



Atrium Ljungberg AB (publ) Green Bond Second Opinion

February 2, 2022

Atrium Ljungberg AB (publ) is a listed Swedish property company and owns, develops, and manages properties totaling 1,052,000 m² letting area with a property value of SEK 49 billion in Stockholm, Gothenburg, Malmö and Uppsala. The primary focus is on retail and offices, but also residential properties and cultural, service and educational facilities are included. Currently, more than half of the annual rent is from offices. Atrium Ljungberg plans to invest where they already have many properties, with the majority at existing or future underground stations in Stockholm.

The current green bond framework is an update from a previous (2017) framework. The updated (2022) framework is broader both in terms of eligible categories and eligibility criteria within the categories. Categories now covered are: Green buildings, Renewable energy, Clean transportation, Energy efficiency, Environmentally sustainable management of living resources and land use, and Climate change adaptation. Most of the proceeds will be for new projects in the Green buildings category where environmental certification requirements are complemented with stringent energy efficiency criteria for eligibility securing energy performance better than regulation.

The strategy and goals of Atrium Ljungberg are comprehensive, clear and ambitious with clear target both for 2025 and the longer term 2030 where climate neutrality is required. The selection is made by the in-house Green Bond Committee according to a documented process and with veto power to the environmental experts. We find the management of proceeds to be in accordance with the 2021 Green Bond Principles. Atrium Ljungberg's sustainability reporting at the company level is according to GRI Core, and also takes EPRA Sustainability Best Practice Recommendation Guidelines into account. They receive a score of B from CDP. They are also, to a large extent, following the TCFD guidelines including scenario analysis of climate risks. The allocation and impact reporting for the green bonds are comprehensive.

Based on the overall assessment of the eligibility criteria in the framework, governance and transparency considerations, and the prioritized use of proceeds, the framework receives a **CICERO Medium Green** shading and a governance score of **Excellent**. In order to achieve a darker green shading, the green bond framework would need stronger eligibility criteria in the Green buildings category.

SHADES OF GREEN

Based on our review, we rate the Atrium Ljungberg's green bond framework **CICERO Medium Green**.

Included in the overall shading is an assessment of the governance structure of the green bond framework. CICERO Shades of Green finds the governance procedures in Atrium Ljungberg's framework to be **Excellent**.



GREEN BOND PRINCIPLES

Based on this review, this Framework is found to be aligned with the principles.





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1 Terms and methodology

This note provides CICERO Shades of Green's (CICERO Green) second opinion of the client's framework dated February 2022. This second opinion remains relevant to all green bonds and/or loans issued under this framework for the duration of three years from publication of this second opinion, as long as the framework remains unchanged. Any amendments or updates to the framework require a revised second opinion. CICERO Green encourages the client to make this second opinion publicly available. If any part of the second opinion is quoted, the full report must be made available.

The second opinion is based on a review of the framework and documentation of the client's policies and processes, as well as information gathered during meetings, teleconferences and email correspondence.

Expressing concerns with 'Shades of Green'

CICERO Green second opinions are graded dark green, medium green or light green, reflecting a broad, qualitative review of the climate and environmental risks and ambitions. The shading methodology aims to provide transparency to investors that seek to understand and act upon potential exposure to climate risks and impacts. Investments in all shades of green projects are necessary in order to successfully implement the ambition of the Paris agreement. The shades are intended to communicate the following:

CICERO Shades of Green



Dark green is allocated to projects and solutions that correspond to the long-term vision of a low carbon and climate resilient future. Fossil-fueled technologies that lock in long-term emissions do not qualify for financing. Ideally, exposure to transitional and physical climate risk is considered or mitigated.



Medium green is allocated to projects and solutions that represent steps towards the long-term vision, but are not quite there yet. Fossil-fueled technologies that lock in long-term emissions do not qualify for financing. Physical and transition climate risks might be considered.



Light green is allocated to projects and solutions that are climate friendly but do not represent or contribute to the long-term vision. These represent necessary and potentially significant short-term GHG emission reductions, but need to be managed to avoid extension of equipment lifetime that can lock-in fossil fuel elements. Projects may be exposed to the physical and transitional climate risk without appropriate strategies in place to protect them.

