

‘Second Opinion’ on Kommuninvest’s Green Bond Framework

11th December 2017

Summary

Overall, Kommuninvest's Green Bond Framework and environmental policies provide a progressive, clear and sound framework for climate-friendly investments. This is an updated second opinion based on an updated Green Bond Framework (dated 30.10.2017, the original dated 12.01.16). The framework lists eligible categories of projects that are supportive of the objective of promoting a transition to low-carbon and climate-resilient growth and is supported by a strong governance structure.

Kommuninvest puts strong emphasis on environmental competence in their selection of eligible loans. The Green Bonds Environmental Committee, which makes the selection, consists of representatives from the environmental function of two or more member municipalities/county councils, environmental experts from other relevant public sector organizations/academia/NGOs, as well as Kommuninvest's Management. This strong and welcomed governance element is of particular importance since the framework covers many eligible project categories, some with a broad scope. A maximum of 30 per cent of the investments will finance environmental projects in other areas than climate change. The framework does not explicitly exclude all fossil fuel elements in eligible projects, but will require the use of impact analysis and impact reporting for all such investments. Kommuninvest's policies support regular and transparent updates, including on examples of project achievements to investors and the public.

Kommuninvest has in their updated framework (GBF 30.10.2017) adjusted the project category eligibility requirements related to sustainable buildings. In particular, for energy efficiency measures in various municipal activities or partial systems of existing buildings, the criteria has been tightened from "at least 25 per cent less energy use" to "at least 30 per cent less energy use". For major renovations of buildings, the criteria for reduced energy use per square meter per year has been changed from "at least 35 per cent" to "at least 30 per cent less energy use". For residential and non-residential buildings, the percentage requirement for energy efficiency versus Swedish building regulations has been changed to 15% less for residential and 20% less for non-residential. Since BBR 25 is tighter than BBR 21, the nominal energy requirements in the updated Kommuninvest GBF is essentially the same as before. Finally, they have strengthened their reporting and verification commitment, and is now committed to report in alignment with the "Nordic Public Sector Issuers: Position Paper on Green Bonds Impact Reporting", published on 24.10.17.

CICERO very much welcomes the development and use of a common methodology in impact reporting, and sees it as a clear strength that Kommuninvest commits adherence to the "Nordic Public Sector Issuers: Position Paper on Green Bonds Impact Reporting" in their Green Bond Framework. The green bond market has evolved by some issuers taking the lead. CICERO is encouraged that not only emission reductions, which sometimes are extremely difficult to estimate, but also other indicators that measure the transition to a low carbon and climate resilient society are reported. We are also encouraged to see that the position paper provides transparency regarding choice of methodology and baselines.

Based on an overall assessment of the project types that will be financed by the green bonds and governance and transparency considerations, Kommuninvest's updated Green Bond Framework gets a Medium Green shading. There is no change in the overall shading. To reach a Dark Green level, Kommuninvest would need a more specified ambition for some of the project categories in particular for green buildings, waste management and

transportation. Impact and lifecycle analysis could also be required to a larger extent. We have revised the eligible project category “energy efficiency” from dark green to ‘medium to dark’ green in this updated Second Opinion. This is due to how we now shade investments in efficiency in district heating networks and electricity grid networks. In order to achieve a dark green shading for such investments, the network needs to be based on renewables. If the network still to some extent is based on generators that run on fossil fuels, a clear pathway to achieve near 100 percent renewables in the near future has to be demonstrated.



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Medium Green

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1 Introduction and background

As an independent, not-for-profit, research institute, CICERO (Center for International Climate Research - Oslo) provides Second Opinions on institutions' framework and guidance for assessing and selecting eligible projects for green bond investments, and assesses the framework's robustness in meeting the institutions' environmental objectives. The Second Opinion is based on documentation of rules and frameworks provided by the institutions themselves (the client) and information gathered during meetings, teleconferences and e-mail correspondence with the client.

