

Water and wastewater management: Projects approved in 2021

Borrower	Project ID	Project description	Construction period ending	Kommuninvest share of financing, %	Committed amount, SEK million	Disbursed amount, SEK million	Estimated annual impact, Kommuninvest share		
							Renewable energy gener. MWh	GHG-emissions reduced/avoided, tCO ₂ e	Population equivalents change
Trollhättan Energi AB	1123	Replacement of older sewerage networks to separate pipe systems for wastewater and stormwater. When stormwater is treated separately from the wastewater, the amount of additional water and the risk of flooding in pumping stations and sewage treatment plants decreases, reducing environmental impact on the recipient. Also reduces risk of flooding in buildings.	2022	100%	3	3	n/a	n/a	n/a
Trollhättan Energi AB	1124	Replacement of older sewerage networks to separate pipe systems for wastewater and stormwater. When stormwater is treated separately from the wastewater, the amount of additional water and the risk of flooding in pumping stations and sewage treatment plants decreases, reducing environmental impact on the recipient. Also reduces risk of flooding in buildings.	2024	100%	36	36	n/a	n/a	n/a
Trollhättan Energi AB	1125	Replacement of older sewerage networks to separate pipe systems for wastewater and stormwater. When stormwater is treated separately from the wastewater, the amount of additional water and the risk of flooding in pumping stations and sewage treatment plants decreases, reducing environmental impact on the recipient. Also reduces risk of flooding in buildings.	2031	100%	13	13	n/a	n/a	n/a
Karlskrona Municipality	1126	New sewage treatment plant to replace plants exceeding the emission requirements for BOD7 and phosphorus. The load on the recipient is estimated to decrease by 20 percent.	2023	0%	45	0	n/a	n/a	n/a
Karlskrona Municipality	1142	Rerouting of stormwater culvert that previously passed through a closed landfill. In connection with the conversion, contaminated excavated masses are also handled.	2022	0%	20	0	n/a	n/a	n/a
Arvika Teknik AB	1149	Project addressing both freshwater and wastewater, including new transmission line for freshwater for more stable quality and better climate adaptation. The project also includes the decommissioning of two smaller freshwater plants with reduced chemical and energy use as a result. Transmission line for wastewater that enables the decommissioning of a smaller wastewater treatment plant.	2023	93%	28	28	n/a	n/a	-513
Kalmar Vatten AB	1160	Reinvestments and investments in water and wastewater treatment systems, with the goal of reducing water use in the treatment process, reducing emission levels regarding chemicals and providing safe delivery of high quality drinking water.	2020	100%	157	157	n/a	n/a	n/a
Kalmar Vatten AB	1186	Investment in facilities for water production, water distribution and wastewater treatment such as upgrading of existing waterworks, water reservoirs, infiltration wells, investments in existing wastewater treatment plants and pumping stations.	2020	100%	90	90	n/a	n/a	n/a

Complete project-by-project-reporting in spreadsheet format is available in the impact reporting section for Green Bonds at kommuninvest.se

PROJECTS

In-depth analysis into the green benefits of water projects

Better access to quantitative data regarding the climate and environmental benefits associated with freshwater and wastewater projects is a priority for Kommuninvest. As of 2021, we have revised Green Loan application forms to include a range of relevant quantitative information before/after the investment project and seek to include such information in our reporting. The data presented here are the result of an in-depth analysis conducted in 2019, to which has been added information obtained during 2020 and 2021. Reporting is confined to those projects which have been capable of demonstrating quantitative data before and after the investment.

Project objective (multiple responses possible)	# of projects
Add capacity	27
Comply with new purification requirements	27
Replace individual drains	16

