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Second Party Opinion

City of Södertälje Green Bond Framework

Jan. 30, 2026

Location: Sweden

Sector: Government

Alignment Summary

Aligned = ✓ Conceptually aligned = ○ Not aligned = ✗

- ✓ Green Bond Principles, ICMA, 2025
- ✓ Green Loan Principles, LMA/LSTA/APLMA, 2025

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

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**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

Buildings financed will have lower embodied carbon than in the business-as-usual scenario. The majority of proceeds under the framework is expected to go green buildings. We see as positive that Södertälje is planning to invest a material share of issuance proceeds in renovation projects. In the transition to a low-carbon society, renovating and improving existing properties are key, and we view the municipality's targeted 30% reduction in energy consumption as a solid ambition.

Södertälje is actively identifying and assessing physical climate risks to enhance its resilience against future challenges. It has developed an action plan to adapt the municipality to climate-related risks, such as cloudbursts and heat stress. The plan includes prioritized actions for different municipal bodies in the municipality.

Weaknesses

No weakness to report.

Areas to watch

Construction may entail emissions and biodiversity risks. Södertälje's embodied carbon threshold is a significant step toward reducing material emissions. However, the methodologies and knowledge needed to reduce such emissions are still evolving, and significant reductions are needed to achieve climate-neutral newbuilds. Although Sweden mandates biodiversity risk assessments, national practices might not sufficiently take into account biodiversity and climate risks.










The framework includes some broadly drafted categories. Due to the varying climate and environmental risks and benefits, projects may have both positives and negatives. However, the evaluation of eligible projects is based on the city's own sustainability strategy and includes experts from the city's other divisions, when relevant, which help mitigate these risks.

Shades of Green Projects Assessment Summary

Over the three years following the first issuance of the financing, Södertälje expects to allocate 57% of the proceeds to green buildings, 20% to sustainable water and wastewater management, 17% to energy efficiency, and the remaining 6% to other categories.

The issuer expects 40% of the proceeds to be allocated to refinancing projects, and 60% to finance new projects.

Based on the project categories' Shades of Green detailed below, the expected allocation of proceeds, and consideration of environmental ambitions reflected in the City of Södertälje's Green Bond Framework, we assess the framework as Medium green.

Renewable energy	 Dark green
Investments in renewable energy production facilities and supporting infrastructure	
Energy efficiency	  Dark to Medium green
Efficient and reliable networks	
Efficient district heating and cooling networks	
Clean transportation	  Dark to Medium green
Investments in low-carbon transport solutions and construction, and modernization and maintenance of transport infrastructure	
Sustainable water and wastewater management	 Medium green
Water collection, treatment, efficiency, and supply systems	
Climate-change adaptation	  Dark to Medium green
Investments in climate resilience through planning, piloting, testing, and implementing relevant adaptation measures	
Green buildings	 Medium green
Construction of new buildings	
Existing buildings	
Renovations	

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.

Issuer Description

Södertälje is a municipality in Stockholm County and has approximately 100,000 inhabitants. It is a major employer in the area with its 7,000 employees. The municipality is responsible for ensuring that residents have access to necessary services and resources, such as education, social services, health and welfare, environment and sustainability, urban planning and construction, as well as culture and leisure. The Telge Group, owned by the City of Södertälje, is responsible for many essential services in the municipality, including providing facilities for schools and elderly care homes, as well as delivering heat, electricity, and water. The municipality also offers housing for its residents through Telge Bostäder. Under this framework, Telge Group is also responsible for the identification of eligible projects and has an integral role in the selection and evaluation process.

Material Sustainability Factors

Climate transition risks

Policymakers have a key role in cutting greenhouse gas emissions to address climate change. Södertälje's responsibilities leave the city exposed to high-emitting sectors such as real estate, transportation, and industry. The Swedish government aims to achieve net zero by 2045 and has a strategy that addresses environmental issues relevant to Södertälje.

Construction projects contribute to global climate change largely via embodied carbon in key materials such as steel and concrete, as well as greenhouse gases emitted during the operational phase of building. Embodied emissions from building materials are a major source of emissions when assessing the carbon footprint of a building over its life cycle. As a member of the EU, Sweden implements EU rules on energy efficiency in buildings and has more advanced regulations than most European countries regarding embodied emissions.