CICERO is independent of the entity issuing the bond, its directors, senior management and advisers, and is remunerated in a way that prevents any conflicts of interests arising as a result of the fee structure. CICERO has established the global Expert Network on Second Opinions (ENSO), a network of independent non-profit research institutions on climate change and other environmental issues, to broaden the technical expertise and regional experience for Second Opinions. CICERO works confidentially with other members in the network to enhance the links to climate and environmental science, building upon the CICERO model for Second Opinions. In addition to CICERO, ENSO members currently include Basque Center for Climate Change (BC3), International Institute for Sustainable Development (IISD), Stockholm Environment Institute (SEI), and Tsinghua University's Institute of Energy, Environment and Economy. A more detailed description of CICERO can be found at the end of this report. ENSO encourages the client to make this Second Opinion publically available. If any part of the Second Opinion is quoted, the full report must be made available.

CICERO's Second Opinions are normally restricted to an evaluation of the mechanisms or framework for selecting eligible projects at a general level. CICERO does not validate or certify the climate effects of single projects, and thus, has no conflict of interest in regard to single projects. CICERO is neither responsible for how the framework or mechanisms are implemented and followed up by the institutions, nor the outcome of investments in eligible projects.

This note provides a Second Opinion of Kommuninvest's Green Bonds Framework and policies for considering the environmental impacts of their projects. The aim is to assess the Kommuninvest's Green Bonds Framework as to its ability to support Kommuninvest's stated objective of promoting the transition to low-carbon and climate resilient growth.

This Second Opinion is based on the green bond framework presented to CICERO by the issuer. Any amendments or updates to the framework require that CICERO undertake a new assessment. CICERO takes a long-term view on activities that support a low-carbon climate resilient society. In some cases, activities or technologies that reduce near-term emissions result in net emissions or prolonged use of high-emitting infrastructure in the long-run. CICERO strives to avoid locking-in of emissions through careful infrastructure investments, and moving towards low- or zero-emitting infrastructure in the long run. Proceeds from green bonds may be used for financing, including refinancing, new or existing green projects as defined under the mechanisms or framework. CICERO assesses in this Second Opinion the likeliness that the issuer's categories of projects will meet expectations for a low carbon and climate resilient future.

Expressing concerns with 'shades of green'

CICERO/ENSO Second Opinions are graded dark green, medium green or light green, reflecting the climate and environmental ambitions of the bonds and the robustness of the governance structure of the Green Bond

Framework. The grading is based on a broad qualitative assessment of each project type, according to what extent it contributes to building a low-carbon and climate resilient society. The shading methodology also aims at providing transparency to investors when comparing green bond frameworks exposure to climate risks. A dark green project is less exposed to climate risks than a lighter green investment.

This Second Opinion will allocate a ‘shade of green’ to the green bond framework of Örebro:

- **Dark green** for projects and solutions that are realizations today of the long-term vision of a low carbon and climate resilient future. Typically, this will entail zero emission solutions and governance structures that integrate environmental concerns into all activities.
- **Medium green** for projects and solutions that represent steps towards the long-term vision, but are not quite there yet.
- **Light green** for projects and solutions that are environmentally friendly but do not by themselves represent or is part of the long-term vision (e.g. energy efficiency in fossil-based processes).
- **Brown** for projects that are irrelevant or in opposition to the long-term vision of a low carbon and climate resilient future.

The project types that will be financed by the green bond primarily define the overall grading. However, governance and transparency considerations are also important because they give an indication whether the institution that issues the green bond will be able to fulfil the climate and environmental ambitions of the investment framework. Investments in all shades of green projects are necessary in order to successfully implement the ambition of the Paris agreement. The overall shading reflects an ambition of having the majority of the project types well represented in the future portfolio, unless otherwise expressed by the issuer.

2 Brief Description of Kommuninvest's Green Bond Framework and rules and procedures for climate-related activities

Kommuninvest (formally Kommuninvest Cooperative Society and Kommuninvest i Sverige AB) was founded in 1986 by nine Swedish municipalities and Örebro County Council with the aim of improving the conditions in the market for local government loan financing. Only municipalities and county councils that are members of Kommuninvest Cooperative Society as well as companies controlled by the members may borrow from Kommuninvest. Municipal investments in Sweden are currently driven by a strong population growth, rapid urbanization and a need for renewal of infrastructure first established in the 1970s.