	BEFORE investment	AFTER investment	INCREASE (+) DECREASE (-)	%	Reported share of impact
Number of person equivalents supplied by the facility, PE	1,169,841	1,558,099	388,258	33%	173,495
<i>Number of projects included in this reporting</i>	<i>40</i>	<i>40</i>	<i>40</i>		<i>40</i>
Freshwater production					
Annual volume of freshwater treated, m ³	38,642,230	50,808,478	12,166,248	31%	6,306,819
<i>Number of projects included in this reporting (per PE)</i>	<i>14</i>	<i>14</i>	<i>14</i>		<i>14</i>
Energy consumption per m ³ of freshwater supplied, kWh*	0.40	0.61	0.21	52%	0.12
<i>Number of projects included in this reporting</i>	<i>14</i>	<i>14</i>	<i>14</i>		<i>14</i>
Electricity production on-site, kWh per year	777,250	941,400	164,150	21%	133,261
<i>Number of projects included in this reporting</i>	<i>5</i>	<i>5</i>	<i>0</i>		<i>5</i>
Sewage treatment and measures to reduce bridges/leaks					
Nitrogen, emissions of, kg per year	1,105,341	838,631	-266,710	-24%	-163,938
<i>Number of projects included in this reporting</i>	<i>22</i>	<i>22</i>	<i>22</i>		<i>22</i>
Phosphorus, emissions of, kg per year	26,956	19,355	-7,601	-28%	-3,224
<i>Number of projects included in this reporting</i>	<i>21</i>	<i>21</i>	<i>21</i>		<i>21</i>
Oxygen-consuming substances, BOD, kg per year	604,735	472,813	-131,922	-22%	-65,626
<i>Number of projects included in this reporting</i>	<i>21</i>	<i>21</i>	<i>21</i>		<i>21</i>
Annual volume of wastewater treated, m ³	106,875,491	146,834,759	39,959,268	37%	12,816,251
<i>Number of projects included in this reporting (per PE)</i>	<i>21</i>	<i>21</i>	<i>21</i>		<i>21</i>
Energy consumption per m ³ of wastewater treated, kWh*	1.17	0.91	-0.27	-23%	-0.13
<i>Number of projects included in this reporting</i>	<i>17</i>	<i>17</i>	<i>17</i>		<i>17</i>
Electricity production on-site, kWh per year	0	111,967	111,967	n/a	21,967
<i>Number of projects included in this reporting</i>	<i>3</i>	<i>3</i>	<i>3</i>		<i>3</i>
Production of biogas, m ³ per year	6,110,879	7,371,804	1,260,925	21%	535,706
(of which upgraded to vehicle fuel, m ³ per year)	2,219,056	2,240,273	21,217	1%	-47,876
<i>Number of projects included in this reporting</i>	<i>10 (3)</i>	<i>10 (3)</i>	<i>10 (3)</i>		<i>10 (3)</i>

* Gross, excluding electricity production on-site



Trollhättan

CASE: WATER MANAGEMENT

Reducing environmental impact and flooding risk in water management systems

In **Trollhättan**, a long-term water management plan is being implemented. Among the objectives: to reduce the effluents from wastewater by more than half and to reduce the direct rain impact on sewage treatment plants. The latter is achieved by reducing the surface runoff areas connected to the wastewater system. Green Loans finance these projects.

They include replacing a combined sewage pipe network which currently manages both wastewater and stormwater jointly. The new system, where wastewater is separated from stormwater, reduces the amount of water in the system and the risk of overflows in pumping stations and sewage treatment plants. This reduces environmental impact on the recipient, but also the risk of flooding in buildings.

In addition, the city's wastewater treatment plant is rebuilt and expanded, to meet expected growth and new, stricter environmental requirements. With a complementary nitrogen purification and increased mechanical and chemical purification steps, the expansion brings both redundancy, increased operational reliability and reduced emissions of nitrogen, phosphorus and oxygen-consuming substances to the recipient.

Client: Trollhättan Energi AB (Trollhättan Municipal Energy Company)

Project category:

Water management

Objectives: Reducing overflows of untreated wastewater and impact on the recipient, reducing risk of flooding, increasing operational reliability.

Total investment:

SEK 301 million

Green loans from Kommuninvest (committed):

SEK 301 million

Green loans from Kommuninvest (disbursed amounts):

SEK 293.5 million

Completed (year):

2024-2031

PROJECTS

Climate change adaptation

Investments in this category are intended to improve local adaptation to climate change. This includes facilities and installations to manage urban runoff, floods, land-slides, avalanches, rising sea levels, and other challenges due to changed weather and climate conditions. Measures undertaken may be related to buildings, infrastructure and sensitive surroundings.

Green loans to climate change adaptation

Total number of projects:

1

Total amounts disbursed and outstanding:

16 MSEK

Estimated annual impact of Green Loans

Increase in capacity:

n/a



PROJECTS

Environmental management

This category covers a range of projects that intend to ensure sustainable land use. This may include projects such as restoration of biodiversity, planting forests, cleaning up of harmful substances, developing land into recreational space, facilitating walking, cycling and public transportation solutions. Measures may include nature conservation and improving eco-system services.

Green loans to environmental management

Total number of projects:

8

Total amounts disbursed and outstanding:

246 MSEK

Estimated annual impact of Green Loans¹

Land remediated/decontaminated/regenerated, ha: 54

1) Refers to the Green Loan share of project impacts. The impact attributable to Green Bond investors is presented on page 3.





