

An S&P Global Second Party Opinion (SPO) includes S&P Global Ratings' opinion on whether the documentation of a sustainable finance instrument, framework, or program, or a financing transaction aligns with certain third-party published sustainable finance principles. Certain SPOs may also provide our opinion on how the issuer's most material sustainability factors are addressed by the financing. An SPO provides a point-in-time opinion, reflecting the information provided to us at the time the SPO was created and published, and is not surveilled. We assume no obligation to update or supplement the SPO to reflect any facts or circumstances that may come to our attention in the future. An SPO is not a credit rating, and does not consider credit quality or factor into our credit ratings. See [Analytical Approach: Second Party Opinions](#).

Second Party Opinion

Kommuninvest Green Bond Framework

June 27, 2024

Location: Sweden

Sector: International Public Finance

Primary contact

Rafael Heim

Paris

+33 634 39 72 53

Rafael.Heim@spglobal.com

Alignment With Principles

Aligned = ✓ Conceptually aligned = ○ Not aligned = ✗

✓ Green Bond Principles, ICMA, 2021 (with June 2022 Appendix 1)

See [Alignment Assessment](#) for more detail.

Medium green

Activities that represent significant steps towards a low-carbon climate resilient future but will require further improvements to be long-term low-carbon climate resilient solutions.

Our [Shades of Green Analytical Approach](#) >

Strengths

Many of the financed projects bring significant social benefits to the municipalities. Projects include the construction and development of schools, nursing homes, family housing units, and sports facilities. Others aim to improve access to public transportation.

Kommuninvest's framework update includes disclosure requirements related to reducing climate impacts from the use of concrete in construction. Specifically, the issuer clarified that the use of climate-improved concrete for new green buildings refers to concrete with 20% less climate impact than the current Swedish industry reference level.

Kommuninvest publishes an annual comprehensive impact report, including project-by-project reporting. The issuer also collaborates with Nordic public-sector green bond issuers to harmonize reporting principles, with which it seeks to comply in this framework.

Weaknesses

Eligible activities include financing small waste-to-energy plants, where biomass inputs are not covered by the Renewable Energy Directive (RED) criteria. Also, the issuer does not have separate screening criteria for such plants. This creates a risk that biomass inputs with lower emissions savings or fewer sustainability safeguards could be used. A mitigant is the high share of forest residues for heat production in Sweden.

Areas to watch

Kommuninvest does not yet measure its financed emissions, which account for most of its total greenhouse gas emissions. Nevertheless, it is establishing a baseline for financed carbon emissions, following Partnership for Carbon Accounting Financials (PCAF) guidelines, and will monitor these emissions over time.

Kommuninvest has started to assess its climate and environment risks. It aims to identify and define risks that could have a material financial impact on borrowers. But as the issuer does not treat physical assets as collateral, risk assessments are only at the borrower level, rather than the asset level.

Biomass feedstocks for electricity, biogas and liquid biofuels, even following RED requirements, carry varying sustainability risks. In heating, residues from forestry is the main bio-feedstock, while some of the feedstocks for liquid biofuels are associated with higher land use change risks.

Eligible Green Projects Assessment Summary

We assess eligible projects under the issuer's green finance framework based on their environmental benefits and risks, using Shades of Green methodology.

Green and energy efficient buildings Medium to Light green

New construction, existing buildings, and renovations.

Installation, maintenance, and repair of energy efficient equipment and instruments and devices for measuring, regulating, and controlling the energy performance of buildings.

Renewable energy Dark to Medium green

Facilities that produce electricity using solar photovoltaic (PV) technology, wind power, and hydropower.

Facilities that produce heat/cool, power, or co-generate heat/cool and power exclusively from biomass, biogas, or bioliquids; manufacturing of biogas, biofuels; facilities for treating sewage sludge by anaerobic digestion and separately collected bio-waste through anaerobic digestion.

Pollution prevention and control Medium green

Facilities involved in the collection and transportation of hazardous and non-hazardous waste; the sorting and processing of non-hazardous waste into secondary raw materials; and the treatment of hazardous waste and separately collected bio-waste through composting.

Facilities that include waste incineration to produce heat/cool and power, following a waste hierarchy.

Facilities for CCS associated with biogenic emissions in district heating plants and emissions from waste incineration leading to at least a 50% reduction in greenhouse gas emissions from the associated plant or facility; facilities for CCU; permanent storage of captured CO₂ in appropriate underground geological formations; the implementation of a leak detection system.

Remediation of landfills and contaminated areas, including the disposal of illegally deposited waste.

Sustainable water and wastewater management Medium green

Investment related to the construction, extension, renewal, and operation of water collection, treatment, and supply systems leading to improved energy efficiency; the sustainable use and protection of water and marine resources; manufacture, installation, and associated services for leakage control technologies; water supply.

The construction, extension, renewal, and operation of waste water collection and treatment; protection of water and marine resources; urban waste water treatment.

Investment in projects related to biogas production; projects related to the diversion, delay, and/or purification of storm water and the energy efficiency of desalination facilities and equipment.


Clean transportation Dark to Medium green

Investment in road, rail, and water transport, including machinery that is either fully electric or powered by e-fuels.

Infrastructure dedicated to personal mobility or cycle logistics including electrical charging and hydrogen refueling installations.

Rail transport infrastructure for zero tailpipe CO₂ emission trains; low-carbon road transport and public transport infrastructure; water transport infrastructure required for zero tailpipe CO₂ operation of vessels or the port's own operations and transshipment.

Energy efficiency

 Medium green

Facilities that produce heat/cool using waste heat; pipelines and associated infrastructure for distributing heating and cooling; system modification to lower temperature regimes or advanced pilot systems; electric heat pumps that meet the refrigerant threshold of global warming potential (GWP) 675.

Transmission and distribution infrastructure in the Swedish electricity system; transmission and distribution pipelines for biogas.

Facilities that store electricity, thermal energy, and renewable energy sources. Facilities that produce hydrogen with renewable sources or energy sources; hydrogen storage facilities and hydrogen transmission and distribution pipelines.

Energy efficiency investments for various municipal activities and operations.

Climate change adaptation

 Dark to Medium green

Investment related to physical or nature-based adaptation solutions to reduce climate-related risks.

Terrestrial and aquatic biodiversity

 Dark green

Investment related to the protection, conservation, and restoration of biodiversity and ecosystems.

See [Analysis Of Eligible Projects](#) for more detail.

Issuer Sustainability Context

This section provides an analysis of the issuer's sustainability management and the embeddedness of the financing framework within its overall strategy.

Company Description

Established in 1986, Kommuninvest is a Swedish municipal cooperation providing financing for local government investments and is the largest green bond issuer in the Nordics. Kommuninvest is owned by 280 municipalities and 15 regions, making it the largest lender to the Swedish local government sector. Only municipalities and regions that are members of Kommuninvest Cooperative Society, as well as companies controlled by the members, may borrow from Kommuninvest. It is committed to supporting Sweden's climate goals, aiming for climate neutrality by 2045. At end-2023, it represented 97% of municipalities and regions and accounted for about 60% of the local government sector's borrowing. Total lending to customers was SEK512 billion at the end of 2023.

Material Sustainability Factors

Climate Transition Risk

Policymakers have a key role in cutting greenhouse gas emissions to address climate change. While signatories to the 2015 Paris Agreement provide a broad basis for global action, many countries' climate pledges fall significantly short of the reductions needed to reach net zero by 2050. A lack of policies to support climate pledges exacerbates the challenge, making it likely that the 1.5°C warming scenario (from pre-industrial levels) could be exceeded in the near future given past emissions and current increasing emissions trends. Current commitments are expected to result in broadly constant global emissions of about 60 Gt CO₂e annually, resulting in warming likely exceeding 3°C by the end of the century.

The Swedish government is targeting climate neutrality by 2045, a strategy that includes addressing environmental issues relevant to many of the regions and municipalities that Kommuninvest provides financing to. These include minimizing the carbon footprints of the real estate and transportation sectors. This leaves Sweden exposed to transition risks from stricter climate policies, for example related to emissions reduction and upgrading the energy efficiency of industries and buildings.

Physical Climate Risk

Physical climate risks can affect many economic activities and unabated greenhouse gas emissions will lead to more frequent and severe climate hazards, absent adaptation. While the physical impacts of climate change and extreme weather will continue to play out globally, the direct effects--including (but not limited to) heat waves, flooding, and wildfires--are more localized. The indirect impacts of such events will affect different channels (such as the volume and pricing of traded goods and services), going beyond administrative borders and cascading through multiple sectors.