Examples



Wind energy projects with a strong governance structure that integrates environmental concerns



Bridging technologies such as plug-in hybrid buses



Efficiency investments for fossil fuel technologies where clean alternatives are not available

Sound governance and transparency processes facilitate delivery of the client's climate and environmental ambitions laid out in the framework. Hence, key governance aspects that can influence the implementation of the green bond are carefully considered and reflected in the overall shading. CICERO Green considers four factors in its review of the client's governance processes: 1) the policies and goals of relevance to the green bond framework; 2) the selection process used to identify and approve eligible projects under the framework, 3) the management of proceeds and 4) the reporting on the projects to investors. Based on these factors, we assign an overall governance grade: Fair, Good or Excellent. Please note this is not a substitute for a full evaluation of the governance of the issuing institution, and does not cover, e.g., corruption.



2 Brief description of Atrium Ljungberg's green bond framework and related policies

Atrium Ljungberg AB (publ) is one of Sweden's biggest listed property companies and owns, develops and manages properties totaling 1,052,000 m² letting area with a property value of SEK 49 billion in Stockholm, Gothenburg, Malmö and Uppsala. The primary focus is on retail and offices, but also residential properties and cultural, service and educational facilities are included. Currently, more than half of the annual rent is from offices. The existing project portfolio will enable Atrium Ljungberg to invest the equivalent of approximately SEK 37 billion in the future. 90% of these investment volumes are for Green buildings in areas where they already have many properties, with the majority at existing or future underground stations in Stockholm.

The largest owners of Atrium Ljungberg are the Ljungberg family, the Stockholm Consumers Cooperative Society and the Holmström family.

Environmental Strategies and Policies

Atrium Ljungberg's Board of Directors establishes the overall sustainability policy for the company. The policy emphasizes the fact that the goals need to be measurable and are monitored every quarter or annually, while the company's strategy and goals are evaluated and updated every two years.

Atrium Ljungberg issued a Green bond framework in 2017. The proceeds from the bonds under this framework has mainly been for property projects that are helping to reduce greenhouse gas emissions and energy use. The updated 2022 framework is broader both in terms of eligible categories and eligibility criteria within the categories.

Currently, the main environmental goals of Atrium Ljungberg are:

Climate – Atrium Ljungberg will be climate-neutral by 2030, with emissions halving by 2025. Decision on eventual use of emission compensations will be taken later (2027 or 2028). Focus is now on reducing emissions. Currently, emission reporting covers all three scopes with scope 3 emissions including emissions from tenants' energy use, business travels and transport emissions from visitors to three of Atrium Ljungberg's sites¹. Key figures are measured in kgCO₂e/m². The goal, which covers construction as well as management of buildings, will primarily be achieved by reducing energy consumption, choosing materials with a lower climate impact, and making efficient use of resources in order to prevent waste, increase sorted materials, promote circular solutions and streamline transport. It is monitored regularly and will be evaluated in a Climate Report every year. In 2020 the carbon dioxide emissions amounted to a total of 6.5 kgCO₂e/m², down from 8.6 kgCO₂e/m² the previous year. CO₂ emissions mostly come from heating the properties with district heat and from visitors coming to the retail hubs by car.

Atrium Ljungberg certify their commercial new buildings mainly in accordance with BREEAM, existing buildings in accordance with BREEAM In-Use and newly built residential buildings in accordance with Miljöbyggnad. When they certify their new buildings in accordance with BREEAM, their goal is to achieve a minimum rating of 'Excellent'. When they certify buildings in accordance with Miljöbyggnad, their goal is to achieve at least a 'Silver' rating. At the end of the year 2020, 62% of the letting area was certified, up from 50% at the end of 2019.

¹ Mobilia, Gränby and Sickla.



The total energy consumption for 2020, weighted to an average year (temperature corrected), amounted to 224 GWh, which is a decrease from 253 GWh in the previous year. Around 41% of energy consumption is attributable to the tenants' own consumption. Up to and including 2020, Atrium Ljungberg succeeded in reducing the energy consumption per m² by 23.5% compared with 2014. In 2020 it was 207 kWh/m², including estimates of tenants' energy use. The goal is to reduce the energy consumption per m² by 30% between 2014 and 2021. They only use purchased electricity from hydropower or own solar cells on the properties.