The city is responsible for the water and wastewater systems in Södertälje. Although the water systems are generally powered by electricity, efficiency and leakage levels are key concerns. The city estimates leakage in Södertälje at 18%-20%. In comparison, in the EU, an average of 23% of treated water is lost during distribution.

45% of Södertälje's greenhouse gas emissions stemmed from transport in 2023. The Swedish government aims to reduce the transport sector's carbon footprint by 2030, including a 70% cut in emissions from 2010 levels. However, recent national policy changes in Sweden--such as lower biofuel blending requirements, lower taxes on gasoline and diesel, and the removal of electric vehicle purchase bonuses--are expected to increase the transport sector's emissions. This creates additional challenges for the city in meeting its climate goals.

Physical climate risks

Physical climate risks can affect many economic activities, and increased greenhouse gas emissions will lead to more frequent and severe climate hazards if no adaptation is undertaken. Although the physical impacts of climate change and extreme weather will continue to be felt globally, the direct effects--including heat waves, flooding, and wildfires--are more localized. The indirect consequences of such events will affect various aspects, such as the volume and pricing of traded goods and services, going beyond administrative areas and cascading through multiple sectors.

Over the past century, Sweden has experienced a rise in average temperatures. A significant increase in recent decades has influenced its ecosystems and weather patterns. Södertälje is exposed to physical climate risks such as those due to changes in precipitation, including increased flooding, changing snow and ice patterns, and more storms and extreme weather in general.

Other environmental factors

When building infrastructure and undertaking new developments, Södertälje is exposed to risks related to water, land use, pollution, and biodiversity loss. The challenge is to mitigate the impacts of these risks and safeguard Sweden's natural environment. Preserving natural carbon stocks is key to meeting climate goals, and many habitats, such as bogs and organic soils, store large amounts of carbon. Disturbing these can lead to significant emissions. The natural environment also absorbs carbon dioxide, so conserving 30%-50% of land, sea, and fresh water (as the Intergovernmental Panel on Climate Change recommends) is central to reducing greenhouse gases and adapting to climate change. Some ecosystems, including bogs and topsoil, take a long time to recover, and certain changes are irreversible.

Social factors

Municipalities play an important role in ensuring the development of society and economy. They are responsible for ensuring that residents have access to necessary services and resources, including electricity and water, education, social services, health, and welfare. Sweden is a high-income economy with a Human Development Index ranking of 0.947 (2021), placing it among the top countries globally. Despite its affluent status, Sweden has grappled with increasing issues of economic inequality, albeit less so than many other nations in the past decade.

Issuer And Context Analysis

We consider that eligible projects directly address sustainability factors that are material to Södertälje. The framework aims to finance Södertälje's various activities, including the construction of new green buildings to support health care, education, and social care, general improvements to the water and wastewater systems, and other sustainable projects. Many of the eligible projects under the framework, such as construction projects, are also exposed to the impacts of climate change and biodiversity and resource use.

Södertälje has quantified targets and aims for zero direct emissions by 2030, but its climate strategy is less advanced for indirect emissions. To achieve climate neutrality, Södertälje has targeted zero direct emissions and a decrease in indirect emissions. Södertälje has good visibility of its direct emissions and has implemented initiatives such as improving energy efficiency, installing solar cells, and transitioning to a fossil-free vehicle fleet. Although efforts to address indirect emissions are less developed, Södertälje is working to enhance data quality and strategies, recognizing that these emissions typically account for 80% of a general organization's total emissions. In 2023, the municipality launched a project to systematically set and monitor environmental requirements in procurement, targeting scope 3 emissions in areas like IT products, food, construction, transport, and chemicals. The Fossil-Free 2030 project has created templates for environmental requirements in transport and contracting. Södertälje's property company, Telge, requires that at least 40% of vehicles' energy comes from renewable sources. Furthermore, the municipality promotes reuse by converting existing office furniture, using recycled materials in projects, and prioritizing durable, low-impact products.

The city is actively identifying and assessing physical climate risks to enhance its resilience against future challenges. Ongoing efforts, as detailed in Telge's sustainability report, highlight collaboration among various stakeholders in the city to address risks associated with extreme weather, including heavy rainfall and heat stress. The city has identified buildings that are particularly vulnerable to these climate impacts and initiated climate adaptation projects, although it has not yet estimated the overall costs associated with the necessary measures. The municipality is also conducting stormwater investigations to prevent flooding and invested in green spaces to improve water absorption. Additionally, the Telge Group's port operations are analyzing measures to strengthen resilience against rising sea levels and extreme weather.

