Fossil Free Sweden

Supporting local government climate action through Green Loans & Green Bonds

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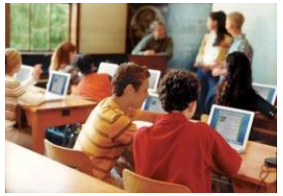
Green Bonds & Green Finance Conference, Beijing 7 April 2016

KOMMUNINVEST

Swedish Local Government Debt Office

- Founded 1986 by ten local governments. Currently 281 owners/members (total=310), of which 272 municipalities and 9 county councils/regions.
- AAA/Aaa, stable outlook.
- Balance sheet FY ’15: USD 41bn/EUR 37bn
- Lending portfolio FY ’15: USD 30/EUR 28bn
- Funding on international and domestic capital markets. Lending in Sweden.
- Mission: provide members with cost-efficient and stable investment funding.



Kommuninvest Green Bonds Framework

Adhering to the four pillars of the Green Bond Principles

1. Use of Proceeds

Investment projects undertaken by Swedish local governments that promote the transition to a low-carbon and climate-resilient society.

3. Management of Proceeds

Earmarked account for proceeds. Lending to Eligible Projects precedes Green Bond issuance.

4. Reporting

i) Annual investor impact report regarding green bond issuance and Eligible Projects;
ii) Annual sustainability reporting.

2. Project Evaluation and Selection

i) Project identification and verification by the environmental and treasury functions in Kommuninvest's member municipalities/county councils;
ii) screening and pre-approval by Kommuninvest's Lending department;
iii) review and final approval by consensus vote in the Kommuninvest Green Bonds Environmental Committee.

+ 2nd opinion from Cicero (environmental research institute)

Eligible project categories

Process

Eligible Projects

Swedish local government investment projects which promote the transition to low carbon and climate resilient growth. Eligible Projects shall be:

- part of applicant's systematic environmental work;
- be related to the national or regional environmental goals;
- target mitigation or adaption to climate change, or environmental mgmt.

Green Bonds

- Majority of Green Bonds proceeds to new projects (on-going, planned or completed max 9 months before issue).
- Guideline: Green Bonds to be issued against max. 75 % of Eligible Loans portfolio.

Eligible Loans

- Loan application must be signed by applicant's Finance and Environmental departments
- Screening and pre-approval by Kommuninvest's Lending department
- Quarterly: Eligible Projects reviewed and finally approved by consensus vote in the Kommuninvest Green Bonds Environmental Committee.

Sustainability criteria

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 county council/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.

Additional requirement for Green buildings and energy efficiency

Be either:

1. New buildings with at least 25 per cent less energy use per square metre and year than required by applicable regulations (Swedish Building Regulations (BBR 21)). Preferably a minimum certification of either 1) LEED gold, 2) BREEAM very good, 3) Environmental Building (Miljöbyggnad silver), 4) Svanen, 5) EU Green Building or 6) Feby-12 (Mini-energy building)
2. Energy efficiency measures in existing buildings, activities and operations leading to at least 25 per cent less energy use
3. Major renovation of buildings leading to a reduced energy use per square metre per year of at least 35 per cent or compliance with applicable regulations for new buildings (Swedish Building Regulations (BBR 21)).

Environmental Committee

Committe members (left to right):

Sara Pettersson, Urban Development Officer, City of Gothenburg

Susanne Arneborg, Energy Coordinator, Municipality of Borås

Björn Söderlundh, Head of Lending, Kommuninvest

Hanna Arneson, Sustainability Mgr, Municipality of Örebro

Andreas Hagnell, Senior Advisor Environment and Energy, Swedish Association of Local Authorities and Regions

Marta Fallgren, Environmental Mgr, Uppsala County Council

Petra Mangnäs, Client Advisor, Kommuninvest

AREAS OF EXPERTISE

- Energy and climate strategy
- Urban development and planning
- Waste management and circular economy, ecological economics
- Environmental management
- Environmental engineering
- Sustainability reporting

TASKS

- Audit and final approval of Green Loan applications
- Advisory board to Kommuninvest and Kommuninvest borrowers
- Review and decide on Green Loan reporting by borrowers
- Review and approve Green Loans impact reporting in annual investor report
- Participate in development of Kommuninvest Green Bonds framework