Socially sustainable locations – Atrium Ljungberg's locations will have reached 100% in the Socially Sustainable Locations index by 2030. This is an index developed by Atrium Ljungberg covering and quantifying the following issues: Security, well-being and accessibility; Closeness, togetherness and flexibility; Ecosystems and adaptation to climate change; Identity, history and diversity; and Dialogue and participation.

Business ethics – 100% of purchase volumes from significant² suppliers will be evaluated using Atrium Ljungberg's 2025 Supplier Policy. The requirement is for every significant supplier to sign Atrium Ljungberg's Supplier Policy. The Supplier Policy is based on the Swedish Property Federation's Supplier Code of Conduct³. It covers issues such as business ethics, the environment, work environment, working conditions and human rights. Regarding the environment, suppliers should, according to the code of conduct, "continuously work with environmental improvement measures in their operations and have at least one clearly measurable goal for how to reduce their environmental impact, for example in energy consumption, CO₂ emissions or waste."

By using the Swedish Building Materials Assessment⁴, the use of hazardous chemicals and construction materials, as well as water and soil pollution, are reduced.

Atrium Ljungberg is also pursuing a 'Zero waste' policy at their properties. By 2025, the total amount of waste must be reduced by 40% per m², an unsorted waste must be reduced by 80% per m² of floor space.

Atrium Ljungberg is a member of Sweden Green Building Council's BREEAM committee, which is responsible for strategies related to management, assessment and development of the certification system. In addition, they are a signatory of the UN's Global Compact. Atrium Ljungberg has also decided to be an actor in Fossil Free Sweden⁵, and has accepted the initiative's Solar Challenge⁶ and the Company Car Challenge⁷.

Atrium Ljungberg's sustainability reporting is according to GRI Core, and also takes EPRA Sustainability Best Practice Recommendation Guidelines into account. Atrium Ljungberg also reports their climate impact using the CDP tool and have received a rating of B. Every year Atrium Ljungberg also provides CDP with a rough estimate of what the financial impact of climate risks could have on Atrium Ljungberg. They have valued the total financial impact to be SEK 494 million in higher costs. Atrium Ljungberg works continuously on improved maintenance in order to increase the resistance of their properties during extreme weather conditions. They have also started working in line with the TCFD (Task Force on Climate-Related Financial Disclosures) guidelines. Thus, in 2021, Atrium Ljungberg initiated climate risk assessments for their own buildings. The assessments of physical risks are based on the RCP 4.5 and RCP 8.5 scenarios. Atrium Ljungberg plans to continue this work to cover the whole portfolio during 2022.

² Procurements above SEK 100,000.

³ https://www.fastighetsagarna.se/globalassets/broschyror-och-faktablad/riktlinjer/fastighetsbranschens-upporandekod-for-leverantorer_code-of-conduct.pdf?bustCache=1639068203675

⁴ <https://byggvarubedomningen.se/in-english/>

⁵ <https://fossilfritt Sverige.se/en/about-us/>

⁶ <https://fossilfritt Sverige.se/utmaningar/solutmaningen/>

⁷ <https://fossilfritt Sverige.se/utmaningar/tjanstebilsutmaningen/villkor-for-att-anta-tjanstebilsutmaningen/>



Use of proceeds

An amount equivalent to the net proceeds from green bonds will exclusively be used by Atrium Ljungberg to fully or partly finance or refinance investments and expenditures that promote the transition to low-carbon, climate resilient and sustainable economies. Such assets must comply with the categories and criteria shown in table 1 below. The categories are: Green buildings, Renewable energy, Clean transportation, Energy efficiency, Environmentally sustainable management of living resources and land use, and Climate change adaptation. Green buildings will be the dominant category. At least 85% of net proceeds will be for climate change mitigation and adaptation objectives.

Both financing and refinancing of tangible assets (without age restriction) and operational expenditure (up to 3 years backward looking before the starting year of any newly issued green bond) such as maintenance costs related to green assets that either increase the expected lifetime or the energy efficiency can qualify. Atrium Ljungberg only operates in the Swedish market and the net proceeds will therefore be used exclusively to finance or refinance investments and expenditure in Sweden.