Although it has strategies to address biodiversity, Södertälje faces biodiversity risks, particularly when developing greenfield areas. The city adheres to legal requirements for environmental impact assessments (EIAs), and the regulatory context of operating in Sweden mitigates biodiversity risks to an extent. However, current practices may not fully account for the

complexities of biodiversity and climate risks. The city's environment and climate program seeks to address these challenges by integrating biodiversity considerations into urban planning. This includes assessing potential impacts at all project stages. For instance, the city promotes green roofs and walls to create habitats and improve air quality, and it enhances urban green spaces such as parks and community gardens to support local ecosystems. Measures are taken to minimize land impacts during construction, including techniques like relining water pipes and using microtrenching for cable installation, ensuring reduced disturbance to the environment.

Alignment Assessment

This section provides an analysis of the framework's alignment to Green Bond and Loan Principles.

Alignment Summary

Aligned = ✓ Conceptually aligned = ○ Not aligned = ✗

- ✓ Green Bond Principles, ICMA, 2025
- ✓ Green Loan Principles, LMA/LSTA/APLMA, 2025

✓ Use of proceeds

We assess all the framework's green project categories as having a green shade, and the issuer commits to allocating the net proceeds issued under the framework exclusively to eligible green projects. Please refer to the Analysis Of Eligible Projects section for more information on our analysis of the environmental benefits of the expected use of proceeds.

✓ Process for project evaluation and selection

The green bond framework outlines the process to select and approve eligible projects. Potential eligible assets and projects are identified in connection with the investment planning process and pre-evaluation is carried out by the Telge's sustainability team. Furthermore, Södertälje and the Telge Group have established a Green Bond Committee (GBC) to coordinate, validate, perform, and review the selection of eligible assets and projects. Experts with relevant technical expertise related to green projects can also be consulted from time to time. The GBC will meet at least four times a year and will be responsible for project evaluation and selection and will ensure that all eligible assets and projects adhere to applicable Swedish laws and regulations, as well as the City of Södertälje's environmental and social sustainability plans. The framework has a clear exclusion list, which outlines that green bonds will not be used to finance investments directly related to activities associated with fossil energy production or potentially environmentally harmful resource extraction (such as fossil fuels or rare-earth elements).

✓ Management of proceeds

Södertälje commits to tracking the net proceeds using the green register. Södertälje will also ensure that the value of eligible assets always exceeds the total nominal amount of outstanding green bonds. The green register is monitored on a regular basis by Södertälje's Treasury, to ensure that the total amount of eligible assets and projects at all times exceeds the total amount of green bonds outstanding. The proceeds will also be checked to account for any need to reallocate proceeds that no longer fulfil the eligibility criteria. Unallocated proceeds will be managed in accordance with the liquidity reserves, taking the exclusion criteria into account, managed by the Treasury.

✓ Reporting

Södertälje commits to yearly reporting of the allocation and impact of proceeds, through its Green Bond Investor Report on an annual basis, until all outstanding green bonds mature. The report will be made publicly available on Södertälje's website. The allocation report will include a brief description of the projects, the amount of net proceeds that have been allocated to eligible

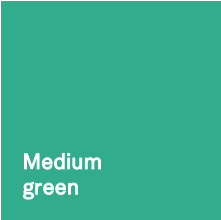
projects, the balance of unallocated proceeds, and the proportion of proceeds used for financing and refinancing. The city will also report on the actual or expected environmental impact of investments financed by green bonds.

Analysis Of Eligible Projects

This section provides details of our analysis of eligible projects, based on their environmental benefits and risks, using the "[Analytical Approach: Shades Of Green Assessments](#)".

Overall Shades of Green assessment

Based on the project category shades of green detailed below, the expected allocation of proceeds, and consideration of environmental ambitions reflected in Södertälje’s green bond framework, we assess the framework 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

Renewable energy

Assessment	Description
<div><div></div>Dark green</div>	<p>Investments in renewable energy production facilities and supporting infrastructure, for the following renewable sources:</p> <p>Solar power</p> <ul style="list-style-type: none">• The construction of facilities generating electricity using solar photovoltaic technology, concentrated solar power technology, or solar thermal technology <p>Energy storage</p> <ul style="list-style-type: none">• Energy storage (including batteries) for the purpose of managing the intermittency of renewable energy• Hydrogen storage facilities and transmission and distribution pipelines