Impact reporting methodology

Introduction

The purpose of this impact report is to illustrate the climate and environmental impacts that have resulted or are projected to result from projects financed through the Kommuninvest Green Bonds Framework. Kommuninvest is committed to transparent reporting and conservative assessments when reporting these results.

As of 31 December 2021, Kommuninvest had financed Eligible Projects in all eight Framework project categories: Renewable energy; Energy efficiency in energy systems; Green buildings and energy efficiency; Clean transportation; Waste management; Water and wastewater management; Climate change adaptation and Environmental management.

Investments in the first five of these categories typically lead to direct reductions in greenhouse gas emissions, primarily through provision of

added renewable energy capacity, through establishment of more energy efficient housing or other property construction or through direct energy efficiency measures. In the case of water and waste water management, investments typically result in reducing emissions of nutrients and oxygen-consuming substances. Remaining categories target climate change adaptation and other environmental objectives including reducing leakage of toxic substances.

Interpret results with caution

A number of key result indicators including indicators targeting renewable energy generation, energy savings and reduced and avoided GHG emissions have been selected and where possible quantified. However, it is important to consider the following aspects in order to adequately interpret the reported results:

- Uncertainty and comparability: Estimations of

impact indicators and projections of impacts are based on certain assumptions. Kommuninvest aims to make sound, conservative and reasonable assumptions based on, inter alia, current information and data provided by its borrowers. Actual results may differ from initial projections as a result of unforeseen project outcomes, behavior and slow start-up periods.

- Qualitative results: The projects listed within this report may have impacts across a wider range of indicators than those included in this report. Where quantitative data is unavailable, qualitative data, to the extent possible, have been included to illustrate the type and direction of other beneficial impacts.
- Ex-ante and ex-post: Both impact analysis (*ex-ante*) and impact reporting (*ex-post*) will be used to report the impacts of a project. Kommuninvest aims to report actual results

where feasible, and has included information to that effect in the project disclosures in this report and online. As required by the Kommuninvest Green Bonds Framework, all Eligible Projects must promote the transition to a low-carbon and climate-resilient society.

Adhering to harmonised guidelines

The impact indicators focus on results deemed relevant to Green Bond investors, and seeks to be aligned with the recommendations outlined in the Nordic Position Paper¹ (see page 16).

In many respects, this means alignment also with the IFR Harmonized Framework for Impact Reporting², published by a group of international financial institutions, and with impact reporting recommendations as outlined by the Green Bond Principles³.

The indicators are intended to illustrate the type and scale of expected results in a variety of projects. It is important to note that, because of the wide range of project categories, comparability between projects (and other project portfolios) may be limited.

Calculation of climate impact

The environmental impact of Eligible Projects is calculated using actual or estimated annual impact, compared to an alternative base scenario where the investment has not taken place or where it has been completed solely meeting regulatory requirements.

The impact of reduction in greenhouse gas emissions is measured in CO₂-equivalents (CO₂e) while energy savings are measured in MWh. Other units of measurements may be used when appropriate. All project climate impact calculations are based

on the share of financing provided by Kommuninvest and the actual disbursements to the project. We report the impact of investments on an ex-ante basis, i.e. on the basis of estimates. If we have access to ex-post data, i.e. actual outcomes, we will report on these. The project-by-project disclosures indicate whether impact is reported based on estimates or actual outcomes.

Approach

The impact of Eligible Projects funded by Kommuninvest can be calculated in a number of ways:

- by reference to the reduction in energy consumption or added renewable energy capacity, and thus the greenhouse gas emissions avoided as a result of energy savings or crowding out dirtier alternatives (mitigation projects).
- the contribution made to strengthening local adaptation to climate change (adaptation projects).
- the environmental benefits achieved in other ways than through mitigation or adaptation measures (environmental management projects).

Green buildings and Renewable energy

As of 31 December 2021, 60 (60) percent of the disbursements were for Green building projects and 17 (19) percent for Renewable energy projects, project categories which are deemed greenhouse gas mitigation investments.

To calculate the climate and environmental impact, the completed project has to be compared with an alternative scenario. In some cases, it will be appropriate to consider the

investment in relation to a baseline scenario – a reference scenario in which the investment does not exist. In such cases the calculation will be as follows:

Annual climate impact = (emissions produced or energy consumed by the project in a baseline scenario) – (emissions produced or energy consumed by the project after the investment has been completed).

In other cases, for example where the project financed is a new building, the approach is to assume that the investment will be undertaken regardless but that the borrower may choose to adhere to less strict climate standards. In such instances the climate impact is calculated on the basis of an alternative scenario in which the investment meets the minimum requirements contained in the applicable building regulations. The calculation will then be as follows:

Annual climate impact = (emissions produced or energy consumed by an equivalent investment if minimum standards were followed) – (emissions produced or energy consumed by the project after the investment has been completed).