Thank you

For additional information, please consult Kommuninvest's Investor Presentation and Investor Factbook:

www.kommuninvest.org

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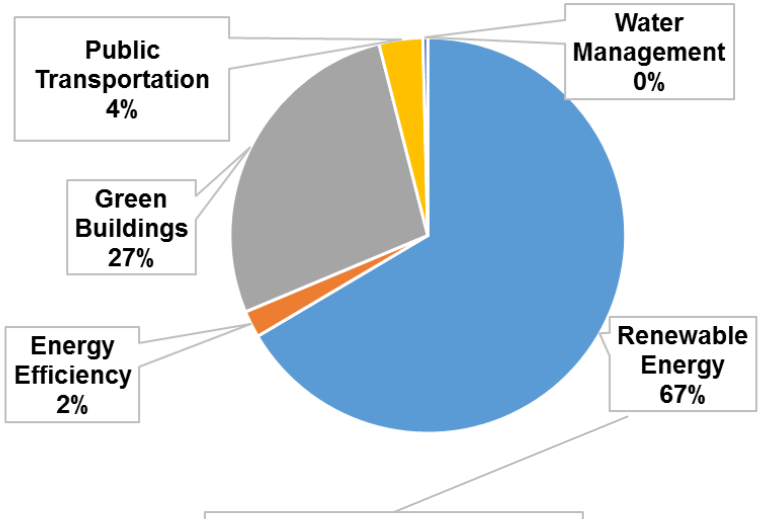
Appendix

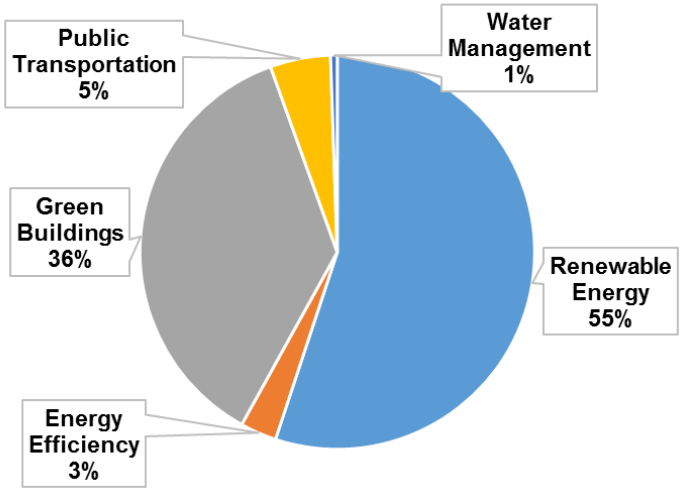
Eligible Loans as of 7 March 2016 (1/3)

Committed funds SEK 8.8 bn



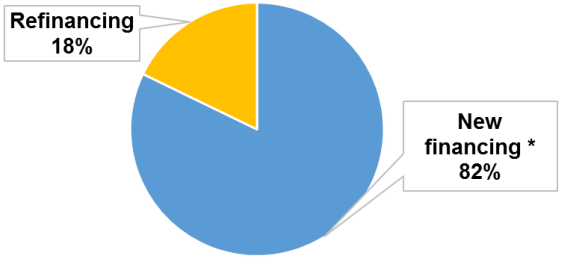
Projects may include
- Wind
- Wave
- Solar
- Hydro
- Geothermal
- Bioenergy
- Biogas from waste

Disbursed SEK 6.4 bn



New financing vs refinancing

SEK 8.8 bn in committed funds



* Project is planned, on-going or completed a maximum of nine months before end of Q1 2016

Eligible Loans as of 7 March 2016 (2/3)

Borrower	Committed, SEK mn	Disbursed, SEK mn	Project category	Description
Eskilstuna municipality	165	165	Renewable Energy	Four new wind power turbines
Skellefteå Stadshus	650	650	Renewable Energy	Blaiken wind power plant, phase 2 and 3
Järfälla municipality	317	300	Green Buildings	Herresta School in Barkarby district
Karlstad municipality	900	900	Renewable Energy	Heden 3 - new bio-fuelled combined power and heating plant (district heating)
Borås municipality	2,500	250	Renewable Energy	Sobacken - new wastewater treatment plant and new bio-fuelled combined power and heating plant (district heating)
Årehus AB	44	40	Green Buildings	New nursery school in Undersåker
Biogasbolaget i Mellansverige AB (Biogas Company of Mid-Sweden)	49	49	Renewable Energy	Facility for biogas production located at Mosserud recycling station in Gottebol
Trelleborg municipality	241	240	Public Transportation	Co-financing for regional train network Trelleborg-Malmö
Trollhättans Tomt AB (Trollhättan Ground Plot Company)	5	0	Energy Efficiency	Energy efficiency measures in two municipal properties
Trollhättans Tomt AB (Trollhättan Ground Plot Company)	43	40	Green Buildings	Construction of new nursery school
Karlskoga Energi & Miljö AB (Karlskoga Energy & Environment Company)	250	250	Renewable Energy	Refinancing of 24 existing small scale hydropower plants. Total annual production (normalised): 100,600 MWh, equivalent to heating 6,700 houses.
Kommunfastigheter i Knivsta AB (Knivsta Municipal Property Company)	163	150	Green Buildings	Construction of the new Högås school (Sweden's first school built as a passive house)