The majority of the net proceeds are expected to be allocated to new projects and assets (defined as projects and assets financed within 12 months from completion). The proportion of net proceeds allocated to new projects and assets will be disclosed in the annual reporting.

The net proceeds will not be allocated or linked to fossil-based energy generation or infrastructure, nuclear energy generation, research and/or development within weapons and defense, potentially environmentally negative resource extraction (such as rare-earth elements or fossil fuels), gambling or tobacco.

Selection

The selection process is a key governance factor to consider in CICERO Green's assessment. CICERO Green typically looks at how climate and environmental considerations are considered when evaluating whether projects can qualify for green finance funding. The broader the project categories, the more importance CICERO Green places on the governance process.

Projects and assets potentially eligible for green financing will be evaluated by the Green Bond Committee ("GBC") which is a group consisting of representatives from the Treasury and the Sustainability departments. The GBC was established in 2017 in connection with Atrium Ljungberg's first green bond framework.

The GBC will review information about the assets and evaluate the overall environmental impact, which includes life cycle considerations, potential rebound effects, resilience considerations and adherence to at least one of the environmental objectives of the EU taxonomy. The projects and assets must also be compliant with policies and guidelines at Atrium Ljungberg. The planning and building process also screens for potentially controversial projects with possible conflicts of interest. The Atrium Ljungberg Green Bond Committee can request additional information and consult with internal parties, but the mandate to make decisions is held by the group. A decision to allocate net proceeds will require a consensus decision by the GBC and will be documented. Furthermore, the GBC is also responsible for signing off on the forthcoming reporting under the framework as outlined below.

An updated list of all green assets will be kept by Atrium Ljungberg's sustainability department.

Management of proceeds

CICERO Green finds the management of proceeds of Atrium Ljungberg to be in accordance with the Green Bond Principles.



An amount equal to the net proceeds of any green bonds will be credited to a dedicated account (the “green account”) or otherwise tracked by Atrium Ljungberg (the “green portfolio”). Deductions will be made from the green portfolio by an equivalent amount corresponding to the financing, refinancing, investment or expenditure of eligible green assets or repayment of any green bonds fulfilling the eligibility criteria in the new framework.

If an eligible green asset no longer qualifies or if the underlying project or asset is divested or lost, an amount equal to the funds allocated towards it will be re-credited to the green portfolio. Funds may also be reallocated to other green assets during the term of any green bond, unless otherwise agreed in the loan documentation.

The treasury department will keep a record of the purpose of any change in the green portfolio and ensure that the combined funds directed towards a specific green asset, by one or several sources of green financing (such as green bonds and green loans) or other financing with specific use of proceeds, does not exceed its value.

While the green portfolio has a positive balance, the net proceeds may be invested or utilized by the treasury in accordance with Atrium Ljungberg’s sustainability policy and investment criteria. Such unallocated funds may for instance be invested in short-term interest-bearing securities, such as Swedish treasury bills (and related entities) or Swedish municipal notes (including related entities).

Reporting

Transparency, reporting, and verification of impacts are key to enable investors to follow the implementation of green finance programs. Procedures for reporting and disclosure of green finance investments are also vital to build confidence that green finance is contributing towards a sustainable and climate-friendly future, both among investors and in society.

To be fully transparent towards the green bond investors and other market stakeholders, Atrium Ljungberg will publish an annual report on its website (www.al.se) that will detail the allocation of net proceeds and adherence to the green terms. The first such reporting under the framework is expected to take place in March 2023 in proximity to the release of the company’s Annual Report and will be available in Swedish and in English. Atrium Ljungberg will yearly publish the allocation and impact reporting until such time that no green bonds are outstanding.

The reporting will be prepared by the treasury and sustainability department. It will contain information on the green assets that have been financed with green bonds, a summary of Atrium Ljungberg’s activities in the past year as pertains to green bonds as well as information, including examples, of the financed green asset’s adherence to the relevant criteria.

Reporting on the allocation of proceeds from green bonds will be provided at project level, unless confidentiality agreements, competitive considerations, or a large number of underlying qualifying projects limit the amount of detail that can be made available, in which case the information will be provided at an aggregated level, with an explanation of why project-level information is not given. Reporting will not be linked to individual bonds.