As of September 2017, the cooperation comprised 288 out of Sweden's 310 local governments; 277 municipalities and 11 county councils/regions were members of Kommuninvest Cooperative Society.

Kommuninvest is the largest lender to the Swedish local government sector. All bonds and other debt market instruments issued by Kommuninvest are explicitly guaranteed by the members of Kommuninvest Cooperative Society, the sole owner of the credit market company and issuing entity Kommuninvest i Sverige AB (publ). Kommuninvest began extending green Eligible Loans to clients in June 2015 and issued its inaugural Green Bond in March 2016.

Kommuninvest's vision clarifies that the operations shall finance the development of the local and regional sectors, as well as investments in a sound and sustainable society. According to its sustainability policy, Kommuninvest shall take into consideration financial, social and environmental sustainability in its entire business, both with respect to direct impact and indirect impact (Sustainability Policy dated 5 April 2017).

Kommuninvest has in their updated framework (GBF 30.10.2017) adjusted the project category eligibility requirements related to sustainable buildings. In particular, for energy efficiency measures in various municipal activities or partial systems of existing buildings, the criteria has been tightened from "at least 25 per cent less energy use" to "at least 30 per cent less energy use". For major renovations of buildings, the criteria for reduced energy use per square meter per year has been changed from "at least 35 per cent" to "at least 30 per cent less energy use". For residential and non-residential buildings, the percentage requirement for energy efficiency versus Swedish building regulations has been changed to 15% less for residential and 20% less for non-residential. Since BBR 25 is tighter than BBR 21, the nominal energy requirements in the updated Kommuninvest GBF is essentially the same. Furthermore, they have strengthened their reporting and verification commitment. For instance, Kommuninvest is now committed to report in alignment with the "Nordic Public Sector Issuers: Position Paper on Green Bonds Impact Reporting", published on 24.10.17¹.

Definition:

"Eligible Loans" means a selected pool of loans from Kommuninvest which are financing, in whole or in part, Eligible Projects in member municipalities/county councils that primarily promote the transition to low carbon and climate resilient growth. Eligible Projects shall be part of the systematic environmental work in the applicant

¹ See http://kommuninvest.se/wp-content/uploads/2017/10/NPSI_Position_paper_2017.pdf.

municipality/county council and be related to the national or regional environmental goals and targets. The projects fall in the three categories:

- (a) mitigation of climate change, including investments in low-carbon and clean technologies, such as public transportation and renewable energy programmes and projects (“Mitigation Projects”),
- (b) adaptation to climate change, including investments in climate-resilient growth (“Adaptation Projects”),
or
- (c) to a limited extent (max 30 per cent of issued volume) projects which are related to environmental management in other areas than climate change.

Selection:

Eligible Projects will, on an ongoing basis, be:

1. **identified** and verified by the environmental functions in Kommuninvest’s member municipalities/county councils;
2. **selected** by the Treasury Departments in Kommuninvest’s member municipalities/county councils, and submitted to Kommuninvest for approval as a Green Loan together with appropriate documentation according to Kommuninvest’s instructions.

Eligible Projects will, on an ongoing basis, be:

3. **pre-approved** by Kommuninvest’s Lending department

and, on a quarterly basis, be:

4. reviewed and **finally approved** by consensus vote in the Green Bonds Environmental Committee in terms of coherence with the criteria for Eligible Loans. The Green Bonds Environmental Committee consists of representatives from the environmental function of two or more member municipalities/county councils, environmental experts from other relevant public sector organisations/academia/NGOs, as well as Kommuninvest’s Management.