A detailed disclosure of the impact calculations deployed in this report is provided on pages 52-57.

Scope

At this stage, Kommuninvest report impact on Scope 1 and Scope 2 emissions, ie. including all direct GHG emission as well as indirect GHG emissions from consumption of purchased electricity, heat, cooling or steam.

Impact disclosed in relation

1) Nordic Public Sector Issuers: Position Paper on Green Bonds impact reporting, February 2020

2) International Financial Institutions (IFIs): Green Bonds, Working Towards a Harmonized Framework for Impact Reporting, December 2015

3) See "Handbook - Harmonized Framework for Impact Reporting, April 2020" at the Resource Centre for Green & Social Bonds at icmagroup.com

to financed portion

This report illustrates the expected or realized environmental impact made possible as a result of projects to which Green Bond proceeds have been allocated. When we report impact, we do so in relation to the share of the project's total investment cost that Kommuninvest has financed, and to amounts disbursed and outstanding to the project.

It is not uncommon that the list of financed projects included in our reporting are projects to which no Green Loans have been disbursed. This may be because clients have applied for funding for projects yet to be started, or where the client has yet to draw down on the committed funding. Alternatively, the client may intend to use the Green Loan to refinance an existing traditional loan and is awaiting maturity of the latter. In some cases, the project forms part of a portfolio for the same customer, where the total committed amount is not fully utilized and the disbursed financing is allocated to other project(s) in the portfolio. No environmental impact is reported for Green Loans where no amounts are disbursed and outstanding.

Impact per invested SEK

Measuring the impact of a green investment project in relation to the money that has been invested is a clear and simple metric to evaluate Green Bonds. While this makes it easy to compare Green Bond issues against each other, it may create a false sense of quantitative rigor, as such an approach puts faith in the precision of numbers related to uncertain environmental calculations, which in many cases are performed *ex-ante*.

Such an approach may also fail to recognize that some Green Bond frameworks are broad in scope, targeting environmental project categories that do not provide impacts measurable in CO₂. This could, for instance, be adaptation and water management projects or sustainable buildings that have other significant environmental values apart from the CO₂ avoided/reduced. For Kommuninvest, this specifically applies to the project categories Water and wastewater management, Climate change adaptation and Environmental management.

We therefore report impact per invested SEK for investment projects or project categories where the CO₂-impact is quantifiable and relevant. As stated above and for conservative purposes, we report impact based on amounts disbursed to a project. If disbursements are made gradually, environmental impact will also be taken into account gradually. In cases where no disbursements have been made to a project, the environmental benefit for that project will be recognised as zero.

A comparison of impact per invested SEK between the Renewable energy and Green building project categories indicate a considerably higher CO₂e impact for the former vs. the latter. A couple of perspectives are relevant here.

Firstly, the primary purpose of a new building is to provide a specific function as a residential or non-residential building. Energy savings are important, however not the primary objective of the investment. This is in contrast to renewable energy investments, where the energy production is in focus. Secondly, the majority of green buildings financed by Kommuninvest are heated through district heating. This means that the

major part of energy savings are calculated against a baseline of 63 kg CO₂ per MWh, instead of the 315 kg CO₂ per MWh used for electricity savings.

About baselines for CO₂ emissions

Deciding upon a baseline emission factor against which the environmental impact can be measured is important, since the chosen baseline will determine the calculated environmental benefits. Kommuninvest's choice of baselines and methodology for calculating environmental impact are aligned with the recommendations of the Nordic Position Paper.

Outlined below are the baseline choices for the two largest project categories of the Kommuninvest Green Bonds Framework: Renewable energy and Green buildings and energy efficiency. The full disclosure of baselines used in this report is available on page 53.

For electricity, Kommuninvest uses an EU Mainland grid factor including the UK and Norway as the baseline. The rationale is that a non-negligible interconnection between the Nordic countries and European energy markets exist already today and is planned to increase in the coming decades.

The baseline emission factor is constructed using a Combined Margin (CM) for the grid comprised of an existing Operating Margin (OM) and a future Build Margin (BM), as suggested by the IFI Framework for a Harmonized Approach to Greenhouse Gas Reporting⁴. However, Kommuninvest applies the same combination of the OM and BM for all projects, as recommended by the Nordic Position Paper.

For district heating⁵ systems, which are funda-

mentally local/regional and not interconnected on a national or Nordic basis, Kommuninvest has commissioned an external advisor to develop a baseline emission factor for district heating for Sweden, based on avoided mix of best available alternative heating technologies⁶. To calculate the impact and energy efficiency of buildings, the financed building is compared with the requirements of the Swedish national building code (Boverkets Byggregler, BBR).