Over the past century, Sweden has experienced a noticeable rise in average temperatures. A significant increase in recent decades has influenced its ecosystems and weather patterns. It now faces a range of intensifying weather events, notably alterations in precipitation including increased flooding, changing snow/ice patterns, summer droughts in the south, and more storms and extreme weather generally. Its forestry industry, vital to its economy, faces climate-change-related challenges such as increased risks of wildfires and pests.

Other Environmental Factors

Institutions providing financing services to public actors play a key role in protecting biodiversity, and containing land, air, and water pollution, as these tasks fall under government mandates. Economic development goals can exert considerable pressure on natural ecosystems locally and for trading partners. Environmental factors are often intertwined, including with climate transition and physical climate risks.

Sweden is exposed to various environmental challenges involving water, land use and biodiversity, and pollution. The country could face water availability risks with less rain in the summer months increasing the likelihood of wildfires, and unpredictable weather patterns increasing flooding risks during the wetter months. Human activities, such as industrial operations and infrastructure development, have increased its exposure to pollution risks and biodiversity loss.

Social Factors

Institutions providing financing services to public actors play a key role in socioeconomic development as this falls under government mandates. Depending on national and local circumstances, governments may prioritize economic advancement; poverty, hunger, or inequality reduction; or improving access to essential services or infrastructure, or clean water or sanitation; or other social goals.

Sweden is a high-income economy with a Human Development Index ranking of 0.947 (2021), placing it among the top countries globally. It has been an EU member since Jan. 1, 1995. Over the years, Sweden has made strides in enhancing its prosperity, yet certain challenges persist. Despite its affluent status, Sweden has grappled with increasing issues of economic inequality, albeit less so than many other nations in the past decade. In 2021, Sweden's Gini coefficient, an indicator of income inequality, surged to 0.333. This was the highest Sweden had seen since measurements commenced in 1975. The ramifications of economic inequality extend to various societal disparities, a challenge currently confronting the country.

Issuer And Context Analysis

The eligible project categories aim to address Sweden's most material sustainability factors, including the climate transition and physical climate risk. The framework aims to finance projects related to renewable energy, energy efficiency, pollution prevention and control, green and energy efficient buildings, clean transportation, sustainable water and wastewater management, climate change adaptation, and terrestrial and aquatic biodiversity. All the projects aim to address climate transition risk, with some focusing on pollution prevention and control, and sustainable water and wastewater management. Some will also address other forms of waste and recycling. Terrestrial and aquatic biodiversity projects will aim to address biodiversity and resources use through conservation and restoration activities.

As a lending institution, Kommuninvest operates in the context of local municipalities' sustainability strategies, which may vary in depth and ambition and progress made in addressing climate risks.

Kommuninvest aims to engage with municipalities to assess projects based on how effective they will be at mitigating climate risks. The lack of standardization across municipalities is partly offset by the framework's clearly defined project categories, under which single-project eligibility standards will be applied. Moreover, all green loans need to meet certain pre-conditions, including that the financed projects shall be part of the systematic environmental work performed by the relevant municipality or region. However, ambitions vary across municipalities, implying that some projects will be submitted to stricter environmental screening processes than others, in the same project category.

Kommuninvest's stated climate objective is to enable the municipal and regional sector to achieve Sweden's climate goals, with municipalities playing a central role. It has funding partnerships with 95% of Swedish municipalities and regions and has chosen to affiliate itself with the national climate target of climate neutrality by 2045. As a credit institution, its most important environmental impacts are those related to its lending portfolio. Its Green Finance Program, which finances green loans through

Second Party Opinion: Kommuninvest Green Bond Framework

green bonds, is core to its strategic positioning. Kommuninvest's green loans accounted for 16% of its total lending in 2023. In the 2024 update of its Green bond framework, the issuer aligned the framework with the EU taxonomy activities, with some criteria in line with the Substantial Contribution criteria, thus supporting Swedish municipalities in aligning their activities with the EUT. Given the business model, its own emissions are relatively low; nonetheless it has taken steps to reduce them over the years. While Kommuninvest does not currently measure or report on its scope 3 emissions, it is developing a methodology to calculate its financed emissions under PCAF guidelines. This includes establishing a framework to monitor these emissions over time.

Sweden's National Strategy for Climate Change Adaptation (2017) outlines necessary adaptation measures based on risks projected in several scenarios, and effects already experienced. The latter include landslides and erosion, wildfires, water scarcity in summer months, flooding, and biodiversity loss. The adaptation framework aims to support climate resilience efforts, and, since its introduction, Sweden has made progress in the implementation of adaptation actions and plans, including a range of climate risk assessments for sectors and regions as well as the clarification of responsibilities for national and regional agencies.

Aside from the overarching 2045 climate neutrality target, Kommuninvest's financed projects will address other environmental objectives. Sweden has set out 16 environmental quality objectives that cover a range of categories. Clean air, good quality groundwater, and a nontoxic environment are addressed by projects related to pollution prevention/control and water and wastewater management. These projects can benefit local municipalities by reducing hazardous waste in the environment, improving both air quality and drinking water.

While not the primary objective, measures to address climate change mitigation and adaptation can boost local communities and livelihoods. Potential benefits are reduced residual and hazardous waste, better access to public transportation, improved existing and new building infrastructure with greater energy savings, and improved sewage systems and other water systems. Financing in the green buildings project category can also benefit nursing homes, schools, family housing units, and sports facilities. Funding to municipal housing companies might improve access to housing and, subsequently, indirectly address social inequality issues in Sweden.

Alignment Assessment

This section provides an analysis of the framework's alignment with the Green Bond Principles.

Alignment With Principles

Aligned = ✓ Conceptually aligned = ○ Not aligned = ✗

✓ Green Bond Principles, ICMA, 2021 (with June 2022 Appendix 1)

✓ Use of proceeds

We assess all the framework's green project categories as a shade of green. The issuer commits to allocate the net proceeds issued under the framework exclusively to eligible green projects. Please refer to "Analysis of Eligible Projects" for more on our analysis of the environmental benefits of the expected use of proceeds. Kommuninvest will allocate an amount equal to the net proceeds from instruments issued under its green bond framework to finance or refinance a green portfolio of loans disbursed by the issuer. All financed projects are in Sweden. Given that, under Swedish law, local governments can only borrow for investments, all financed assets take the form of capital expenditure for which the issuer does not specify a lookback period.

The issuer's selection criteria draws on the substantial contribution criteria in the EU Taxonomy's TSC, which we view favorably. We note, however, that certain activities eligible to be financed under the framework, for example waste-to-energy, are currently not addressed by the TSC.

✓ Process for project evaluation and selection

Kommuninvest has a green financing committee to evaluate whether projects meet the eligibility criteria defined in the framework for green loan disbursements. This consists of members from the management team, the sustainability and lending departments, and external experts. Aside from deciding if financed activities meet the use-of-proceeds criteria, the committee also considers matters such as the use of improved or low-carbon concrete for infrastructure projects.

Regarding perceived social and environmental risks, Kommuninvest has integrated climate and environmental considerations into its risk assessments. Moreover, local government recipients of financing have procedures to account for social risks related to financed projects. The framework's project exclusion list includes, among others, fossil energy production, and storage and transport—or any investments into infrastructure—leading to a lock-in of fossil-fuel-based infrastructure.

✓ Management of proceeds

Kommuninvest will track the allocation of net proceeds from green bonds to green loans using a green register. If a financed project no longer meets the green loan eligibility criteria, it is marked for investigation in the green register. The lender will then seek rectification from the borrower. The associated loan could potentially be disqualified from being financed with green bond proceeds. The issuer says it will test compliance with the green loan eligibility criteria at least annually over the life of the loan.

Unallocated proceeds will be held in a liquidity reserve. The issuer has defined exclusion criteria for these temporary holdings, which we consider good practice. It also aims to allocate all net proceeds from green bonds within 12 months of issuance.

✓ Reporting

Kommuninvest commits to annual reporting on the allocation and the expected, as well as actual, environmental impact of the proceeds, until full allocation. This report will be published on its website and include a summary of the green loans and allocated amounts, as well as a brief description of projects financed throughout the year. To the extent possible, the issuer will report in line with the impact reporting principles stated in "Nordic Public Sector Issuers: Position Paper on Green Bonds Impact Reporting", a paper developed by a group of Nordic issuers including Kommuninvest. Furthermore, the issuer commits to receive annual post-issuance verification on the allocation of proceeds.