Eligible Loans as of 7 March 2016 (3/3)

Borrower	Committed, SEK mn	Disbursed, SEK mn	Project category	Description
Gävle municipality	120	0	Ren. Energy	Forsbacka biogas production facility
Karlskoga Energi & Miljö AB (Karlskoga Energy & Environment Company)	190	190	Energy Efficiency	Facilities for district heating, including combined power and heating plant and distribution pipelines.
Karlskoga Energi & Miljö AB (Karlskoga Energy & Environment Company)	35	35	Water Management	Upgrading of wastewater treatment facility to comply with EU requirements regarding nitrogen purification.
Umeå municipality	76	76	Public Transportation	Electric buses for local transport.
Umeå municipality	300	300	Green Buildings	New nursery schools (Solbacken, Morgonstjärnan & Hedlunda) and new schools (Flurkmark & Storsjö)
Umeå municipality	268	268	Green Buildings	Dedicated buildings for public admistration, care and sports
AB Bostaden i Umeå (Umeå Housing AB)	276	276	Green Buildings	Energy efficiency measures in existing multi-family housing units, including Sustainable Ålidhem area
AB Bostaden i Umeå (Umeå Housing AB)	674.5	674.5	Green Buildings	Production of new low-energy multi-family housing units, including Sustainable Ålidhem area
Eksta Bostads AB (Eksta Housing AB)	119	119	Green Buildings	Passive houses (Vallda Heberg geriatric care housing unit in Kungsbacka)
Eksta Bostads AB (Eksta Housing AB)	76,5	77	Green Buildings	Passive houses (Vallda Heberg senior housing units 55+ in Kungsbacka)
Trosabygdens Bostad AB (Trosabygden Housing AB)	33	33	Green Buildings	Multi-family housing in Trosa. 16 apartments based on Kombo housing concept developed by SABO (the Swedish Association of Public Housing Companies)
Fastigheter i Linde AB (Lindesberg Property AB)	104	52	Green Buildings	Multi-family housing in Lindesberg with 70 apartments (Ålkilsbacken)
Södertörns Energi AB (Södertörn Energy AB)	1,250	1,250	Renewable Energy	District heating, district cooling and electricity for the Botkyrka, Huddinge and Salem municipalities.

Herresta School in Järfälla

Sweden's first school built entirely from cross laminated timber

Committed funds	Whereof disbursed	Project start	Project completion	Category
SEK 317 million	SEK 300 million	1 Jan. 2014	15 Nov 2015	Green Buildings

- Part of Barkarbystaden, the largest urban development in Stockholm area – a new city within the city with 18,000 new housing units and workspaces for 10,000 people.
- Nursery school for 100 children, school for 300 children ages 6-11, approx 8,500 sq.m.
- Built according to specifications for Environmental Building (Miljöbyggnad) Gold
- Energy use for building estimated at 57 kWh per sq.m, nearly CO_2 –neutral. Solar panels on roof provides electricity amounting to 16 kWh per sq.m.
- One of Sweden's contributions at the 2014 World Sustainable Building Conference

Blaiken wind farm – phases 2 & 3

One of Europe's largest onshore wind farms

Committed funds	Whereof disbursed	Project start	Project completion	Category
SEK 650 million	SEK 650 million	1 Jan. 2012	31 Dec. 2015	Renewable Energy

- Skellefteå Kraft (owned by Skellefteå Municipality) develops one the largest wind farms in Europe, in collaboration with energy company Fortum.
- Once completed, in 2017, the wind farm will contain 99 wind turbines with an installed capacity of 247.5 MW
- Annual production of 700 GWh, equivalent to annual electricity use in 161,500 apartments.
- Phases 2 and 3 consist of 30 + 30 wind turbines.