Revised methodology for Green Buildings

As mentioned, the impact for green buildings is calculated by comparing the building's expected or actual energy consumption to a reference scenario, where the building is constructed in accordance with legal requirements. The calculation applies emission factors for electricity and district heating to the reported energy consumption for each energy carrier in the building.

For buildings approved in relation to building regulation BBR 21, the data reported to Kommuninvest refers to energy consumption in kWh. This straightforward type of reporting has changed with later updates to the regulation, BBR 25 and BBR 29. According to BBR 25 and BBR 29, the actual consumption is converted to so-called energy performance, with consideration for instance as to whether the building is heated by district heating or electricity.

Therefore, for BBR 25- and BBR 29-buildings in the portfolio, the reported values for energy consumption that Kommuninvest has received does not correspond to actual energy performance. In order to recalculate reported energy

performance values to actual energy consumption, a conversion methodology has been developed in dialogue with the Kommuninvest Environmental Committee.

During the work on this report, we have identified certain shortcomings in the impact calculation model for green buildings, which is complex. This results in an overstating of environmental impact particularly for BBR 25 and BBR 29 projects with very low energy use. For this reporting, impact for projects where the energy performance reduction, compared to the building code, exceed 95 percent has therefore been recalculated using an alternative approach. For the Green Loan portfolio as a whole, this has marginal impact (a margin of error of less than 1 percent). We will revise the model later in 2022.

Reduced and avoided emissions

Kommuninvest has applied the following approach to define whether a financed investment project results in reduced or avoided emissions.

The climate benefit for all Renewable energy projects is regarded as avoided emissions, since the production of renewable energy is considered to displace alternative more carbon-intensive energy production.

Also for Waste management projects, the climate benefit is regarded as avoided emissions, as most of the quantifiable climate benefit derives from more efficient waste management leading to increased production of biogas.

Regarding Green buildings, Kommuninvest

considers the climate benefit from new buildings as avoided emissions, as the alternative is that the building had been constructed in accordance with applicable legal requirements.

Climate benefits from energy efficiency projects and major renovations within Green buildings, on the other hand, are regarded as reduced emissions.

For the project categories Energy efficiency in energy systems and Clean transportation, the climate benefit is also regarded as reduced emissions, since the projects financed are mainly considered to result in the replacement of more carbon-intensive alternatives.

Joule conversion

In this report we use watt-hours as the energy unit, with 1 Wh being the equivalent of one watt of power expended for one hour of time. The Joule (J) conversion factor is: 1 Wh = 3.6 kJ; 1 kWh = 3.6 MJ, 1 MWh = 3.6 GJ.

4) International Financial Institution (IFI) Framework for a Harmonized Approach to Greenhouse Gas Accounting, November 2015; Green Bonds, Working Towards a Harmonized Framework for Impact Reporting, December 2015.

5) District heating is a system for distributing heat generated in a centralized location for residential and commercial heating requirements. In the Nordic countries, the heat is often obtained from a cogeneration plant burning principally renewable energy sources, including biomass, but plants also use waste and excess heat, and to a minor extent, fossil fuels. District heating plants may also be used to produce electricity (combined power and heating plants, CHP), and cooling.

6) Profu memorandum (in Swedish only): "Stöd till klimatutvärdering av gröna investeringar inom fjärrvärmeområdet - Uppdatering och utveckling 2020", March 2020. Interested parties can obtain this report by sending a request to: ir@kommuninvest.se

Baselines for CO₂ emissions

The baseline emission factors (used to calculate emissions for the alternative scenario) and project emission factors (used to calculate emissions from actual projects) are presented on the next page. Below, the considerations for electricity and district heating project are outlined.

Electricity

The highly interconnected regional electricity market is the cornerstone of the Nordic energy system, and it can serve as a key enabler for further emissions reductions in the decades ahead. It can also be expected that European energy markets will be increasingly interconnected, with energy traded cross-border to an increasing degree.

In line with the recommendations of the Nordic Position Paper, Kommuninvest has chosen an EU Mainland grid factor including

the UK and Norway as the baseline as the relevant baseline for electricity. The rationale is that the Nordic electricity market is already characterised by a high level of interconnection, also with neighboring countries in the Northern European region. Furthermore, the integration of European electricity markets is planned to increase in the coming years and decades, which is the relevant time perspective for most investments. Regardless of whether the energy balance is characterised by an export surplus or a need for imported electricity, added renewable energy capacity and reductions in energy use in the Nordic region translate into the crowding out of more carbon-intensive energy production elsewhere. Using a marginal approach for assessing the environmental benefit, rather than an average approach, is in accordance with a consequential perspective for investments.