Management of proceeds:

The proceeds from Green Bonds issuance will be tracked by Kommuninvest in accordance with its internal instructions, and will be verified by an external audit firm. For conservative purposes, and in accordance with Kommuninvest internal instructions, Kommuninvest will manage proceeds with an ambition for aggregate Green Bond Proceeds not to exceed total disbursements to Eligible Loans. Any excess amounts will be held in cash, Green Bonds, municipality and/or government risk with a minimum, average credit rating of A- by Standard & Poor’s or corresponding credit rating by another rating agency approved by Kommuninvest. If a financed Eligible Project no longer meets the eligibility criteria upon approval, Kommuninvest will remove it from the pool of Eligible Loans.

Kommuninvest will communicate on the nature of allocations to Eligible Projects in its Green Bonds Impact Report. The allocations will be verified by an external audit firm.

Transparency and Accountability:

To enable investors to follow the development and provide insight to prioritised areas, Kommuninvest will provide an annual Green Bonds Impact Report to investors including:

- a list of Eligible Loans/Projects exceeding SEK 25 million, including allocated amount, a brief project description, and expected impact;
- a selection of project examples;
- information on the estimated saved/avoided CO₂-emissions related to Eligible Projects;
- a summary of Kommuninvest's Green Bonds development, including information on aggregate Green Bond Proceeds;
- the distribution between new and completed Eligible Projects
- relevant key sustainability figures for Kommuninvest, such as energy performance, CO₂-emissions, waste data and water intensity.

Kommuninvest will report environmental impact in accordance with the Nordic harmonised approach, as outlined in "Nordic Public Sector Issuers: Position Paper on Green Bonds Impact Reporting" developed by a group of Nordic issuers including Kommuninvest and available on Kommuninvest's web page.

Kommuninvest encourages and promotes the use of impact analysis (ex-ante) and impact reporting (ex-post) to the largest extent possible, and annually requires its clients to report back on Eligible Projects. The Kommuninvest Green Bonds Impact Report will be made publicly available on Kommuninvest's web page. Furthermore, the principle of free access to public records is applied. This will provide broad insight to both investors and potential investors.

The table below lists the documents that formed the basis for this Second Opinion:

Document Number	Document Name	Description
1	Kommuninvest's Green Bonds Framework (30.10.2017)	Green Bond Framework description
2	Regeringens skrivelse 2013/14:145 - Svenska miljömål visar vägen!	A comprehensive description of the government's environmental targets
3	Miljöbalken http://www.notisum.se/rnp/sls/lag/19980808.HTML	The Environmental law of Sweden
4	Miljömål: http://www.miljomal.se/	An internet portal on environmental targets
5	Miljömålen: Årlig uppföljning av Sveriges miljö kvalitetsmål och etappmål 2017 – Naturvårdsverket http://www.naturvardsverket.se/Documents/publikationer6400/978-91-620-6749-6.pdf?pid=20349	Annual report on environmental quality targets in Sweden

6	Regional Utveckling och Samverkan i miljömålssystemet (RUS) – Guide till lokalt arbete med miljömål	A guide for local work on achieving the environmental quality targets
7	Kommuninvest Annual Report 2016, http://kommuninvest.se/wp-content/uploads/2017/04/KIEF_ENG_2016.pdf	Annual report from Kommuninvest 2016
8	Kommuninvest – Municipal borrowing 2017 (including investments), http://kommuninvest.se/om-oss/forskning/rapporter/kommunala-laneskulden-2017/	An overview of investments by municipalities in 2017
9	Kommuninvest – Sustainability Policy, http://kommuninvest.se/wp-content/uploads/2017/05/Sustainability-Policy.pdf	Document laying out the sustainability policy of Kommuninvest.
10	"Nordic Public Sector Issuers: Position Paper on Green Bonds Impact Reporting", published on 24.10.17, http://kommuninvest.se/wp-content/uploads/2017/10/NPSI_Position_paper_2017.pdf	A practical guide on impact reporting for Nordic public sector green bond issuers.

Table 1. Documents reviewed

3 Assessment of Kommuninvest's Green Bond framework and environmental policies

Overall, the Kommuninvest's green bond framework provides a detailed and sound framework for climate-friendly investments.