Analytical considerations

- Renewable energy sources, such as solar photovoltaic, are key elements in limiting global warming to well below 2 degrees Celsius. Still, these projects may cause land-use changes, adversely affect local biodiversity, and be exposed to physical risks. Energy storage plays a key role in net-zero energy systems by providing the necessary flexibility and adaptability to balance the intermittency of most renewable energy sources. The mining of certain metals that are commonly used in batteries and solar panels, like lithium, cobalt, or copper, can harm the environment by disrupting natural habitats, causing pollution, and being water and energy intensive by nature.
- This project category supports what we assess to be Dark green renewable energy projects, including solar and energy storage. The issuer intends to use all proceeds under this category solely for the financing of solar technology. Södertälje

informs us that solar panels to be financed under this category are expected to be installed only on rooftops, which we view as positive, since this removes risks tied to biodiversity related to ground installations.

- Potential hydrogen investments would only include green hydrogen and not include investments in a gas pipeline network. The municipality currently has no plans of investing in hydrogen storage facilities or transmission and distribution pipelines.
- Renewable energy developments often involve altering how land is used, which can create risks for local ecosystems and biodiversity. Under Sweden's implementation of the EU's Environmental Impact Assessment Directive, any activity that could significantly affect the environment must undergo an EIA.

Energy efficiency

Assessment

 Dark to Medium green

Description

Investments in a low carbon and energy efficient society through energy efficiency technologies and/or processes such as:

Efficient and reliable networks

- Construction of transmission and distribution systems for electricity
- Capacity-enhancing investments in the power grid
- Installation of instruments and devices for measuring, regulating, and controlling, as well as enabling effective management and distribution of energy and electricity, such as smart grid technology

Efficient district heating and cooling network

The construction, operation, and refurbishment of district heating and cooling where the system is using at least 50% renewable energy, 50% waste heat, 75% cogenerated heat, or 50% is a combination of such energy and heat; and related infrastructure distribution. The facilities may include bioenergy carbon capture and storage facilities

Analytical considerations

- Reliable and efficient electricity transmission and distribution networks are important for electrification and a low-carbon economy. Investments in grid flexibility and resilience to physical risks, as well as measures to reduce transmission losses, are needed. At the same time, networks should be carefully managed to avoid disrupting habitats and harming biodiversity, particularly in areas of high ecological value. District heating systems can contribute to the transition toward a low-carbon, climate resilient future. However, their sustainability benefits depend heavily on their energy inputs, which may be associated with significant emissions and varying sustainability credentials.
- For the next three years, Södertälje expects 70%-75% of financing under energy efficiency will go to grid investments and the remainder to district heating investments. We view Sodertalje's investments in grid infrastructure as Dark green because of the low carbon intensity of the Sweden's electricity grid.
- Grid investments can create risks for local ecosystems and biodiversity. Under Sweden's implementation of the EU's Environmental Impact Assessment Directive, any activity that could significantly affect the environment must undergo an EIA.
- Factoring in the current energy mix of Södertälje's district heating and the framework criteria, we assess investments in district heating as Medium green. The emission intensity for the heat production is estimated at 43 grams of carbon dioxide (CO2) per kilowatt hour, which is considered low. According to Söderenergi's reporting, a high share of heat produced for district heating comes from biomass, which primarily comprises forestry residue. Sweden's Forestry Act and Environmental Code set requirements, such as forest conservation set-asides and minimum tree ages for felling, as well as restrictions on agricultural inputs to protect water quality. Sweden also adheres to EU policies that limit the risk of deforestation and illegal

land use conversion. However, although using waste products may help reduce lifecycle emissions and avoid the main biodiversity and land use change risks, there are no concrete restrictions on inputs for feedstocks or their sources. This limits our ability to fully assess climate and environmental risks, such as deforestation and total emissions, contributing to the Medium green shade we assigned to the city's district heating investments.

- A minor share of district heating is supplied by waste-to-energy processes, where feedstocks include recycled or renewable sources, including operational waste in form of paper, wood, plastic, and rubber. Waste-to-energy plants that incinerate waste create significant emissions and only represent near-term transition steps. In Sweden, adherence to the waste hierarchy is relatively high; plants meet the technology requirements in relevant EU directives, mitigating environmental impacts caused by such plants.
- Starting in 2030, Söderenergi plans to have the capacity to separate and permanently store up to 500,000 tonnes of biogenic carbon dioxide annually from its combined heat and power plant in Södertälje. Söderenergi is currently working on the carbon-capture design and plans to make an investment decision by the end of 2026. The entire value chain must be in place: from carbon capture to geological storage and certified carbon credit.