Sobacken – Borås municipality

New wastewater treatment plant and new bio-fuelled combined power and heating plant

Committed funds	Whereof disbursed	Project start	Project completion	Category
SEK 2.5 billion	SEK 250 million	1 Jan. 2012	31 Dec. 2015	Renewable Energy

- Objectives: 1) Safeguard delivery of district heating and wastewater purification 2) meet regulatory emissions standards for wastewater 3) allow the city to grow 4) contribute to vision of becoming fossile-free.
- Co-localization of wastewater treatment plant and combined power and heating plant, together with recycling center and biogas production facility, creates synergy effects.
- Climate benefits:
- Significant increase in renewable energy, both heating and electricity (electricity ~80 GW/year).
- Nitrogen and phosphorus emissions as well as BOD7 to be reduced; N from 16 mg/litre to 8 mg/litre, equivalent to wastewater from 25,400 people.
- Increased efficiency
- Reduced amount of transports in the city.

Umeå – Electric buses for public transport

Energy-efficent, clean and quiet system for public transport

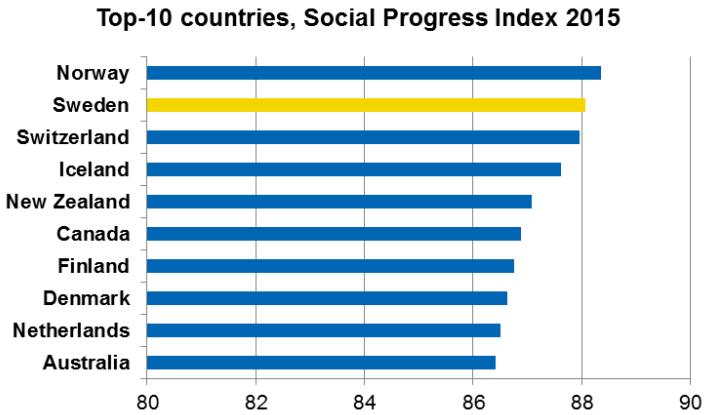
Committed funds	Whereof disbursed	Project start	Project completion	Category
SEK 77 million	SEK 77 million	1 Jan. 2012	30 Apr. 2016	Public Transportation

- The city of Umeå, in northern Sweden, is investing in a sustainable system for local transport, based on ultra-rapidly-charged electric buses (10 min. charging – 30 min. driving)
- Electrical buses replace diesel buses, reducing noise and emissions of carbon dioxide, nitrogen dioxide and particulate matter.
- In 2016 there will be 9 electric buses and two fast charging stations in regular traffic.
- Vision 2020:
  - another 24 buses in operation
  - share of electric bus transport kilometers to have increased from zero in 2010 to 70 percent.
- Due to high degree of renewables in local energy mix, there is near-zero emissions of greenhouse gases.

All projects are located in Sweden

Applicable legislation and guidelines

- EU Law
- The Swedish Environmental Code (Miljöbalken)
- Sweden's 16 environmental quality objectives *www.miljomal.se*
- Applicable municipal/county council environmental policies
- OECD Guidelines for Multinational Enterprises



Source: socialprogressimperative.org

Top-10 countries, Good Country Index

1. Ireland
2. Finland
3. Switzerland
4. Netherlands
5. New Zealand
6. **Sweden**
7. United Kingdom
8. Norway
9. Denmark
10. Belgium

Source: goodcountry.org

Kommuninvest sustainability perspective and indicators:

http://kommuninvest.se/en/about-us-3/sustainability-2/

Fossil reduction vs fossil-free (1/2)

View on Fossil energy – fossil reduction vs fossil-free

The overall aim of the Kommuninvest Green Bonds framework is to contribute to the transition to low-carbon and climate-resilient growth, through projects that address mitigation of climate change, adaptation to climate change or environmental management in other areas than climate change (the latter max 30% of volume).

In its Second Opinion, Cicero points to the fact that some of Eligible projects may include fossil energy to a non-negligible extent (over 10-20%). This applies to the framework categories Renewable energy, Energy efficiency in energy systems and Public transportation and sustainable transportation.

The framework has a broad scope, as it is aimed at supporting climate and environment initiatives across Sweden's local government sector, all over Sweden. The projects address sectors of society with great impact on CO_2-emissions, but which are not totally CO_2-free.

We will not approve investment projects that lead to a lock-in of fossil energy-based infrastructure. However, we may approve projects with a component of fossil energy if the project enables the transition to a climate-neutral infrastructure and similar solutions, whilst reducing climate impact. Impact analysis and impact reporting is an absolute requirement for projects partly encompassing fossil energy to a non-negligible extent (over 10-20%).

The Environmental Committee is responsible for assuring that any project that includes a fossil component to a non-negligible extent will have significant positive climate and/or environmental impacts.