The framework and procedures for Kommuninvest's green bond investments are assessed and their strengths and weaknesses are discussed in this section. The strengths of an investment framework with respect to environmental impact are areas where it clearly supports low-carbon projects, whereas the weaknesses are typically areas that are unclear or too general. Pitfalls are also raised in this section to note areas where issuers should be aware of potential macro-level impacts of investment projects.

Eligible projects under the Green Bond Framework

At the basic level, the selection of eligible project categories is the primary mechanism to ensure that projects deliver environmental benefits. Through selection of project categories with clear environmental benefits, green bonds aim to provide certainty to investors that their investments deliver environmental returns as well as financial returns. The Green Bonds Principles (GBP) state that the "overall environmental profile" of a project should be assessed and that the selection process should be "well defined".

Kommuninvest allows for financing of both new and existing projects. An Eligible Project is determined as new if it is either planned, ongoing or finalized within nine months before the date of such calculation. The distribution between new and completed projects will be available to investors in the annual Green Bonds Impact Report.

For projects that encompass fossil energy to a non-negligible extent, impact analysis and impact reporting will be a firm requirement for approval. Kommuninvest will not approve investment projects that lead to a lock-in of fossil energy-based infrastructure. Maximum fossil fuel component for district heating projects is 10 percent (peat is treated as a fossil energy source); including fossil component of waste used for energy extraction the share of fossil energy is a maximum 20 percent. Maximum fossil energy component for public transportation is 20 percent.

Category	Eligible project types	Green Shading and some concerns
Renewable energy	Wind	<p>Dark green (bioenergy and biogas from waste is Medium green)</p> <p>Wind, hydropower, and bioenergy: consider broader impacts, such as potential negative impacts on biodiversity, nature, and local communities.</p> <p>Solar, bioenergy and biogas from waste: consider impacts and emissions over the lifecycle of the (e.g. production and disposal phases of solar; peat).</p> <p>Geothermal: consider broader impacts, such as the potential for heavy metal pollution.</p>
	Wave	
	Hydro	
	Solar	
	Geothermal	
	Bioenergy	
	Biogas	
	Excess heat	
Conversion from fossil to renewable		
Energy efficiency in energy systems	District heating/cooling	Medium to dark green
	Electricity grids/smart grids	Be aware of possible rebound effects.
	Energy recovery and storage	Maintenance and upgrades of district heating infrastructure may be linked to heat created also by generators run on fossil fuel.
	Energy efficiency with at least 30 per cent reduction in energy use	
Clean transportation	Public transport and supporting infrastructure	<p>Medium green - the potential for emissions reduction is context dependent: aspects of planning, degree of urbanization, vehicle technologies and fuel type utilized, etc.</p> <p>Consider potential lock-in effects.</p> <p>Should avoid fossil fuels use.</p>
	Infrastructure for sustainable transport (bicycles, pedestrians, electric vehicles, etc.	
	Logistic solutions with reduced environmental impacts	
Waste management	Recycling and re-use,	<p>Medium green – consider lifecycle emissions and potential lock-in effects. Should avoid fossil fuels use.</p> <p>Good practices should include recycling of resources and reduction of methane emissions.</p>
	Material and energy recovery	