Analysis Of Eligible Projects

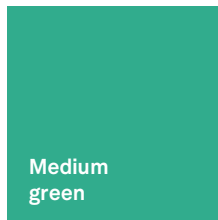
This section provides details of our analysis of eligible projects, based on their environmental benefits and risks, using the Shades of Green methodology.

Kommuninvest expects to allocate proceeds broadly in line with its historical green project portfolio distribution. Based on the issuer’s impact reporting for 2022, 62% of disbursed amounts went to green buildings, 16% to renewable energy, 15% to water management, 6% to clean transportation, and the rest to the remaining categories.

The issuer expects around 80% of proceeds to be allocated to refinancing projects, while the remainder will be directed to new projects. This estimate is based on historical figures, and the exact share will be communicated annually in Kommuninvest’s Green Bond Impact Report.

Overall Shades of Green assessment

Based on the project category shades of green detailed below, and considering the environmental ambitions reflected in the issuer’s green bond framework, we assess the framework as Medium green.



Activities that represent significant steps towards a low-carbon climate resilient future but will require further improvements to be long-term low-carbon climate resilient solutions.

Our [Shades of Green Analytical Approach](#) >

Green project categories

Green and energy efficient buildings

Assessment

Medium to Light green

Description

New Buildings

(Eligible EU Taxonomy category: 7.1. “Construction of new buildings”)

- New residential buildings and premises that have or will have a primary energy demand that is at least 20% lower than the Swedish Building Regulation (BBR29).

The building implements life-cycle-oriented measures--at a minimum for its frame/concrete base--for example by using wood or climate-improved concrete.

Buildings larger than 5,000 square meters (using Atemp, a Swedish area calculation formula) must undergo testing for airtightness and thermal integrity.

For new buildings the life cycle Global Warming Potential (GWP) is calculated for the construction stage of the life cycle (LCA-module A1-A5).

Existing Buildings

(Eligible EU Taxonomy category: 7.7. “Acquisition and ownership of buildings”)

- Buildings that have a primary energy demand at least 20% lower than BBR29.

Major renovations

(Eligible EU Taxonomy category: 7.2. “Renovation of existing buildings”)

Major renovations complying with one of the following:

- The building renovation leads to a reduction in energy use of at least 30% compared to pre-investment; or
- The building renovation meets the energy performance requirements of BBR29.

Green loans applicants are asked to provide information on the environmental and climate measures that are implemented in the project; and if/how the climate impact from construction is taken into account and calculated.

Building energy efficiency

(Eligible EU Taxonomy categories: 7.3. "Installation, maintenance and repair of energy efficiency equipment", 7.5. "Installation, maintenance and repair of instruments and devices for measuring, regulation and controlling energy performance of buildings", and 7.6. "Installation, maintenance and repair of renewable energy technologies").

Individual renovation measures comprising the installation, maintenance, or repair of energy efficiency equipment. Where applicable, rated in the two highest classes of energy efficiency.

Energy-efficient envelope components, such as:

- The addition of insulation, including measures to ensure airtightness and to reduce the effects of thermal bridges.
- Energy efficient windows and doors.

Energy-efficient equipment in buildings, such as:

- Energy efficient light sources.
- Heating, air-conditioning (HVAC), water heating systems, and energy recovery.
- Low-water and low-energy kitchen and sanitary water fittings. For showers, mixers, shower outlets, and taps with a maximum water flow of 6 liters/minute or belonging to the two highest classes of energy efficiency under the voluntary Swedish labelling system for such products.
- Electric heat pumps that meet the refrigerant threshold (GWP) of 675.
- Connection to and equipment for district heating or district cooling.

Instruments and devices for measuring, regulating, and controlling the energy performance of buildings, such as:

- Zoned thermostats, smart thermostat systems, and sensing equipment including motion and day light control.
- Building automation and control systems, ventilation, building energy management systems, and lighting control—includes power-control and power-limiting equipment, for example for charging infrastructure and battery storage for power equalization.
- Smart meters for electricity, district heating, gas, and cooling.
- Facade and roofing elements with a solar shading or solar control function, including those that support the growing of vegetation.
- Facade and roof elements with shading or solar controls, including those that support vegetation build-up.

Analytical considerations

- For existing buildings, high energy efficiency is important to the transition to a low carbon economy. In new construction, improving energy performance and reducing the embodied emissions associated with building materials are key to achieving low-carbon aims. For all buildings, mitigating exposure to physical climate risks is crucial to improving climate resilience.
- Kommuninvest will finance new, and existing, buildings for which the primary energy demand needs to be at least 20% below that of Swedish Building Regulation for new buildings. BBR29 sets out the nearly-zero-energy building requirements that are mandatory for all newly constructed buildings as of 2021 (and public buildings from 2019), in line with the EU's Energy Performance of Buildings Directive (EPBD). According to the issuer's impact reporting, the majority of financing will target

Second Party Opinion: Kommuninvest Green Bond Framework

planned and existing residential and nonresidential buildings in Kommuninvest's member municipalities, including schools, hospital buildings, and multi-family housing units.

- We assess investments in existing buildings (under the framework) as Medium green. Specifically, the fact that buildings must achieve a primary energy demand at least 20% lower than the BBR29 threshold is, in our view, a robust requirement that goes beyond market practice. Standard market practice tends to align the green bond criteria for existing buildings with the top performing 15% of the national or regional building stock in terms of primary energy demand.
- We assess the financing of newly constructed buildings as Light green. Given the significant climate impacts of new construction projects, particularly in terms of embodied emissions, using less emissions-intensive materials can align with broader climate ambitions. We view positively that eligibility criteria require that the climate impact of concrete used for building construction is at least 20% lower than the current Swedish industry reference level and that the issuer requires life-cycle oriented climate measures to be implemented in the project.
- The low-carbon transition involves renovating and improving existing properties. We view favorably the framework's criteria for renovations and energy efficiency measures, including a 30% reduction in energy consumption. We assess this as a Medium green endeavor. A small share of proceeds will go to efficiency improvements and building renovations, though the issuer expects to increase the share of such projects given macroeconomic circumstances and the progress of the EU's EPBD.
- The issuer confirms that buildings with fossil-fuel heating onsite will not be financed under the framework.
- For new, as well as older, buildings we consider exposure to physical climate risks to be relevant to their climate resilience. The issuer informs us that, where considered to be material, its risk assessment process considers climate factors, including screening for and assessing physical risks. Nevertheless, assessments are done at the borrower level, rather than at the asset level, which may not sufficiently consider all relevant risks related to the buildings.

Renewable energy

Assessment

 Dark to Medium green

Description

Solar power

(Eligible EU Taxonomy category: 4.1 "Electricity generation using solar photovoltaic technology")

Facilities that produce electricity using solar photovoltaic (PV) technology.

Wind power

(Eligible EU Taxonomy category: 4.3 "Electricity generation from wind power")

Facilities that produce electricity from wind power.

Hydropower

(Eligible EU Taxonomy category: 4.5 "Electricity generation from hydropower")

New or existing facilities that have a permit consistent with the Swedish Environmental Code that entered into force on Jan. 1, 2019, and which comply with either of the following criteria:

- The electricity generation facility is a run-of-river plant and does not have an artificial reservoir, or
- The power density of the electricity generation facility is above 5 W/m², or
- The life cycle greenhouse gas emissions from the generation of electricity from hydropower are lower than 100gCO₂e/kWh.

Bioenergy

(Eligible EU Taxonomy categories: 4.8. "Electricity generation from bioenergy", 4.13.

"Manufacture of biogas and biofuels for use in transport and of bioliquids", 4.20. "Cogeneration

of heat/cool and power from bioenergy”, 4.24. “Production of heat/cool from bioenergy”, 5.6. “Anaerobic digestion of sewage sludge” and 5.7. “Anaerobic digestion of bio-waste”)

- Facilities that produce heat/cool, power, or co-generate heat/cool and power exclusively from biomass, biogas, or bioliquids.
- Facilities that manufacture biogas and biofuels for use in transporting bioliquids.

Inputs are sustainably sourced biomaterials that are in compliance with the EU Renewable Energy Directive (RED) and its requirements on GHG emission reductions. (A sustainability statement is required from the Energy Agency if the total plant output is greater than 20 MW. From 1 January 2025, plants covered by the RED III will need a sustainability statement if plant output is greater than 7.5 MW. Calculation of the total output is made according to the Swedish Act (2010:598) on sustainability criteria for biofuels. Units that are used for a maximum of 500 hours per year, calculated as a rolling average over a three-year period, are excluded from the calculation.)