Clean transportation

Assessment	Description
<div><div></div><div></div><div></div></div> <div>Dark to Medium green</div>	<p>Investments in low-carbon transport solutions and construction, as well as modernization and maintenance of transport infrastructure, including:</p> <p>Fossil-free vehicles</p> <ul style="list-style-type: none">• Light vehicles for public, passenger, and freight purposes operated on electricity• Heavy vehicles for public, passenger, and freight purposes operated on electricity or biogas <p>Infrastructure supporting clean transportation</p> <ul style="list-style-type: none">• Infrastructure dedicated to railways and railway electrification• Infrastructure required for fossil-free road transport such as electric charging points• Infrastructure required for fossil-free vessels or the port’s own operations, such as electricity charging, biofuels, or hydrogen-based stations

Analytical considerations

- Mitigating greenhouse gas emissions from transport will be crucial for meeting global decarbonization goals. Fossil fuel-powered vehicles and vessels also create air pollution, such as nitrogen oxides and sulfur oxides. Electric road and rail transportation are key to decarbonizing land transport. The decarbonization of all modes of transport will require a significant expansion of low-carbon transport infrastructure. In infrastructure projects, value chain emissions and environmental impacts can be significant and should be carefully managed, for example, by choosing low-carbon construction materials. Physical climate risks are also a material consideration for all infrastructure projects.
- Södertälje anticipates 5% of proceeds under this framework to be earmarked for clean transportation over the next three years, for which we assign the overall category as Dark to Medium green. It plans to invest primarily in fossil-free vehicles and charging infrastructure for both road and vessels. Although we assign the Dark green shade to the electric element of fossil-free vehicles, the other element of this subcategory contains vehicles operating on biogas, which carries risks of land-use change due to feedstocks, for which we assign the Medium green shade. Charging infrastructure for road and infrastructure for vessels are considered Dark green.
- Södertälje may finance heavy vehicles using biofuels, and such vehicles must follow certain sustainability criteria for the sourcing of fuels. The city mandates that purchased vehicles can only use the biofuel HVO100, which is mandatory for the end user. HVO100 is a fuel produced from waste, residue oils, and fats, such as used cooking oil. Compared to fossil diesel, the use of HVO100 can reduce greenhouse gas emissions significantly. A written declaration confirming that the HVO100 offered does not contain feedstocks with a high risk of indirect land-use change must be provided by vehicle operators for the entire period the vehicle is in use. Although compliance may help reduce lifecycle emissions and avoid the main

biodiversity and land-use change risks, there are no concrete restrictions on inputs for feedstocks or their sources. This limits our ability to fully assess climate and environmental risks such as deforestation and total emissions. Therefore, we assess these projects as Medium green.

- Electrical infrastructure may not exclusively be used by zero emission transport but could be used for cold ironing, which refers to the process of providing shoreside electrical power to a ship at berth while its main and auxiliary engines are turned off. Cold ironing can help reduce air and noise pollution and reduce a ship's emissions, since the ship does not need to use diesel while at shore. Cruise ships and shipping are, however, associated with significant emissions and other environmental concerns. Nevertheless, electrical infrastructure at harbors fits well with net-zero scenarios that encourage electrification in the transport sector and aligns them more closely with a low-carbon, climate resilient future. We therefore assess these projects as Dark green.

Sustainable water and wastewater management

Assessment

 Medium green

Description

- Investments in sustainable water and wastewater management, such as:
- Water collection, treatment, efficiency, and supply systems
 - Construction and/or extension of water and wastewater collection and treatment systems, as well as urban drainage systems and supply systems
 - The renewal of water and/or wastewater collection, treatment, and supply systems, including distribution of infrastructures for domestic and industrial needs such as water purification, water saving, water conservation, and the possibility to re-use water
 - Efficiency investments that lead to reduction of water leakage
 - Technologies and solutions leading to a reduced amount of pollutants in the water supply system
 - Construction, extension, and renewal of redundant water supply