In line with IFI recommendations⁷, the Nordic Position Paper recommends the use of a Combined Margin (CM) for the grid that is comprised of an Operating Margin (OM) and a Build Margin (BM). However, for simplicity and relevance to the Nordic context, we apply a CM of 50 per cent OM and 50 per cent BM for all relevant projects, as opposed to the IFIs which apply different combinations of the OM and BM depending on the type of project financed. The CM used in this report is 315 kg CO₂e per MWh.

District heating

In the Nordic countries, district heating (the term is explained in footnote 5 on page 51) has successfully enabled the transition from fossil fuel based heating systems to heating systems based primarily on renewable energy sources. Remaining fossil fuel use is today being gradually substituted and phased out.

7) International Financial Institution (IFI) Framework for a Harmonized Approach to Greenhouse Gas Accounting, November 2015.

The systems of district heating (and district cooling) are fundamentally local/regional and not interconnected on a national or Nordic basis. Kommuninvest has commissioned an external advisor (Profu) to develop a baseline emission factor for district heating for Sweden, based on avoided mix of alternative heating technologies. This estimated baseline figure for district heating in Sweden amounts to 96 kg/MWh, representing an avoided alternative heating mix of 4 percent biofuel boilers, 55 percent geothermal heat pumps, 17 percent air/water heat pumps, 21 percent exhaust air heat pumps and 2 percent gas boilers.

Readers are advised that this figure represents a national average for what are essentially locally based energy systems, in order to facilitate calculations. Using national averages is feasible for most investment projects financed by Kommuninvest, but local circumstances and actual changes in production mix are considered for certain projects related to increased interconnection, energy efficiency and other changes in the production mix.

For the calculation of impact, Kommuninvest compares baseline emissions with actual or expected project emissions. For district heating projects in the renewable energy category, Kommuninvest seeks to calculate project emissions based on the national average emission factor for district heating in Sweden. An additional environmental benefit of 52 kg/MWh, as a national average, is ascribed due to avoided alternative waste treatment (land fill and methane leakage). In certain cases, where financed projects target a change in fuel mix, Kommuninvest calculates impact based on local data.

For district heating projects in the energy efficiency category, we calculate project emissions based on local emissions. No additional benefit for avoided alternative waste treatment is applied.

BASELINE EMISSION FACTORS (USED TO CALCULATE ALTERNATIVE EMISSIONS SCENARIO), SCOPE 1 AND 2

Type	Emission factor	Comment
Variable electricity generation, e.g. wind and solar power projects	315 kg CO ₂ e/MWh	EU25+UK&Norway: Combined Margin (50% Operating Margin (OM) 476 kg CO ₂ e/MWh + 50% Build Margin (BM) 154 kg CO ₂ e/MWh) ¹
Firm electricity generation e.g. hydropower projects	315 kg CO ₂ e/MWh	See above
Electricity consumption from the grid, e.g. green buildings and energy efficiency projects	315 kg CO ₂ e/MWh	See above
Electricity generation in district heating projects	315 kg CO ₂ e/MWh	See above
Heat consumption from the grid, e.g. green building and energy efficiency projects	63 kg CO ₂ e/MWh	Swedish average for heating production from district heating, 2018 ²
Heat generation in district heating projects	96 kg CO ₂ e/MWh	Estimated national Swedish average for avoided alternative heating ³
Waste incineration in district heating projects	52 kg CO ₂ e/MWh	Estimated national Swedish average for avoided alternative waste treatment ⁴
Diesel (vehicle fuel)	2.7 kg CO ₂ e per liter	⁵
Passenger cars	147 gram CO ₂ e /km	Weighted forecast for average Swedish car fleet in 2021 ⁶
City buses	88 gram CO ₂ e / passenger km	Based on 12 pax average occupancy ⁷

1) Calculation by Kommuninvest in November 2019, based on IFI Interim Dataset of Harmonized Grid Factors 11.05.2019, as provided by Nordic Investment Bank.

2) Swedenergy.

3) Profu, 2020.

4) Swedenergy (calculations by Profu).

5) Swedish Energy Agency & The Swedish Construction Federation.

6) The Swedish Transport Administration, 2022.

7) Swedish Environmental Protection Agency and IVL Environmental Research Institute.