For the category Green buildings that have met the relevant green terms and to which net proceeds have been allocated, the reporting will disclose the aggregate market value (or investment cost, as applicable). For the other eligible categories, the total allocation of green net proceeds to each category will be disclosed.

The sum of outstanding green bonds and the sum of the green portfolio balance, including any short-term investments or net proceeds managed within the liquidity portfolio, will also be reported. The data shall be from the last of December in the previous year.



The reporting will contain a disclosure of asset level performance indicators and will strive to disclose the impact based on the green financings share of the total investment. For financed green assets that are not yet operational, Atrium Ljungberg will strive to provide estimates of future performance levels. Atrium Ljungberg will emphasize energy savings and greenhouse gas reductions as the most relevant performance metrics for most projects. For green buildings type of certifications and the relative energy performance compared to applicable national building codes and share of green leases per annual contract rent, will also be reported.

For the category Climate change adaptation, the reporting may include an example of an investment that has been financed with green net proceeds (if such a project has been completed). Atrium Ljungberg will, where applicable, emphasize a description of the need for the investment, and if possible, what resilience the investment creates.

The issuer will be transparent around their GHG impact methodology and it will be consistent with their sustainability reporting. It should be noted that the grid emission factors Atrium Ljungberg uses is considerably lower than what has been outlined in the “Nordic Public Sector Issuers: Position Paper on Green Bonds Impact Reporting” (2020), which currently states 319 gCO₂e/kWh.

The external auditor of Atrium Ljungberg, or a similar party appointed by Atrium Ljungberg with the relevant expertise and experience, will review the allocation and impact reporting. Their conclusions will be provided in a signed statement, which will be published on Atrium Ljungberg’s website.

Atrium Ljungberg has a dedicated webpage for green financing (such as green bonds) at its website (<https://www.al.se/en/about-us/investor-relations/financing/green-bonds/>) where investors can find information regarding Atrium Ljungberg’s green financing.



3 Assessment of Atrium Ljungberg’s green bond framework and policies


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

Overall shading

Based on the project category shadings detailed below, and consideration of environmental ambitions and governance structure reflected in Atrium Ljungberg’s green bond framework, we rate the framework **CICERO Medium Green**.

Eligible projects under the Atrium Ljungberg’s green bond framework

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

Category	Eligible project types	Green Shading and some concerns
Green building 	<p><i>New buildings:</i> Development, acquisition, add-on construction on existing buildings or otherwise recently completed buildings that have, or will, receive (i) a design stage certification or (ii) a post-construction certification in any of the following building certification schemes at the defined threshold or better: BREEAM “Excellent”, Miljöbyggnad “Silver”, LEED “Gold” or Svanen as well as at least 20% lower energy use than required by the applicable national building code (BBR/NZEB).</p> <p><i>Existing buildings:</i> Existing buildings or major renovations that have, or will receive, (i) a design stage certification, (ii) a post construction certification or (iii) an in-use certification in any of the following building certification schemes at the defined threshold or better: BREEAM “Very Good”, BREEAM In-Use “Very Good”, Miljöbyggnad “Silver”,</p>	<p>Medium Green</p> <p>Green buildings will most likely be a dominant category, measured as allocated amount as well as number of projects. The project portfolio mainly consists of new buildings. Offices accounts for 53 % of the project area followed by residential units of 36 % (both tenants owned housing as well as rental housing) and education of 4 %. More than 80 % (in terms of sqm) of potential projects are located at existing or future underground stations.</p> <p>✓ According to the issuer, for new projects, LCA calculations will be carried out including emissions during the production phase. That will also be a legal requirement from 1/1 2022 in</p>



Miljöbyggnad iDrift “Silver”, LEED “Gold”, LEED EBOM “Gold” or Svanen, as well as achieve an energy target, as specified below:

- Buildings that are at least 10 years old and have recently completed or are currently undergoing major renovation require a 30% reduction in overall energy use or achieve an energy use 5% below the applicable national building code (BBR) for newly build properties.

OR:

- Existing buildings must achieve an energy use per square meter not exceeding the targets set out below and for own development of buildings constructed before 2021 at least 15% lower than the national building code (BBR) applicable for the specific building (when available).