Water and waste water management	Water infrastructure	Dark green - key issue for climate adaptation, limited effect for mitigation.
	Waste water management	
	Cleaning facilities	
Green buildings and energy efficiency	Residential multi-family buildings: New or existing buildings with at least 15 per cent less energy use per square meter and year than required by applicable regulation (Swedish Building Regulations - BBR 25).	Medium green - Building criteria are considered adequate but may not reflect best available technology nor the highest level of standards possible in Sweden. In addition to climate issues, BREEAM and LEED cover a broader set of issues, which is important to overall sustainable development. Potential issues with rebound effects.
	Non-residential buildings: New or existing buildings with at least 20 per cent less energy use per square meter and year than required by applicable regulation (Swedish Building Regulations - BBR 25).	
	New buildings are encouraged to also have a minimum certification of either 1) LEED gold, 2) BREEAM very good, 3) Environmental Building (Miljöbyggnad silver), 4) the Nordic Swan Ecolable, 5) EU Green Building, 6) Feby-12 (Mini-energy building), or other certification schemes of similar ambitions; however this is not a firm requirement.	
	Major renovations of buildings leading to a reduced energy use per square meter per year of at least 30 per cent or compliance with applicable regulations (Swedish Building Regulations - BBR 25).	
	Energy efficiency measures in partial systems of existing buildings leading to at least 30 per cent less energy use.	
Climate change adaptation	Measures in buildings, infrastructure and sensitive surroundings	Dark green
Environmental management	Examples are: nature conservation, biodiversity measures, sustainable agriculture, improving eco-system services	Dark green - Positive sustainability related project.

Table 2. Eligible project categories

Strengths

The backbone of the governance structure is the Kommuninvest's Green Bond Framework. The Green Bond Framework includes a comprehensive list of project categories that are important for low-carbon and climate change resilient growth. Selection and decision procedures and responsibilities are clearly mapped out. Even reasonably "safe" Green Bond project types may, however, lead to unwanted side effects under certain conditions. The best insurance against negative external effects is a selection procedure delimiting eligible projects to the likely best-performing project categories with respect to climate mitigation and enhanced climate change resilience; thus supporting sustainable development in general. This requirement is largely fulfilled in the case of Kommuninvest. Eligible projects have to be approved by consensus vote in the Environmental Committee. It's a clear strength that Kommuninvest in their selection of eligible loans puts strong emphasis on environmental competence. This is of particular importance since the framework covers many eligible project categories, some with a broad scope. Finally, Kommuninvest has strengthened their reporting and verification commitment. For instance, they are now committed to report in alignment with the "Nordic Public Sector Issuers: Position Paper on Green Bonds Impact Reporting", published on 24.10.17. CICERO very much welcome the development and use of a common methodology in impact reporting and see this as a clear strength in Kommuninvest's Green Bond Framework. Investors should however be aware of the potential pitfall associated with the proposed methodology mentioned below.

Weaknesses

We find no obvious weaknesses in Kommuninvest's Green Bond framework.

Pitfalls

CICERO takes a long-term view on climate change, and thus recommends excluding projects that support prolonged use of fossil fuel-based infrastructure that will contribute to GHGs in the long run. Kommuninvest has not in their Green Bonds framework explicitly excluded fossil fuel investments. This also include investment in energy efficiency in energy systems projects that could include upgrades and maintenance of district heating distribution that is still partly based on fossil fuels. Kommuninvest's process however appears to mitigate much of the risk of funding a significant level of projects that include fossil fuels elements. Still, there is a residual risk that the definitions of the eligible project categories can lead to financing assets that include elements of fossil-fuel based technologies. This can in turn delay the transition to more climate-friendly technologies. We have revised the eligible project category "energy efficiency" slightly from dark green to medium to dark green in this Second Opinion. This is due to how we now shade e.g. efficiency in district heating networks. In order to achieve a dark green shading for such investments, the network needs to be based on renewables. If the network still to some extent is based on generators that run on fossil fuels, a clear pathway to achieve 100 percent renewables in the near future, has to be demonstrated. The issuer has informed us that for projects in the Energy efficiency category with more than 10%, but max 20% fossil fuel components, including peat, a plan for rapidly reducing this fossil fuel component to below 10 % will be a firm requirement for loan approval.

Kommuninvest has informed us that they will encourage the use of impact analysis (ex-ante) and impact reporting (ex-post) to the largest extent possible, for instance through lifecycle analysis. This will be emphasised in Kommuninvest's communication with its members. It is in the interest of members who apply for/receive green loans from Kommuninvest to get publicity and recognition for their green investments. One way for Kommuninvest to promote the use of impact analysis and impact reporting is to clarify that such projects will be prioritized. It will however, not be a general requirement that municipalities and county councils use impact reporting to get a green loan from Kommuninvest.