- Facilities dedicated to the treatment of sewage sludge by anaerobic digestion with the resulting production and utilization of biogas or chemicals.
- Facilities dedicated to the treatment of separately collected bio-waste through anaerobic digestion with the resulting production and utilization of biogas, digestate, and/or chemicals.
 - The produced digestate is used as fertilizer or soil improver, either directly or after composting or any other treatment.
 - The share of food and feed crops used as input feedstock, measured in weight, as an annual average, is less than or equal to 10% of the input feedstock.

For the production of biogas, a monitoring and contingency plan is in place to minimize methane leakage at the facility.

Analytical considerations

- Renewable energy, provided impacts on the local environment are sufficiently mitigated, is key to limiting global warming to well below 2 degrees Celsius. According to the IEA, the majority of Sweden’s electricity supply currently comes from hydro and nuclear, alongside an increasing contribution from wind. As of 2022, renewables accounted for 66.9% of the share of power generation. In line with its 2045 climate neutrality target, Sweden and its municipalities aim to achieve 100% renewable electricity generation by 2040.
- Historical allocation data suggests that the majority of spending within this category finances wind, hydro, and solar power projects, which we assess as Dark green. For hydropower specifically, significant emissions can arise from construction and water reservoirs. We therefore view positively that the eligibility criteria include the EUT’s Substantial Contribution Criteria for climate change mitigation, with a threshold for life cycle emissions or power density for plants that are not run-of-river (including reservoirs).
- Further projects financed within this category include those that rely on bio-inputs, both for heat/cool and electricity generation, production of biogas and liquid biofuels, as well as sewage sludge treatment. The issuer does not screen the origins of bioenergy feedstocks but requires inputs to comply with the RED’s requirements, including 70% greenhouse gas emission reductions for electricity, heating, and cooling over the fossil fuel comparator for installations built in 2021-2025, and 80% from those built after 2026. We note that in Sweden, biomaterials used in district heating specifically, are largely forest residues and pellets. Nevertheless, even with complying with RED, feedstocks will have varying sustainability risks, for example related to direct or indirect land use change, as some food/feed crops are still allowed. In addition, in the absence of carbon capture technologies, emissions continue to be associated with these projects. In sum, we assess these investments as Medium green.
- Similar to other projects financed under the framework, Kommuninvest integrates climate considerations into its risk assessment process, including the identification of material physical risks for the underlying projects. As part of the green loan application process, the applicant needs to disclose whether physical climate risks are considered and addressed for the project, as well as disclose relevant details.

- Renewable energy projects typically require a change in land use and therefore carry biodiversity and local environmental risks. In line with Sweden's transposition of the EU's EIA directive, an EIA is required for all activities that may have a significant impact on the environment. Kommuninvest states that, as part of its financing process, it requires borrowers to disclose whether an EIA has been carried out for the underlying project, including disclosures on how the outcomes of the assessment are addressed.

Pollution prevention and control

Assessment

■ Medium green

Description

Collection and transport of waste and material treatment and recovery

(Eligible EU Taxonomy categories: 5.5. "Collection and transport of non-hazardous waste in source segregated fractions", 5.9. "Material recovery from non-hazardous waste" and Circular economy and Circular economy 2.3. "Collection and transport of non-hazardous and hazardous waste", 2.4. "Treatment of hazardous waste" 2.6. "Depollution and dismantling of end-of-life products" and 2.7. "Sorting and material recovery of non-hazardous waste")

- Separate collection and transportation of non-hazardous waste in single or comingled fractions, or hazardous waste, with the aim of preparing it for reuse or recycling, including facilities involved in the collection and transportation of such waste, such as civic amenity centers and waste transfer stations, as a means for material recovery.
- Facilities for sorting and processing separately collected non-hazardous waste streams into secondary raw materials, including critical raw materials suitable for the substitution of primary raw materials in production processes. The activity may involve mechanical reprocessing.
- Facilities dedicated to the treatment of hazardous waste (including chemical substances and critical raw materials) as a means for material recovery operations.

All collected non-hazardous waste, sorted at source, is intended to be prepared for reuse or recycling.

- Residual waste (non-hazardous waste that cannot be reused or recycled in any other way than by incineration) must be quality assured, complying with the agreement between the industry bodies Swedish Waste Management and Swedenergy, concerning quality assurance of waste fuels.
- The estimated climate benefit that follows from the change (for example a changed recycling rate, changing climate impact from transport, more energy-efficient plant) must be calculated.
- Recovery rate of the treated waste before and after investment shall be reported.
- Facilities that treat the hazardous waste must hold a valid environmental permit for each waste fraction.

Composting of bio-waste

(Eligible EU Taxonomy category: 5.8. "Composting of bio-waste")

- Facilities dedicated to the treatment of separately collected bio-waste through composting (aerobic digestion) with the resulting production and use of compost.

Waste-to-energy

- Facilities that include waste incineration to produce heat/cool and power, following a waste hierarchy to ensure that as much waste as possible is reused and recycled before being converted to energy. The waste must be sorted, for example through source sorting, pre-sorting at an industrial facility, or in own operations. Only residual waste that cannot be reused or recycled can be incinerated. Hazardous waste may be

treated at the facility subject to specific environmental permits and advanced treatment techniques. Such facilities must have stringent requirements for emissions to air, water, and soil. The facility can use a mix of waste, waste heat, and biomass, biogas or bioliquids (based on sustainably sourced biomaterials that comply with the RED and its requirements for greenhouse gas emission reductions).

If fossil waste fractions are used, the plant must take measures to reduce the proportion of plastics of fossil origin, in accordance with the agreement between Swedish Waste Management and Swedenergy, regarding the quality assurance of waste fuels. Direct fossil input (including peat) is limited to 5% of total input.

Carbon Capture and Storage

Investment projects primarily expected for the carbon capture of biogenic emissions in district heating plants. Certain facilities may include carbon capture of emissions from waste incineration. Financing will not be provided for fossil-fuel-intensive operations.

- **Carbon Capture**
 - Carbon capture leading to at least a 50% reduction in greenhouse gas emissions from the associated plant or facility.
- **Carbon capture and utilisation (CCU)**
 - CCU facilities processing separated carbon dioxide into new secondary raw material, creating sustainable carbon cycles and lead to a reduction of carbon dioxide emissions compared to an alternative scenario. The estimated climate benefit must be calculated.
- **Carbon storage**

(Eligible EU Taxonomy category: 5.12. “Underground permanent geological storage of CO₂”)

 - Permanent storage of captured carbon dioxide in appropriate underground geological formations that comply with both of the following criteria: (i) meeting the relevant EU directives related to assessment, exploration, and operation of storage sites and surrounding area; and (ii) appropriate leakage detective systems are implemented and a monitoring plan is in place.

Remediation of contaminated sites and areas

(Eligible EU Taxonomy categories: Pollution prevention and control 2.3. “Remediation of legally nonconforming landfills and abandoned or illegal waste dumps” and 2.4. “Remediation of contaminated sites and areas”)

- Remediation of landfills and contaminated areas, including disposal of illegally deposited waste.

An examination of the need for an environmental impact assessment is required, and, if deemed necessary, the assessment must be carried out.

Green loan applicants shall provide information on the planned or implemented necessary risk mitigation measures for sites/projects in or near biodiversity-sensitive areas (including the Natura 2000 network of protected areas, UNESCO World Heritage sites, and Key Biodiversity Areas, as well as other protected areas).

Analytical considerations

- Waste management is an important pollution prevention measure that can avoid harm to human health and local ecosystems. Recycling, if implemented properly, will reduce emissions and benefit energy and natural-resource use. According to the European Environment Agency, the municipal recycling rate in 2021 in Europe was 48.7%, and in Sweden it was 39.5%. Under the EU's waste hierarchy, sorting and collection projects need to be implemented in combination with other key steps. These

Second Party Opinion: Kommuninvest Green Bond Framework

include actions to increase capacity for reuse and recycling, as well as efforts to prevent waste generation at the product or packaging design phase, or through the promotion of sustainable production and consumption models, for example.