Construction year Energy use (kWh/m²)

Residential buildings

After 2017	65
2011-2017	80
1991-2010	90
1970-1990	100
Before 1970	110

Office buildings

After 2014	>15% lower than BBR
2011-2014	80
1991-2010	90
1970-1990	100
Before 1970	115

Other buildings

After 2014	>15% lower than BBR
2011-2014	85
1991-2010	100
1960-1990	115
Before 1960	120

Sweden⁸.

- ✓ Atrium Ljungberg always strives to achieve at least 25% lower energy use than required by the applicable national building code (BBR) in new properties and add-on construction, but due to the properties’ high cultural values (several are historic listed buildings) the scope of activities that can be undertaken to limit energy use is often restricted. Therefore, a lower criteria threshold (20%) has been used.
- ✓ Point based environmental certification schemes like *BREEAM* and *LEED* fall short of guaranteeing a low-climate impact building, as they may not ensure compliance with all relevant factors e.g., energy efficiency, access to public transport, climate resilience, and sustainable building materials. This weakness is mitigated by Atrium Ljungberg’s additional energy requirement and targeting the high level of BREEAM Excellent.
- ✓ The criteria for absolute energy use per m², refer to landlord primary energy use, and is better than the regulations (when it existed) at the time of construction.
- ✓ IPCC recommends 50% energy efficiency improvement in deep renovations. According to IEA, efficiency of building envelopes needs to improve by 30% by 2025 followed by continued decarbonization to near zero by 2050 to be aligned with the Paris target. The IEA Net Zero Emissions by 2050 Scenario includes a milestone that all new buildings constructed from 2030 are zero carbon ready⁹. Also, retrofit rates for buildings to a “zero carbon ready” standard – that will be fully decarbonised by 2050 without any further changes to the building or its equipment – reach about

⁸ Note that the Swedish requirement is different from the requirement in the EU taxonomy due to differences in the scope of the LCA.

⁹ <https://iea.blob.core.windows.net/assets/9c30109f-38a7-4a0b-b159-47f00d65e5be/EnergyEfficiency2021.pdf>



2.5% a year by 2030 in advanced economies.

Renewable energy



Renewable energy production, such as wind power, on-site solar power installations and on-site geo-energy installations (ground and surface systems), as well as related infrastructure investments for example grid connections, electric substations or networks.

Dark Green

- ✓ Renewable energy is part of a Dark Green Solution and is key to a low-carbon transition.
- ✓ According to the issuer, bioenergy is not expected to be financed. In case of wind power and other potentially controversial projects, a careful screening and risk assessment will be carried out.
- ✓ Refrigerant used in geothermal heat pumps can be a risk to climate if leakages are not controlled. Construction of energy wells (geo-energy) may also lead to heavy mineral pollution if not managed carefully.
- ✓ To limit emissions from its renewable energy projects, most of which is scope 3, we encourage Atrium Ljungberg to do life cycle analysis.

Clean transportation



Supportive infrastructure such as charging stations for electric vehicles, bicycle garages, pedestrian walkways, bicycle lanes or other investments that support and emphasize the use of clean transportation solutions.

Dark Green

- ✓ Charging stations for electric vehicles may also be used by hybrid vehicles, thus involving some fossil fuel elements.

Energy efficiency



Upgrades to the existing portfolio of buildings that target a lower overall energy use and an improved environmental footprint. This could include, for instance, the installation of geothermal heating/cooling, energy-efficient lighting, IT-technology (monitoring, efficiency management and remote operation), energy efficient windows or an upgraded ventilation system. Only directly associated expenditure (e.g., material, installation and labour) is eligible for financing.

Medium to Dark Green

- ✓ District heating can involve some fossil fuel elements.
- ✓ Energy efficiency actions usually lead to some rebound effects. According to the issuer, they have a strong focus on management operations, where they actively work with continuous improvements. This includes work to reduce the tenants' energy use, and use of green agreements to promote joint sustainability measures, thus mitigating the danger of rebound effects.

Atrium Ljungberg will ascertain the following:

- a) High estimated energy savings in the targeted area (minimum 20%).
- b) Minimize long term negative climate impact and potential rebound effects.



c) Minimal negative climate impact from the technology used.