Kommuninvest has informed us that impact analysis and impact reporting will be especially relevant in projects partly encompassing fossil energy to a non-negligible extent (over 10-20%) such as bioenergy, waste and public transportation. There is a potential risk that these green bond categories (bioenergy, waste and public transportation) could theoretically include projects that may not represent significant improvements over the status quo. It will be the role of the Green Bonds Environmental Committee to make sure that such projects, as stated in the Green Bond framework, may be approved given that they have significant positive climate and/or environmental impact.

The use of biomass and waste for energy purposes further represents a potential pitfall when it comes to supporting a low carbon and climate resilient future. Kommuninvest has informed us that peat will not be treated as bioenergy. Waste incineration with energy recovery is a sound environmental and climate friendly option to divert waste away from landfilling. Waste incineration is best combined with ambitious recycling policies. When the capacity of waste incineration is high it might be an incentive to burn waste for energy purposes instead of material recycling. Hence, there is a particular need to continue to improve in this regard, in particular to recycle more fossil fuel waste such as plastics into new materials.

The buildings sector accounts for 40% of primary energy consumption in most International Energy Agency (IEA) member countries (IEA/UNDP, 2011). Energy efficiency improvements in buildings are thus important building blocks for reaching the 2-degree climate change goal. Kommuninvest applies criteria for both new buildings and in renovation of existing buildings with energy efficiency requirements over and above status quo. In addition, they require that other steps towards sustainability be taken, ranging from conducting a lifecycle analysis to environmental certification. The GBF would benefit from a clearer requirement that best environmental technology is used in eligible green bond building projects. Voluntary certifications could be required and the classification level of projects could be increased to reflect best available technology in Sweden. Kommuninvest is largely reliant on data provided by applicants that are seeking financing for their investments. It is therefore recommended, that in the absence of compelling evidence of strong environmental performance, Kommuninvest will exercise caution in project selection to reduce the risk of investment in projects with questionable “green” credentials.

Assessing sustainability in the transport sector is not straightforward. The largest amount of carbon savings come from switching from inefficient modes of transport (e.g. private cars) to mass transit. However, where projects are aimed at like-for-like replacement of transport infrastructure, any improvements in environmental performance depend on the fuel type and efficiency. In the EU, more and more public transportation is run on alternative fuels. We therefore have some concerns that also fossil fuel public transport projects should be considered eligible.

Kommuninvest has informed us that fossil fuel buses will not be eligible under the framework unless the applicant municipality or county council can show that the investment 1) reduces total GHG by promoting public over private transportation for the same cost as a solution based on green fuel-only buses or 2) includes a plan to use a substantial portion of green fuels (for example biodiesel) in these buses and 3) that the above will be reported based on an impact analysis.

CICERO very much welcomes the development and use of a common methodology in impact reporting, and sees it as a clear strength that Kommuninvest commits adherence to the "Nordic Public Sector Issuers: Position Paper on Green Bonds Impact Reporting" in their Green Bond Framework. The green bond market has evolved by some issuers taking the lead. CICERO is encouraged that not only emissions reductions, but also other indicators that measure the transition to a low carbon and climate resilient society are reported. We are also encouraged to see that the position paper is based on the principle of transparency regarding choice of methodology.

Investors should however be aware of the different approaches commonly applied in calculating emissions from production and use of electricity. These differences can be summarized in terms of the geographic boundaries of the electricity grid, emissions based on production average vs. production margin and present vs. future fuel mix. Estimating the actual marginal emission impact of electricity in the Nordic grid is an extremely complex task, and different analyses may produce results varying from nearly zero to almost 1000 gCO₂/ kWh, depending on assumptions and project-specific conditions.

The European grid factor recommended by the Nordic Public Sector Issuers is 380 g CO₂/kWh, and based on the methodology outlined in the Harmonized Framework for Impact Reporting developed by a group of multilateral development banks. This grid factor is constructed by developing a Combined Margin, comprised of an Operating Margin that represents the marginal generating capacity in the existing dispatch hierarchy that will most likely be displaced by the project, and a Build Margin which represents future, less fossil-intensive, generating capacity. Investors should be aware that this factor is higher than the European average grid factor, which was 350 g CO₂/kWh in 2015 (International Energy Agency).