- Based on the issuer's impact reporting, the most significant activities in its loan portfolio within this category include the financing of waste collection, sorting, and recycling systems and facilities. We assess these activities as Medium green. Such investments improve recycling rates and help recover raw materials. Kommuninvest states that, as part of its project evaluation and selection process, it will establish that all collected non-hazardous waste is sorted at source and intended to be prepared for reuse or recycling. Furthermore, we understand that fossil-fuel powered vehicles for waste collection are not eligible to receive financing, and neither are active landfills.
- Eligible activities in the framework also include waste treatment and waste-to-energy (WtE) projects, which provide a disposal solution for waste that cannot be recycled, reused, or avoided. Nevertheless, unabated WtE plants that incinerate municipal waste create significant emissions and only represent near-term transition steps, which is why we consider such activities Light green. In Sweden, adherence to the waste hierarchy is relatively high; plants meet technology requirements in relevant EU directives, mitigating environmental impacts caused by such plants. While the issuer does not consider emissions linked to waste transportation, we understand that financed plants are typically local and transport tends to be within the municipality receiving the funding (although cross-municipality transportation is sometimes used). Financed facilities can use a mix of waste- and bio-based inputs, with biomaterials needing to follow RED. Nevertheless, smaller plants (output below 7.5 MW) are not covered by RED and Kommuninvest does not have separate considerations regarding the feedstock used in these plants. The issuer states that these currently account for a limited share of the green loan portfolio (less than 1.5%) and that the smaller plants would need to follow Swedish industry standards for quality assurance of waste fuels. However, we understand that this agreement does not include specific considerations related to the environmental benefits of the feedstock used, which we think limits the environmental benefits of such plants.
- The framework includes carbon capture utilization and storage (CCUS) as eligible expenditure, yet the projects currently identified by the issuer are still in their pilot phase and would only account for a marginal share of proceeds. We consider CCUS a critical component in a LCCR future, noting the importance of adequate leakage monitoring and detection systems, as well as the need for a comprehensive assessment of projects' life cycle emissions. The framework specifies that investments in CCUS projects, once commercialized, would need to reduce greenhouse gas emissions from the associated plant or facility by 50%. The issuer expects most projects to rely on own electricity production (cogeneration) from a bio- or waste-based boiler, or to purchase electricity from the grid, which is largely decarbonized in Sweden. The issuer will monitor the projects, requiring borrowers to provide information on both the expected and actual impact of projects, where feasible.
- Finally, the framework includes criteria on the remediation of contaminated sites and areas, including landfills and areas of illegally deposited waste. Among others, currently financed projects under this category include the remediation of contaminated soil and groundwater in the Karlskrona municipality, as well as improved stormwater management, in order to prepare the expansion of district heating infrastructure in the area. While the issuer does not screen for whether projects (for example, the filter membrane) are dependent on fossil-based materials or use fossil equipment, the issuer requires green loan borrowers to disclose risk mitigation measures for sites/projects near vulnerable biodiversity areas and screens for EIAs, in line with its approach to all projects under the framework.

Sustainable water and wastewater management

Assessment

 Medium green

Description

Drinking water

(Eligible EU Taxonomy categories: 5.1. "Construction, extension and operation of water collection, treatment and supply systems" and 5.2. "Renewal of water collection, treatment and supply systems" and Sustainable use and protection of water and marine resources 1.1. "Manufacture, installation and associated services for leakage control technologies enabling leakage reduction and prevention in water supply systems" and 2.1. "Water supply")

Option 1 – sustainable use and protection of water and marine resources

Investment projects that fulfil both criteria:

- The water sources have obtained the necessary permits for water abstraction and must, if deemed necessary, be protected by established water protection areas (as determined by the Havs- och vattenmyndighetens vägledning).
- The leakage level for the part of the water supply system covered by the investment is equal to or lower than the threshold ILI value 2.0 for refinancing of an existing water supply system, or equal to or lower than the threshold ILI value 1.5 for new water supply systems or expansions to the existing water supply system. Alternatively, for renewal of existing water supply systems: the investment closes the gap by at least 20% between the current leakage level averaged over three years and an ILI of 1.5.

Option 2 – climate change mitigation

Investment projects shall fulfil criteria depending on the type of investment:

1. Construction, extension, operation of water systems that complies with one of the following criteria:

- The net average energy consumption for abstraction and treatment equals to or is lower than 0.5 kWh/m³ produced water supply, or
- The leakage level of the water supply system section covered by the investment is equal to or lower than 1.5

2. Renewal of water systems that complies with one of the following criteria:

- The net average energy consumption is decreased by at least 20% compared to own baseline performance averaged for three years, or
- The investment closes the gap by at least 20% between the current leakage level averaged over three years and an ILI of 1.5.

Waste water collection and treatment

(Eligible EU Taxonomy categories: 5.3. "Construction, extension and operation of waste water collection and treatment" and 5.4. "Renewal of waste water collection and treatment" and Protection of water and marine resources 2.2. "Urban Waste Water Treatment")

Option 1 – sustainable use and protection of water and marine resources

Investment projects that fulfil both criteria:

- The sewage management system has a pipeline network and well-adapted treatment processes so that the treatment plant meets the emission requirements in accordance with its environmental permit.
- Where the waste water treatment plant has a capacity of 100 000 p.e. or more, or of a daily inflow of a seven-day biochemical oxygen demand (BOD7) load of more than 7 tons, it uses a sludge treatment such as anaerobic digestion or a technology with the same or a lower net energy demand (considering both energy generation and consumption), to stabilize the sludge.

Option 2 – climate change mitigation

Investment projects shall fulfil criteria depending on the type of investment:

Construction, extension, operation of waste water systems

- The net energy consumption of the waste water treatment plant equals to or is lower than:
 - 35 kWh per population equivalent (p.e.) per annum for treatment plant capacity below 10 000 p.e.
 - 25 kWh per p.e. per annum for treatment plant capacity between 10 000 and 100 000 p.e.
 - 20 kWh per p.e. per annum for treatment plant capacity above 100 000 p.e.

Renewal of waste water systems

- The renewal of the waste water system leads to improved energy efficiency by decreasing the average net energy consumption by 20 % compared to own baseline performance averaged over three years.

Biogas production

(Eligible EU Taxonomy categories: 5.6. “Anaerobic digestion of sewage sludge”)

- Water and wastewater related investment projects that also involve production of biogas shall meet the eligibility criteria as per the Bioenergy eligibility criteria under Renewable energy.

Storm water

(Eligible EU Taxonomy category: Protection of water and marine resources 2.2. “Urban Waste Water Treatment”)

- The investment project, including associated subsystems, shall refer to the diversion, delay and/or purification of storm water.

Desalination

(Eligible EU Taxonomy category: Climate adaptation 5.13. “Desalination”)

Desalination facilities and equipment requires a climate risk and vulnerability analysis.

- The energy use for the entire desalination process (including side treatments, pumping and removal of brine) does not exceed 4 kWh per m³ of fresh water produced

Analytical considerations

- Efficient water and wastewater activities, in terms of energy and water, are generally positive for climate resilience and pollution prevention reasons, and investments in these sectors are needed to meet the 2050 goals. Sweden has abundant water resources, but faces water-related challenges including droughts, floods, and water shortages. The regulatory framework for water and wastewater infrastructure in Sweden is being impacted by strengthening EU legislation, notably revisions to the Drinking Water Directive and Urban Waste Water Treatment Directive, which require the upgrading and maintenance of treatment plants, distribution networks, and monitoring systems, among others.
- Based on Kommuninvest’s 2022 impact reporting, most expenditure in this category targets the expansion of water supply systems and additional wastewater treatment capacity. Drawing on the EU Taxonomy, the framework’s selection criteria

considers drinking water and wastewater projects eligible when they align with either the leakage, energy efficiency, or sewage management thresholds and requirements of the EUT's TSC. The issuer may also finance water infrastructure projects that improve the diversion, delay, and/or purification of storm water. In Sweden, water supply and wastewater treatment systems are primarily electrified, though the operator may rely on fossil-fuel powered back-up equipment in case of emergency and to maintain required service levels. The framework does not set requirements for reduced methane and nitrous oxide emissions that are higher than the legal requirements. Overall, we assess the financing of such projects as Medium green.

- In line with municipalities' responsibility to provide water services to the population, Kommuninvest's financing under this category primarily addresses water infrastructure for public needs, rather than projects that serve water-intensive sectors including industrial and agricultural use, or mining. Infrastructure projects that exclusively support facilities in fossil-linked or other emissions-intensive sectors are not eligible.
- The issuer may also finance desalination plants under the framework, notably on the islands of Öland and Gotland in the Baltic Sea, where there is a shortage of freshwater reservoirs. While desalination projects reduce dependence on freshwater, they are also highly energy intensive and there may be substantial greenhouse gas emissions linked to their operation, depending on energy source. Nevertheless, we view favorably the issuer's explicit threshold on maximum energy use per m³ of water used in the desalination process.
- As with other projects financed under the framework, Kommuninvest will conduct an EIA for relevant water supply and wastewater systems, which, in line with Swedish legislation, will determine the environmental impact of financed projects.
- In line with the requirements applicable to all relevant assets under the framework, the issuer integrates physical climate risk into its risk assessment process, where they are considered to be material. This takes place at the level of the borrower, rather than at the asset level.