PROJECT EMISSION FACTORS (USED TO CALCULATE ACTUAL PROJECT EMISSIONS), SCOPE 1 AND 2

Type	Emission factor	Comment
Variable electricity generation, e.g. wind and solar power projects	0 kg CO ₂ e/MWh	–
Firm electricity generation, e.g. hydropower projects	0 kg CO ₂ e/MWh	–
Electricity generation in district heating projects	93 kg CO ₂ e/MWh	Swedish average for electricity production from district heating, 2019 ¹
Heating generation in district heating projects	63 kg CO ₂ e/MWh	Swedish average for heating production from district heating, 2018 ¹
Biogas generation projects	0 kg CO ₂ e/MWh	–

1) Swedenergy.

Collected data and Climate impact calculation

Collected data represents the information that Kommuninvest asks borrowers to provide in Green Loan applications and annual follow-up reporting. Not all projects have provided all of the information indicated in this section.

RENEWABLE ENERGY

Eligible Projects in the Renewable energy category exploit or intend to exploit various types of renewable energy sources, in order to expand capacity or replace or offset existing or planned fossil fuel-based energy production and supply.

Renewable energy sources that can be approved for Kommuninvest financing include solar and wind power, geothermal energy, bioenergy, bioenergy and biogas from waste, as well as small-scale hydro power. The maximum share of fossil fuels in district heating projects is 10 percent (peat is treated as a fossil energy source). If fossil waste fractions are used for energy extraction the share of fossil energy is a maximum 20 percent.

The table below outlines the data input collected from Eligible Projects as well as the methodology applied when calculating the environmental impact.

Sub-category	Collected data	Climate impact calculation
Bioenergy	<ul style="list-style-type: none"> Annual production of bioenergy (biodiesel, bioethanol, biogas, CNG¹ and other biofuels), measured in MWh. Annual delivery of specific bioenergy measured in MWh. 	<p>Annual climate impact (CO₂e) =</p> <p>Annual production of renewable energy in MWh* baseline emissions factor - Annual production of renewable energy (MWh)* project emission factor.</p> <p>Note: Different baseline emission factors and project emission factors are applied to different sub-categories. These are presented on the preceding page.</p>
Wind, wave, solar and geothermal	<ul style="list-style-type: none"> Installed capacity, in MW. Estimated annual production of electricity, in MWh. 	See above
District heating	<ul style="list-style-type: none"> Estimated or actual annual output of heating and electricity, in MWh. 	See above

1) Compressed Natural Gas (Sw: "fordonsgas") from bioenergy plants

GREEN BUILDINGS

Eligible Projects in this category are intended to reduce energy usage in new or existing buildings, resulting in a reduction in net external energy demand and a reduction in CO₂ emissions.

Impact is reported in relation to the relevant building regulation that has been in force for since the launch of the Kommuninvest Green Bonds Framework (Boverket's Building Regulations BBR 21, BBR 25 and BBR 29).

Sub-category	Collected data	Climate impact calculation
New buildings	<ul style="list-style-type: none"> • Heated surface area in square metres (Atemp). • Estimated annual heating consumption of the building, measured in kWh/Atemp in accordance with applicable Swedish regulations. • Estimated annual electricity consumption of the building, measured in kWh/Atemp. • Required maximum energy consumption of the building, measured in kWh/Atemp. • Annual production of installed solar panels, measured in kWh/ Atemp. 	<p>Annual climate impact (CO₂e) =</p> <p>((Heat consumption of reference building in MWh* baseline emissions factor for heat consumption + electricity consumption of reference building in MWh* baseline emissions factor for electricity consumption) - (Heat consumption of project building in MWh* baseline emissions factor for heat consumption + electricity consumption of the project building in MWh* baseline emissions factor for electricity consumption))</p> <p>Note: The relationship between heat and electricity consumption of the reference building may differ from the project building.</p>
Energy efficiency	<ul style="list-style-type: none"> • Heated surface area square metres (Atemp), • Annual energy use before the investment, in MWh. • Annual energy use after the investment, in MWh. 	<p>Annual climate impact (CO₂e) =</p> <p>((Heat consumption of building pre investment in MWh* baseline emissions factor for heat consumption + Electricity consumption of building pre investment in MWh* baseline emissions factor for electricity consumption) - (Heat consumption of building post investment in MWh* baseline emissions factor for heat consumption + electricity consumption of building post investment in MWh* baseline emissions factor for electricity consumption))</p> <p>Note: The relationship between heat and electricity consumption of the building pre investment may differ from that of the building post investment.</p>
Major renovations	<ul style="list-style-type: none"> • Heated surface area in square metres (Atemp). • Estimated annual heating consumption of the building before/after renovation, measured in kWh/Atemp in accordance with applicable Swedish regulations. • Estimated annual electricity consumption of the building before/after renovation, measured in kWh/Atemp. • Required maximum energy consumption of the building, measured in kWh/Atemp. • Annual production of installed solar panels, measured in kWh/ Atemp. 	<p>Annual climate impact (CO₂e) =</p> <p>((Heat consumption of building pre investment in MWh* baseline emissions factor for heat consumption + Electricity consumption of building pre investment in MWh* baseline emissions factor for electricity consumption) - (Heat consumption of building post investment in MWh* baseline emissions factor for heat consumption + electricity consumption of building post investment in MWh* baseline emissions factor for electricity consumption))</p> <p>Note: The relationship between heat and electricity consumption of the building pre-investment may differ from that of the building post investment.</p>