Analytical considerations

- As a form of natural capital, water is necessary for economic activity, thriving ecosystems, and public health. Therefore, water supply systems are important from a climate change adaptation point of view in securing a future in which everyone has reliable access to sufficient water of adequate quality. Systems are energy intensive and, if not sufficiently managed, can generate significant waste, and exacerbate water stress for other stakeholders.
- The criteria are broadly defined and do not include specific thresholds related to key environmental considerations, limiting the comparability of benefits. However, the city has informed us it is planning to finance the renewal of the pipeline network in the coming years, which could reduce leakage levels and energy consumption. Leakage levels are currently at 18%-20%, which is below the EU average. In Södertälje, water supply and wastewater treatment systems are primarily electrified, and from 2026 will only be using renewable sources. Considering the overall environmental benefits of the projects, we assess the project category as Medium green.
- Systems to treat and convey water are energy intensive and can generate significant waste, exacerbate water stress, or disrupt hydrology and aquatic ecosystems if not sufficiently managed. However, water efficiency improvements help to reduce demands on natural capital and reduce greenhouse gas emissions associated with water treatment and conveyance, contributing to a low-carbon, climate resilient future.
- The regulatory framework for water and wastewater infrastructure in Sweden is being affected by strengthening EU legislation, notably revisions to the Drinking Water Directive and Urban Wastewater Treatment Directive, which require the upgrading and maintenance of treatment plants, distribution networks, and monitoring systems, among others. In Södertälje, drinking water is produced through artificial infiltration of surface water into a groundwater reservoir. The groundwater is then pumped up for pH adjustment and disinfection before being delivered to customers.

- Wastewater systems reduce pollution, enable resource recovery, and enhance ecosystem and public health, making them key to a low-carbon, climate resilient future. These systems improve water quality, which has important cumulative effects on the watershed; relieves water stress; and, in some cases, provides a source of nutrient and energy recovery. However, they are energy intensive and can produce significant solid waste and methane emissions if not sufficiently managed.
- In line with Södertälje’s responsibility to provide water services to the population, financing under this category addresses water infrastructure for public needs, rather than projects that serve water-intensive purposes such as industrial and agricultural use or mining. Furthermore, desalination plants are not eligible for financing.

Climate change adaptation

Assessment

 Dark to Medium green

Description

Investments in climate resilience through planning, piloting, testing, and implementing relevant adaptation measures, such as:

- Climate adaptation measures
- Stormwater collection and management
- Urban heat protection
- Water-level protection and erosion-control measures
- Management of torrential rain
- Other adaptation solutions, both physical and nonphysical, in buildings and infrastructure, that reduce most physical climate risks the infrastructure is exposed to

Analytical considerations

- Climate scientists have been clear that some degree of climate change will take place, even in the most optimistic scenarios. This makes it crucial to plan for and mitigate the potential risks to reduce their financial and environmental effects. For Nordic countries, expected changes include heavier rain and more floods.
- With proceeds allocated to this category, Södertälje will aim to improve resilience against flooding, specifically by stormwater, since this represents the most material physical climate exposure. Overall, we assess the project category as Dark to Medium green, since it includes both nonphysical solutions, such as storm water mapping, and physical adaptation solutions that entail higher emissions from construction. The issuer informs us that applicants for funding under this category all carry out analysis of climate risks and this is used to identify risks for infrastructure, which leads to the development of an action plan.
- Södertälje identifies countermeasures to flooding through stormwater mapping under this category. However, the largest share of financing will go to physical adaptation solutions, such as flood protection, and other investments in protection against extreme weather. Such projects may carry high emissions associated with construction materials and the construction phase. Södertälje aims to manage such emissions in its environmental requirements management in procurement. For projects with high climate impact, Södertälje set requirements to choose materials and working methods that align with the goal of climate neutrality and annual reduction of climate impact.

Green buildings

Assessment

 **Medium green**

Description

Investments in new and existing buildings as well as major renovations, including:

Construction of new buildings

- Primary energy demand (PED) that meets the requirements in Miljöbyggnad Silver,
- Screening of all buildings for material physical climate risks,
- Environmental certification with a minimum level of “Miljöbyggnad Silver” or an equivalent environmental scheme, and
- A climate impact, measured in kilograms of CO2 per square meter of gross floor area, not exceeding the level specified in “Miljöbyggnad Silver” or an equivalent scheme.

Existing buildings

- Buildings that have an energy performance certificate (EPC) class A or
- Energy performance within the top 15% of the national or regional building stock, valid at the time of the approval by the green bond committee.