Clean Transportation

Assessment

 Dark to Medium green

Description

Road, rail, and water transport, including machinery

(Eligible EU Taxonomy categories: 6.1. "Passenger interurban rail transport", 6.2. "Freight rail transport", 6.3. "Urban and suburban transport, road passenger transport", 6.6. "Freight transport services by road", 6.7. "Inland passenger water transport", 6.8. "Inland freight water transport", 6.10. "Sea and coastal freight water transport, vessels for port operations and auxiliary activities" and 6.11. "Sea and coastal passenger water transport")

- Vehicles such as trains, passenger coaches, wagons, buses, cars, trucks, vessels and working machines such as cranes, tractors, and excavators must be fully electric or alternatively powered by electro-fuels, hydrogen, or biogas. Passenger transport by rail can include regional and local trains, subways, and trams.

If infrastructure for electrified transport is lacking, solutions using biofuels can be accepted, provided that their use means that greenhouse gas emissions are reduced by at least 65% compared to the use of fossil fuels. Projects may include urban, suburban, and rural transportation.

Infrastructure, personal mobility

(Eligible EU Taxonomy category: 6.13. "Infrastructure for personal mobility, cycle logistics")

- Infrastructure dedicated to personal mobility or cycle logistics: pavements, bike lanes and pedestrian zones, electrical charging and hydrogen refueling installations for personal mobility devices.

Infrastructure, rail transport

(Eligible EU Taxonomy category: 6.14. "Infrastructure for rail transport")

Railway and subway infrastructure, including associated subsystems such as bridges and tunnels, stations, terminals, rail service facilities, signaling systems, safety and traffic management. Investment projects that meet one of these criteria:

- Trackside infrastructure and associated subsystems where there is a plan for electrification as regards line tracks, and, to the extent necessary for electric train operations, for sidings, or where the infrastructure will be fit for use by zero tailpipe CO₂ emission trains.
- Infrastructure must either be fully electrified or covered by an electrification plan, or where the infrastructure will be fit for use by zero tailpipe CO₂ emission trains.
- Infrastructure intended for the transshipment of goods between modes of transport or for the transfer of passengers from railway to railway or from other modes of transport to railway.

Infrastructure, low-carbon road transport, and public transport

(Eligible EU Taxonomy category: 6.15. "Infrastructure enabling low-carbon road transport and public transport")

- Infrastructure dedicated to the operation of vehicles with zero tailpipe CO₂ emissions: electric charging points, electricity grid connection upgrades, hydrogen fueling stations or electric road systems.
- Infrastructure dedicated to transshipping freight between the modes, such as terminal infrastructure and superstructures for the loading, unloading, and transshipment of goods.
- Infrastructure dedicated to urban and suburban public passenger transport, including associated signaling systems for metro, tram, and rail systems.

Infrastructure, water transport

(Eligible EU Taxonomy category: 6.16. "Infrastructure enabling low carbon water transport")

Infrastructure that is required for zero tailpipe CO₂ operation of vessels or the port's own operations, as well as infrastructure dedicated to transshipment.

- Infrastructure dedicated to the operation of vessels with zero direct (tailpipe) CO₂ emissions: electricity charging, hydrogen-based refueling, alternatively fueled by biogas or electro fuels.
- Infrastructure dedicated to the provision of shore-side electrical power to vessels at berth.
- Infrastructure dedicated to the performance of the port's own operations with zero direct (tailpipe) CO₂ emissions.
- Infrastructure dedicated to transshipping freight between the modes, such as terminal infrastructure and superstructures for loading, unloading and transshipment of goods.

Analytical considerations

- Electrification and supporting infrastructure play a key role in decarbonizing the transport sector. However, there are also potential risks related to indirect greenhouse gas emissions from a life cycle perspective (material sourcing, manufacturing). In Sweden, the transport sector is responsible for a third of national emissions and the country targets cutting emissions related to transport by 70% by 2030, from 2010 levels. In 2021, around 60% of emissions in the sector were linked to passenger cars.
- Based on Kommuninvest's 2022 impact reporting, most eligible expenditures are to finance public transportation infrastructure in member municipalities, including the electrification of bus fleets, the acquisition of rolling stock, and the expansion of rail infrastructure, among others. Additional eligible expenditures are for projects to improve personal mobility, including bike lanes. These are relevant steps toward reducing transport-related emissions, and we assess them as Dark green. The framework's

eligibility criteria also include activities related to water transport, including the financing of infrastructure dedicated to zero tailpipe emission vessels. The issuer has financed electric harbor equipment in the past and may continue to allocate proceeds to harbor-related infrastructure, which carries the risk of potentially facilitating fossil-intensive shipping activities, in our view.

- The framework specifies that if infrastructure for electrified transport is lacking, the issuer may finance solutions using biofuels, provided that their use results in a greenhouse gas emission savings of 65% (in line with the RED II threshold). Regarding the use of biofuels in transportation, the issuer mainly expects to finance projects related to biogas for road transportation and e-fuels (e-methanol) for shipping, where the electricity used for producing such fuels needs to be deemed as renewable, according to the RED. According to Kommuninvest, municipalities often produce this biogas for public services, including garbage trucks and rural bus transport. E-fuel production is highly electricity-intensive, and the related emissions reduction remains uncertain, given that they have just started to be produced at scale.
- There are no requirements for the consideration of life cycle emissions as part of the procurement process for financed assets and activities. The production of batteries for EVs and the sourcing of raw materials can have substantial climate and environmental impacts along the value chain. The issuer encourages its public clients to consider the Swedish National Agency for Public Procurement’s voluntary requirements, though we understand that these do not include specific considerations with respect to raw materials and battery components for projects financed under this category.
- Regarding end-of-life treatment of assets and components, the issuer does not integrate separate considerations beyond the legal requirements as part of the financing process. Sweden has transposed relevant EU legislation into national law, notably the End-of-Life Vehicles Directive and Waste Framework Directive, which is enforced and monitored by the Swedish Environmental Protection Agency.
- In line with the requirements applicable to all relevant assets under the framework, the issuer integrates physical climate risk into its risk assessment process, where they are considered material.
- Financed infrastructure projects will be subject to an EIA, in line with the requirements of Sweden’s transposition of the EU’s EIA directive.

Energy efficiency

Assessment

 **Medium green**

Description

General requirement: Green Loan applications shall include disclosures regarding the energy savings from the project, for example the energy consumption before and after the project.

Waste heat

(Eligible EU Taxonomy category: 4.25. “Production of heat/cool using waste heat”)

- Facilities that produce heat/cool using waste heat, such as waste heat from district cooling, data centers, sea/lake water and treated wastewater.

Transmission and distribution of electricity

(Eligible EU Taxonomy category: 4.9 “Transmission and distribution of electricity”)

- Transmission and distribution infrastructure in the Swedish electricity system.

Transmission and distribution networks for biogas

(Eligible EU Taxonomy category 4.14. Transmission and distribution networks for renewable and low-carbon gases”)

- Biogas transmission and distribution pipelines.

The activity includes leak detection and repair of existing gas pipelines and other network elements to reduce methane leakage.

Efficient district heating and cooling network

(Eligible EU Taxonomy categories: 4.15. “District heating/cooling distribution” and “4.16. Installation and operation of electric heat pumps”)

New or existing facilities which comply with either of the criteria:

- Construction, operation, and refurbishment of district heating/cooling distribution, including pipelines and associated infrastructure that complies with the EU Energy Efficiency Directive.
- System modifications to lower temperature regimes or advanced pilot systems (such as control and energy management systems and Internet of Things).
- Installation and operation of electric heat pumps that meet the refrigerant threshold (GWP) of 675

Energy storage

(Eligible EU Taxonomy categories: 4.10 “Storage of electricity” and 4.11 “Storage of thermal energy”)

- Facilities that store electricity and return it at a later time in the form of electricity. The activity may include pumped hydropower storage.
- Facilities that store thermal energy and return it at a later time in the form of thermal energy or other energy vectors.
- Facilities that store renewable energy sources, such as biogas or e-fuels.

Hydrogen

(Eligible EU Taxonomy category: 3.10 “Manufacture of Hydrogen”, 4.12. “Storage of hydrogen” and 4.14. “Transmission and distribution networks for renewable and low-carbon gases”)

- Facilities that produce hydrogen with renewable sources or energy sources which meet life cycle greenhouse gas emissions savings requirements of 73.4 % resulting in life cycle greenhouse gas emissions lower than 3tCO₂e/tH₂.
- Hydrogen storage facilities.
- Hydrogen transmission and distribution pipelines.