OTHER PROJECT CATEGORIES

For project categories outlined below, no generally applicable calculation model is used, Kommuninvest relies on reported data from projects. More elaborate impact analysis is possible to undertake in relation to these projects, and we aim to develop our reporting in the future. The choice of indicators can also be expected to undergo revision as more knowledge is gathered and best practices are developed.

Public transportation

Eligible Projects are intended to increase transportation of goods and passengers while consuming a minimal or zero amount of fossil fuels, resulting in a reduction of GHG emissions.

Collected data

- Number of kilometres per year with clean transport solutions.
- Number of people the project will affect each year.
- An estimate of the number of cars/road kilometres the project will replace.
- If feasible: Annual energy savings, reduction in greenhouse gas emissions and/or local emissions, or amount of greenhouse gas emissions and/or local emissions that will be avoided as a result of the investment.

Climate impact calculation

Calculation is performed by comparing the investment to an alternative scenario, typically provided by the customer. Here, Kommuninvest applies emissions factors as outlined in the table on page 53. When the client has not provided an alternative scenario, averages and templates are applied in order to reach conclusions.

Waste management

Eligible Projects are intended to either increase recycled waste capacity, improve energy efficiency, reduce the amount of release of harmful substances or meet other appropriate conditions set by Kommuninvest.

Collected data

- Number of tonnes of waste expected to be processed by the facility each year.
- An estimate of the reduction in greenhouse gas emissions/the amount of greenhouse gas emissions that will be avoided as a result of the investment, in tonnes of CO₂e.
- If feasible: Estimate annual energy savings attributable to the investment, in kWh.
- Expected improvement in material recovery rate or other target for improved resource use.
- For biogas plants: Expected annual production volume.

Water and wastewater management

Eligible Projects are intended to reduce leakage or improve filtration of harmful substances in the water purification process, increase output measured in person equivalents (PE) or meet other appropriate conditions set by Kommuninvest.

Collected data

- Number of person equivalents (PE) of water or wastewater the plant processes, identifying any increase that can be attributed to the investment.
- Volume of freshwater and wastewater treated.
- Reductions in emissions of nitrogen, phosphorus and oxygen-consuming substances (BOD).
- Qualitative indicators/targets for adaptation to climate change (managing urban runoff etc.), with a description of weather-related or climate-related problems that will be mitigated by the investment.
- Where relevant, amount of electricity, biogas or other energy carrier expected to be produced each year.

Adaptation measures

This category is dedicated towards adaptation measures to new environmental conditions, due to inter alia anticipated increasing rainfall, rising sea levels, or increased drought. Projects deemed eligible on a case by case basis. Relevant indicators are dependent on the characteristics of the project, and determined by Kommuninvest in consultation with the borrower.

Environmental management

Eligible Projects are intended to promote sustainable environment development in areas other than climate change. Measures include preserving biodiversity, sustainable agriculture and improvement of eco-systems. Projects are deemed eligible on a case by case basis. Relevant indicators are dependent on the characteristics of the project, and determined by Kommuninvest in consultation with the borrower.

DEFINITIONS USED IN THIS DOCUMENT

Atemp	All internal area of a building which is heated to more than 10 °C in sq.m. Atemp is the area which energy consumption in Sweden is calculated.
CO ₂ e	Carbon dioxide equivalent
kWh, MWh and GWh	Kilowatthour, Megawatthour and Gigawatthour
PE	Population equivalent

Kommuninvest is a Swedish municipal cooperation set up in 1986 to provide cost-efficient and sustainable financing for local government investments in housing, infrastructure, schools, hospitals etc. The cooperation comprises 294 out of Sweden's 310 local governments, of which 280 municipalities and 14 regions. Kommuninvest is the largest lender to the Swedish local government sector and one of the largest credit institutions in Sweden. At year-end 2021, total assets were SEK 524 billion (USD 58 billion), with a loan portfolio of SEK 461 billion (USD 51 billion). The head office is located in Örebro.