Major renovations

- Major renovations of buildings that have, or will lead to, reduced PED by at least 30% compared to the building’s pre-investment level

Building energy efficiency

- Installation, maintenance, and repair of energy-efficiency equipment such as insulation, windows, doors, and new light sources (e.g. replacing old bulbs with LED lighting)
- Installation, maintenance, and replacement of heating (such as heat pumps), ventilation and cooling systems, as well as energy management systems
- Instruments and devices for measuring, regulating, and controlling energy performance of buildings, associated with zoned and smart thermostats, sensing equipment, management and light control systems, smart meters, and facade and roofing elements with solar shading













Analytical considerations

- The International Energy Agency emphasizes that achieving net-zero emissions in buildings demands major strides in energy efficiency and the phase-out of fossil fuels. All properties must achieve high energy performance. New properties should also cut emissions from building materials and construction. Addressing physical climate risks is also key to strengthening climate resilience across all buildings.
- We assign a shade of Medium green to the project category because we believe that Södertälje's framework effectively addresses all environmental factors we consider material for new construction, existing buildings, and renovation projects. These factors are energy use, heating sources, embodied emissions, and physical climate risks. Additionally, Södertälje will not invest in buildings using direct fossil fuel-powered heating.
- Given the fixed nature of buildings, improving their resilience to physical climate risk is crucial in the transition to a low-carbon real estate sector. All eligible projects and buildings have been screened for physical climate risks using relevant scenarios, and there has to be an action plan to mitigate potential physical risks for buildings to be included in the green pool.
- Södertälje expects to allocate 58% of proceeds in this category to new construction projects, 28% to existing buildings and 14% to renovations. All new construction projects must have solid energy performance (20% better than that required by the Swedish building code, which is required under the current version for Miljöbyggnad Silver), which we view as a strong

ambition. We view the ambition for existing buildings to be in the top 15% of the national or regional building stock in terms of energy performance as a strong commitment to the transition to a low-carbon society, and we consider the requirement for renovation projects to result in 30% lower PED to be ambitious.

- Embodied emissions thresholds levels correspond to the requirements of Miljöbyggnad Silver, which we think represents significant steps to a low-carbon climate resilient future. Reducing embodied emission is a part of Södertälje’s goal of reducing the municipality’s climate impact within scope 3 by 2030, based on its environmental and climate strategy. Still, although these efforts will help decrease the lifecycle emissions of Södertälje’s construction projects, they will not render new construction carbon neutral.
- Södertälje will target Miljöbyggnad Silver for all new construction. The latest version of the certification comprehensively addresses all key shade drivers for real estate, setting robust minimum requirements on energy, embodied emissions, and physical climate risks.
- None of the projects currently in the pipeline are planned on greenfield land, and Södertälje informs us that it rarely happens but may occur in the future. Södertälje adheres to legal requirements for EIAs, and the regulatory context in Sweden mitigates biodiversity risks to an extent. Nonetheless, any new construction activities on greenfield land constitute biodiversity and land-use change risks.

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

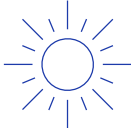
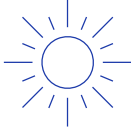
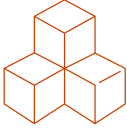


Note: For us to consider use of proceeds aligned with ICMA Principles for a green project, we require project categories directly funded by the financing to be assigned one of the three green Shades.

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 affect our alignment opinion.

This framework intends to contribute to the following SDGs:

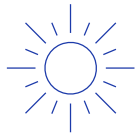
[Use of proceeds/KPI]	SDGs			
Renewable energy		Choose a building block.	Choose a building block.	Choose a building block.
	7. Affordable and clean energy			
Energy efficiency				
	7. Affordable and clean energy*	9. Industry, innovation and infrastructure*		
Clean transportation				
	11. Sustainable cities and communities*			
Sustainable water and wastewater management				
	6. Clean water and sanitation*			

Climate change adaptation



11. Sustainable cities and communities **13. Climate action***

Green buildings



7. Affordable and clean energy

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

Related Research

- [Analytical Approach: Second Party Opinions](#), Mar. 6, 2025
- [FAQ: Applying Our Integrated Analytical Approach For Second Party Opinions](#), Mar. 6, 2025
- [Analytical Approach: Shades Of Green Assessments](#), Jul. 27, 2023

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Second Party Opinion: City of Södertälje Green Bond Framework

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