Energy efficiency measures in local government regime

Energy efficiency investments within various municipal activities and operations, such as outdoor lighting and traffic lights.

Analytical considerations

- This category has historically accounted for a small share of committed proceeds under Kommuninvest’s green finance framework. The issuer has, however, stated that this is likely to change following a modification to project categorization in the updated framework. Specifically, projects will address investments toward district heating infrastructure across member municipalities.
- District heating systems can contribute to the transition toward an LCCR future, though their sustainability benefits heavily depend on their energy inputs, which may be associated with significant emissions and varying sustainability credentials. Overall, factoring the current energy mix of Swedish district heating and Kommuninvest’s criteria, we consider investments in district heating infrastructure as Medium green under this framework. The issuer does not screen the origins of bioenergy feedstocks used in the facilities connected to network investments eligible under this category. However, Kommuninvest requires inputs to facilities connected to the networks financed to be sustainably-sourced biomaterials that comply with the RED’s requirements for greenhouse gas emission reductions. According to Swedenergy statistics, the majority of energy input into district heating in Sweden in 2022 was from materials (54%), specifically waste, flue-gas condensation, and recovered industrial heat. Renewable sources were about 43%, primarily from forest residues and pellets. The remaining share (about 2%) is of fossil origin. The framework allows for a limited share of direct fossil content (5%) for district heating, which, according to the issuer, are needed for backup, peak load situations, as well as for start-up processes or as support fuels.

Second Party Opinion: Kommuninvest Green Bond Framework

- In addition, eligible activities include the retrofitting and preparing of pipelines to transmit and distribute biogas and increase the share of biogas in these systems. Nevertheless, the pipeline network in Sweden carries both, natural gas as well as biogas, and investments in this infrastructure may result in potential fossil fuel lock-ins. Moreover, while renewable and low carbon gases are seen key to achieving 2050 targets, risks and uncertainty on their increased production and use (and therefore their distribution) persist. The issuer confirms that financed investments into biogas transmission and distribution will include leak detection and repair efforts, but that there will be no stand-alone investments under the framework in leak detection and repair supporting existing natural gas pipelines. Furthermore, the issuer notes that only a small share of proceeds are allocated towards such activities and that for most financed projects, biogas production is distributed on-site or via local gas stations, rather than through gas pipes.
- The issuer does not include specific minimum thresholds for energy efficiency projects in the framework's criteria, noting that it considers improvements to energy efficiency to be highly important given the expected surge in electricity use in coming decades and therefore does not see the need for a specific quantitative threshold across energy efficiency projects. Nevertheless, financed projects comply with Sweden's transposition of the EU Energy Efficiency Directive (EED), which is explicitly mentioned in the draft of the country's updated National Energy and Climate Plan. The EED sets binding energy savings targets for EU member states, with the aim to achieve a 32.5% improvement in energy efficiency by 2030 compared to baseline projections.
- While the framework includes criteria for the financing of projects such as hydrogen and energy storage, we understand from the issuer that most are currently in the pilot phase and will account only for a marginal share of overall proceeds. Like other activities in the framework, the issuer relies on the EUT's TSC for a Substantial Contribution to Climate Change Mitigation in defining eligibility criteria and thresholds. For hydrogen specifically, while the TSC requirements appear to favor green hydrogen, carbon-efficient blue hydrogen may also be eligible. The issuer cites some examples of initial municipal activities related to hydrogen, including a pre-school building where energy from installed solar cells is stored in the form of hydrogen, which is subsequently used for heating during winter. Nevertheless, given the preliminary stage of investments in these activities, and the share of the current portfolio they account for, the issuer does not have separate considerations for topics such as leakage minimization that go beyond regulatory requirements.

Climate change adaptation

Assessment

 Dark to Medium green

Description

Adaptation measures

(Eligible EU Taxonomy category Climate change adaptation and 14.2. "Flood risk prevention and protection infrastructure of water and marine resources" and Protection of water and marine resources 3.1. "Nature-based solutions for flood and drought risk prevention and protection")

- The investment must consist of physical or nature-based adaptation solutions to reduce climate-related risks in, for example, the built environment, infrastructure or sensitive environments.

Climate-related adaptation investments require a climate risk and vulnerability analysis.

Analytical considerations

- The issuer currently only has one asset within its loan portfolio in this category, specifically to finance the construction of a levee to protect the city of Kristianstad from flooding and reducing the risk of contamination of a nearby stream. Future expenditures and examples of eligible nature-based adaptation solutions could include ecosystem services and green infrastructure including the preservation or recreation of green areas and wetlands to mitigate risks from floods, heat waves, or other adverse climate effects. Measures undertaken may be in relation to buildings, infrastructure, or sensitive surroundings.
- Our shading of this category reflects the need for increased resilience and adaptation measures in light of the increasing frequency of physical climate risks. Nevertheless, there are no specific criteria linked to embodied emission of financed projects and it remains unclear to what extent fossil-fuel based machinery and equipment may be used during the execution phase, for demolition, construction, or transport of infrastructure, which all may result in emissions. However, the issuer confirms that across all of the eligible project categories, green loans will not finance projects that produce fossil energy or that lead to a lock-in of fossil-energy-based infrastructure.

- In line with framework requirements, borrowers are expected to follow legal requirements and, where relevant, conduct an EIA and address potential risks resulting from the assessment. In line with its purpose and overarching objectives, Kommuninvest will finance project that address the needs of the public and the local government actors it supports.

Terrestrial and aquatic biodiversity

Assessment

 Dark green

Description

Biological diversity and healthy ecosystems

(Eligible EU Taxonomy category Protection and restoration of biodiversity and ecosystems 1.1. "Conservation, including restoration, of habitats, ecosystems and species")

- Creation and conservation activities, including restoration activities, aimed at maintaining or improving the status and trends of terrestrial, freshwater, and marine habitats, ecosystems, and populations of related fauna and flora species.













An examination of the need for an environmental impact assessment is required, and as deemed necessary the assessment is carried out.

Green loan applicants shall provide information on the planned or implemented necessary risk mitigation measures for sites/projects in or near areas biodiversity-sensitive areas (including the Natura 2000 network of protected areas, UNESCO World Heritage sites and Key Biodiversity Areas, as well as other protected areas.)

Analytical considerations

- The conservation of biodiversity, natural ecosystems, and habitats can have substantial benefits for climate change mitigation and adaptation due to critical ecosystem services, including carbon sequestration, local climate regulation, soil stabilization, and storm surge protection, and we assess these activities as Dark green.
- Kommuninvest intends to finance the restoration of wetlands and creation of green areas (within urban development), among others. However, to date, no such projects have been financed or are included in its green bond reporting.
- With regards to understanding the environmental consequences for projects in or near biodiversity-sensitive areas, an EIA constitutes part of the disclosure requirements of the loan application process, allowing Kommuninvest to review and monitor the surface or land area of the protected ecosystems and the number of added or preserved ecosystem services.
- It is the responsibility of the municipalities under the Planning and Building Act (plan-och bygglagen, PBL) to plan for land and water use in a way that does not negatively affect the environment. Furthermore, the issuer trusts that the borrowers follow the legislation that regulates their activities.

S&P Global Ratings' Shades of Green

Assessments					
 Dark green	 Medium green	 Light green	 Yellow	 Orange	 Red
Description					
Activities that correspond to the long-term vision of an LCCR future.	Activities that represent significant steps toward an LCCR future but will require further improvements to be long-term LCCR solutions.	Activities representing transition steps in the near-term that avoid emissions lock-in but do not represent long-term LCCR solutions.	Activities that do not have a material impact on the transition to an LCCR future, or, Activities that have some potential inconsistency with the transition to an LCCR future, albeit tempered by existing transition measures.	Activities that are not currently consistent with the transition to an LCCR future. These include activities with moderate potential for emissions lock-in and risk of stranded assets.	Activities that are inconsistent with, and likely to impede, the transition required to achieve the long-term LCCR future. These activities have the highest emissions intensity, with the most potential for emissions lock-in and risk of stranded assets.
Example projects					
 Solar power plants	 Energy efficient buildings	 Hybrid road vehicles	 Health care services	 Conventional steel production	 New oil exploration

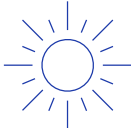

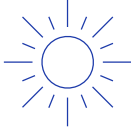

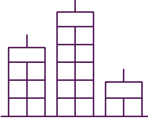

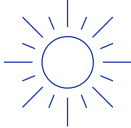



Note: For us to consider use of proceeds aligned with ICMA Principles for a green project, we require project categories directly funded by the financing to be assigned one of the three green Shades.