There are harmonization reasons for presenting such a common European emission factor if applied to all European green bond projects, but in order not to overestimate the total benefit of European projects this presupposes that other European emitters also use similar emission factors based on interconnection between EU26+Norway, and not individual national production margin baselines that are higher than this average.

A high CO₂-emission baseline for electricity creates incentives for energy efficiency and renewable energy production. If other safeguards are not applied when adding new capacity to the grid, a high baseline for electricity could potentially encourage investments in projects that lock-in investments that increase emissions in the long-run and that increase the average emissions from the grid (such as electricity production from fossil gas CHP and bioenergy projects with deforestation impacts). The issuer has however confirmed that this grid factor is being used for impact reporting purposes. Kommuninvest's Green Bond Framework have eligibility criteria that mitigate these lock-in risks.

The Nordic Public Sector Issuers have chosen the geographic area comprising EU26+Norway because the Nordic energy system is more and more connected to other European countries facilitating export and import of electricity. Kommuninvest has informed us that using this methodology, but confining it to electricity production in only Sweden, Norway, Finland and Denmark, would give a baseline Combined Margin of 126 g CO₂/kWh. National agencies in Norway and Sweden tend to prefer using factors representing a national or Nordic production mix. Using such a mix would be more favourable for electrifications solutions such as electric vehicles. The average grid factor for production in the Nordic countries today according to the European Environmental Agency amounts to 83 g CO₂/kWh².

Impacts beyond the project boundary

Due to the complexity of how socio-economic activities impact the climate, a specific project is likely to have interactions with the broader community beyond the project borders. These interactions may or may not be climate-friendly, and thus need to be considered with regards to the net impact of climate-related investments.

Rebound effects

Efficiency improvements may lead to rebound effects. When the cost of an activity is reduced there will be incentives to do more of the same activity. From the project categories in Table 2, an example is that an unintended result of energy efficiency projects may actually be increased energy use. Another example is public support schemes for renewable energy that increase energy supply, leading to reduced energy prices and thus potentially more energy consumption. A third example is with waste incineration with energy recovery, which is a sound environmental and climate friendly option to divert waste away from landfills. However, waste

incineration is best combined with ambitious recycling policies because if the capacity for waste incineration is too high it might create an incentive to prioritize incineration over recycling. Hence, there is a particular need to continue to improve in this regard, in particular to recycling more fossil fuel waste such as plastics, into new materials. Kommuninvest should be aware of such effects and possibly avoid Green Bond funding of projects where the risk of rebound effects is particularly high.

Appendix:

About CICERO and ENSO

CICERO Center for International Climate Research is Norway's foremost institute for interdisciplinary climate research. We deliver new insight that helps solve the climate challenge and strengthen inter-national climate cooperation. We collaborate with top researchers from around the world and publish in recognized international journals, reports, books and periodicals. CICERO has garnered particular attention for its work on the effects of manmade emissions on the climate and the formulation of inter-national agreements and has played an active role in the UN's IPCC since 1995.

CICERO is internationally recognized as a leading provider of independent reviews of green bonds, since the market's inception in 2008. CICERO received a Green Bond Award from Climate Bonds Initiative for being the biggest second opinion provider in 2016 and from Environmental Finance for being the best external review provider (2017).

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CICERO works with both international and domestic issuers, drawing on the global expertise of the Expert Network on Second Opinions. Led by CICERO, ENSO is comprised of trusted research institutions and reputable experts on climate change and other environmental issues, including the Basque Center for Climate Change (BC3), the Stockholm Environment Institute, the Institute of Energy, Environment and Economy at Tsinghua University and the International Institute for Sustainable Development (IISD). ENSO operates independently from the financial sector and other stakeholders to preserve the unbiased nature and high quality of second opinions.

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