Our views on fossil with regards to the project categories listed above is outlined in this paper. A complete exclusion of fossil energy from any project is virtually impossible to achieve, since fossil energy is often embedded in components, building materials and energy production equipment, even in solar cells.

The Swedish energy system – a background

Sweden's energy system uses a very low proportion of fossil fuels, especially in the production of electricity and district heating. The total share of renewables in the energy system, at over 50 percent, is the highest in the European Union. In addition, Sweden has a large proportion of nuclear power for electricity generation, at about 40 percent. Fossil energy is mainly used in the transport sector and for industrial processes.

A particular Swedish feature is that half of the energy used for heating purposes is supplied by district heating. The expansion of district heating and its conversion from fossil fuels to biomass and waste is the main factor behind Sweden's reduced fossil CO_2 emissions by some 25 percent since 1990.

Why we allow a small share of fossil energy in district heating (max. 10 %)

In the district heating sector, a fossil energy component sometimes cannot be completely avoided. Fossil energy may be required to start up processes, to use for peak energy at times of extreme energy demand and for back-up purposes. District heating is a flexible energy system capable of extracting energy from various types of energy sources and waste. We only accept projects with positive climate impact, e.g. a reduced carbon footprint, and which uses a limited amount of fossil energy (max 10 percent).

We favor using waste for energy extraction as a resource-efficient and more climate-positive solution than landfill and other permanent deposits. However, waste often includes fractions of plastics, which according to international standards is regarded as fossil energy. Therefore, fossil waste incineration will not be accepted as a major component of eligible projects. (In general, maximum 10 per cent fossil component).

POSITION PAPER ON FOSSIL DATED 5 FEBRUARY 2016

Fossil reduction vs fossil-free (2/2)

We view peat as a non-renewable energy source. A possible exception is peat whose extraction can be shown to reduce methane leaking emissions from peat bogs. Such peat could be tolerated as climate positive.

Kommuninvest also benefits from operating in a country where systems and regulations regarding waste sorting and smoke gas purification are highly developed.

Why some energy efficiency projects may include fossil energy
We support energy efficiency measures because they lead to a reduction in energy use, thereby contributing to a reduction in CO_2 emissions. The principal way for property owners to reduce climate impact is to make energy use more efficient. The focus of the projects will be on energy reduction, however the energy supply, which will generally not be a part of the project, may include a fossil energy component. Given the increasingly interconnected electricity system in the Nordic region and Europe[1], it is difficult for property owners to completely exclude fossil components in the energy mix. Property owners that are supplied with district heating also have limited opportunity to influence the energy mix. The share of renewables in the energy system is mainly a task for national and EU regulation.

Why public transport and sustainable mobility projects may include fossil energy
We support public transport-related projects in order to increase the use of such systems, thereby reducing car use and hence the use of fossil energy. However, in the support of a build-up of public transport infrastructure, for example, we generally cannot be certain that this infrastructure will only be used by transport vehicles that run on renewable energy. This usually is outside the scope of the project.

Further, fuel mixtures for renewables often include minor fossil components, this generally is the case for both biodiesel, ethanol, bio-methane and electricity. The actual shares of renewables is often a question for national regulation and market. It is thus problematic to completely exclude fossil components.

If vehicles are part of the application, they generally should be powered by renewable fuels. Fossil fuel buses (i.e. diesel and hybrid) can only be approved if the municipality/county council shows that the investment:

- reduces total Greenhouse Gas emissions by promoting public over private transportation more for the same cost than a solution based on green fuel-only buses; or
- includes a plan to use a substantial portion of green fuels (for example biodiesel) in these buses; and
- includes impact analysis and impact reporting.

Given that few municipalities and regions operate their own bus fleets, such projects are expected to be limited in number.

Impact analysis and reporting required
The framework clearly specifies that a project that includes fossil energy to a non-negligible extent will only be approved if an impact analysis shows that there will be significant positive climate and/or environmental impact and impact reporting afterwards is required. The individual loan application should state why fossil components are part of the energy mix. The above will ensure a high environmental standard in execution.

1) The Swedish electricity mix is approximately 60 g CO_2 per kWh. This can be compared with about 100 g CO_2 per kWh for the Nordic electricity mix; 1000 g CO_2 per kWh for coal-generated electricity and nearly 400 g CO_2 per kWh for gas condensation, a common form of electricity generation in Europe. As electricity markets in the Nordic region and Europe become increasingly interconnected, it is not entirely clear how to assess the environmental impact. Furthermore, the share of renewable electricity in Sweden and Norway are regulated with green certificates rather than by individual buying of certified renewable electricity.

KOMMUNINVEST

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