LCCR--Low-carbon climate resilient. An LCCR future is a future aligned with the Paris Agreement; where the global average temperature increase is held below 2 degrees Celsius (2 C), with efforts to limit it to 1.5 C, above pre-industrial levels, while building resilience to the adverse impact of climate change and achieving sustainable outcomes across both climate and non-climate environmental objectives. Long term and near term--For the purpose of this analysis, we consider the long term to be beyond the middle of the 21st century and the near term to be within the next decade. Emissions lock-in--Where an activity delays or prevents the transition to low-carbon alternatives by perpetuating assets or processes (often fossil fuel use and its corresponding greenhouse gas emissions) that are not aligned with, or cannot adapt to, an LCCR future. Stranded assets--Assets that have suffered from unanticipated or premature write-downs, devaluations, or conversion to liabilities (as defined by the University of Oxford).

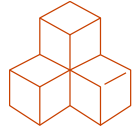
Mapping To The U.N.'s Sustainable Development Goals

Where the Financing documentation references the Sustainable Development Goals (SDGs), we consider which SDGs it contributes to. We compare the activities funded by the Financing to the International Capital Markets Association (ICMA) SDG mapping and outline the intended linkages within our SPO analysis. Our assessment of SDG mapping does not impact our alignment opinion.

This framework intends to contribute to the following SDGs:

Use of proceeds	SDGs
Renewable energy	  7. Affordable and clean energy* 13. Climate action
Energy efficiency	  7. Affordable and clean energy* 13. Climate action
Pollution prevention and control	  11. Sustainable cities and communities* 12. Responsible consumption and production*
Green and energy efficient buildings	    7. Affordable and clean energy 12. Responsible consumption and production 11. Sustainable cities and communities* 13. Climate action

Clean transportation



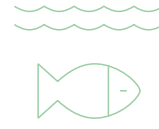
9. Industry, innovation and infrastructure



11. Sustainable cities and communities*



13. Climate action

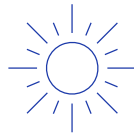


14. Life below water

Sustainable water and wastewater management



6. Clean water and sanitation*



7. Affordable and clean energy

Climate change adaptation



3. Good health and well-being

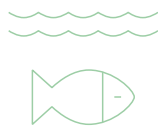


11. Sustainable cities and communities



13. Climate action*

Terrestrial and aquatic biodiversity



14. Life below water*



15. Life on land*

*The eligible project categories link to these SDGs in the ICMA mapping.

Related Research

- [Analytical Approach: Second Party Opinions: Use of Proceeds, July 27, 2023](#)
- [FAQ: Applying Our Integrated Analytical Approach for Use-of-Proceeds Second Party Opinions, July 27, 2023](#)
- [Analytical Approach: Shades of Green Assessments, July 27, 2023](#)
- [S&P Global Ratings ESG Materiality Maps, July 20, 2022](#)

Analytical Contacts

Primary contact

Rafael Heim
Paris
+33 634 39 72 53
Rafael.Heim@spglobal.com

Secondary contacts

Pierre-Brice Hellsing
Stockholm
pierre-brice.hellsing
@spglobal.com

Maria Knudsen
Oslo
maria.knudsen
@spglobal.com

Tim Axtmann
Oslo
Tim.Axtmann
@spglobal.com

Research contributor

Lena Liacopolou Staad
Paris

Elizabeth Chacko
Mumbai

Alexander Volden
Oslo

Second Party Opinion: Kommuninvest Green Bond Framework

Standard & Poor's Financial Services LLC or its affiliates (collectively, S&P) receives compensation for the provision of the Second Party Opinions product (Product). S&P may also receive compensation for rating the transactions covered by the Product or for rating the issuer of the transactions covered by the Product. The purchaser of the Product may be the issuer.

The Product is not a credit rating, and does not consider credit quality or factor into our credit ratings. The Product does not consider, state or imply the likelihood of completion of any projects covered by a given financing, or the completion of a proposed financing. The Product encompasses Use of Proceeds Second Party Opinions and Sustainability-Linked Second Party Opinions. An S&P Global Use of Proceeds Second Party Opinion provides an opinion on an issuer's sustainable finance instrument, program, or framework, and considers the financing in the context of the issuer's most material sustainability factors, the issuer's management of additional sustainability factors relevant to the sustainable financing, and provides an opinion regarding alignment with certain third-party published sustainable finance principles ("Principles"). An S&P Global Ratings Sustainability-Linked Second Party Opinion considers features of a financing transaction and/or financing framework and provides an opinion regarding alignment with relevant Principles. For a list of the Principles addressed by the Product, see the Analytical Approach, available at www.spglobal.com. The Product is a statement of opinion and is neither a verification nor a certification. The Product is a point in time evaluation reflecting the information provided to us at the time that the Product was created and published, and is not surveilled. The Product is not a research report and is not intended as such. S&P's credit ratings, opinions, analyses, rating acknowledgment decisions, any views reflected in the Product and the output of the Product are not investment advice, recommendations regarding credit decisions, recommendations to purchase, hold, or sell any securities or to make any investment decisions, an offer to buy or sell or the solicitation of an offer to buy or sell any security, endorsements of the suitability of any security, endorsements of the accuracy of any data or conclusions provided in the Product, or independent verification of any information relied upon in the credit rating process. The Product and any associated presentations do not take into account any user's financial objectives, financial situation, needs or means, and should not be relied upon by users for making any investment decisions. The output of the Product is not a substitute for a user's independent judgment and expertise. The output of the Product is not professional financial, tax or legal advice, and users should obtain independent, professional advice as it is determined necessary by users.

While S&P has obtained information from sources it believes to be reliable, S&P does not perform an audit and undertakes no duty of due diligence or independent verification of any information it receives.

S&P and any third-party providers, as well as their directors, officers, shareholders, employees, or agents (collectively S&P Parties) do not guarantee the accuracy, completeness, timeliness, or availability of the Product. S&P Parties are not responsible for any errors or omissions (negligent or otherwise), regardless of the cause, for reliance of use of information in the Product, or for the security or maintenance of any information transmitted via the Internet, or for the accuracy of the information in the Product. The Product is provided on an "AS IS" basis. S&P PARTIES MAKE NO REPRESENTATION OR WARRANTY, EXPRESS OR IMPLIED, INCLUDED BUT NOT LIMITED TO, THE ACCURACY, RESULTS, TIMELINESS, COMPLETENESS, MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE WITH RESPECT TO THE PRODUCT, OR FOR THE SECURITY OF THE WEBSITE FROM WHICH THE PRODUCT IS ACCESSED. S&P Parties have no responsibility to maintain or update the Product or to supply any corrections, updates, or releases in connection therewith. S&P Parties have no liability for the accuracy, timeliness, reliability, performance, continued availability, completeness or delays, omissions, or interruptions in the delivery of the Product.

To the extent permitted by law, in no event shall the S&P Parties be liable to any party for any direct, indirect, incidental, exemplary, compensatory, punitive, special or consequential damages, costs, expenses, legal fees, or losses (including, without limitation, lost income or lost profits and opportunity costs or losses caused by negligence, loss of data, cost of substitute materials, cost of capital, or claims of any third party) in connection with any use of the Product even if advised of the possibility of such damages.

S&P maintains a separation between commercial and analytic activities. S&P keeps certain activities of its business units separate from each other in order to preserve the independence and objectivity of their respective activities. As a result, certain business units of S&P may have information that is not available to other S&P business units. S&P has established policies and procedures to maintain the confidentiality of certain nonpublic information received in connection with each analytical process.

For PRC only: Any "Second Party Opinions" or "assessment" assigned by S&P Global Ratings: (a) does not constitute a credit rating, rating, sustainable financing framework verification, assessment, certification or evaluation as required under any relevant PRC laws or regulations, and (b) cannot be included in any offering memorandum, circular, prospectus, registration documents or any other document submitted to PRC authorities or to otherwise satisfy any PRC regulatory purposes; and (c) is not intended for use within the PRC for any purpose which is not permitted under relevant PRC laws or regulations. For the purpose of this section, "PRC" refers to the mainland of the People's Republic of China, excluding Hong Kong, Macau and Taiwan.

Copyright © 2024 by Standard & Poor's Financial Services LLC. All rights reserved.