Environmentally sustainable management of living resources and land use



Investments in solutions for green urban environments that promote, restore and preserve biological diversity. These include, e.g., green roofs, green walls, urban biotopes, flowerbeds and trees, which all have various positive effect on e.g., strengthening ecological values, reducing noise levels, mitigating physical climate risks or binding air-borne particles.

Investments in soil remediation. Such investments require that a soil survey has been carried out and an emphasis is placed on the reuse of the material (with destruction or deposit as a last option).

Investments in waste management, such as collection, prevention, reduction or recycling of waste.

Medium Green

- ✓ According to the issuer, a large proportion of the projects in this category will be about soil surveys and remediation as they have projects on former industrial land, but can also be projects linked to increasing green spaces. The climate impacts of these actions are uncertain.
- ✓ Overall, this category will not account for a large proportion of investments.

Climate change adaptation



Investments undertaken to mitigate the negative consequences brought on by climate change and their impact on properties, including adaptation of buildings, infrastructure, parks and green areas to build resilience against expected risks such as increased rainfalls, flooding or sea level rise.

Dark Green

- ✓ Buildings and other infrastructure are meant to last for a long time, exposing them to higher climate change physical risks than more short-lived structures. Climate adaptation actions can mitigate these risks.
- ✓ The issuer informs us that investment in infrastructure is mainly to better manage stormwater and can be both system solutions and vegetation.
- ✓ The issuer is encouraged to assess life cycle climate footprint impacts of the chosen solutions.

Table 1. Eligible project categories

Background

The construction and real estate sector have a major impact on our common environment. According to the National Board of Housing, Building and Planning's environmental indicators, it accounts for 32% of Sweden's energy use, 31% of waste and 19% of domestic greenhouse gas emissions. Calculations from Sveriges Byggindustrier indicate that the climate impact of new production of a house is as great as the operation of the house for 50 years.

The building sector accounts for a large share of primary energy consumption in most countries, and the IEA reports that to reach IEA's 2050 Net Zero Emission Scenario, retrofit rates of current buildings need to increase



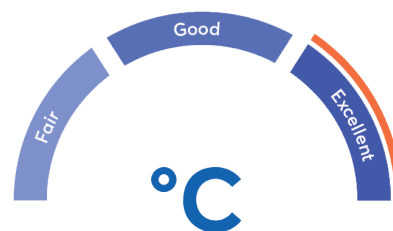
from the current 1% to 2.5% per year by 2030, while the average energy consumed per square metre in 2030 must be 45% less than in 2020 (to keep pace with increased building size and energy demand), in addition to improvements in lighting and appliances and increased renewable heat sources. To achieve a zero-carbon-ready building envelope, tackling embodied carbon (emissions from building materials and equipment) is just as important as energy efficiency.¹⁰ The energy efficiency of buildings is dependent on multiple factors including increasing affluence and expectations of larger living areas, growth in population and unpredictability of weather, and greater appliance ownership and use. Additionally, in the Nordics, approximately half of life-cycle emissions from buildings stem from materials/construction¹¹. The other half stems from energy use, which becomes less important over time with the increasing adoption of off-grid solutions such as geothermal and solar. All of these factors should therefore be considered in the project selection process. In addition, voluntary environmental certifications such as BREEAM or equivalents measure or estimate the environmental footprint of buildings and raise awareness of environmental issues. These points-based certifications, however, fall short of guaranteeing a low-climate impact building, as they may not ensure compliance with all relevant factors e.g., energy efficiency, access to public transport, climate resilience, sustainable building materials. Many of these factors are covered under the World Green Building Council's recommendations for best practices for developing green buildings.¹²

The Exponential Roadmap¹³ lays out a trajectory for reducing emissions by 50% by 2030 and requires that emissions reductions strategies within the buildings sector be rapidly scaled up. The roadmap advocates for standardised strategies that are globally scalable within areas such as new procurement practices for construction and renovation that require dramatically improved energy and carbon emission standards, developing new low-carbon business models for sharing space and smart buildings to achieve economies of scale, and allocating green bond funding for sustainable retrofitting and construction.

Governance Assessment

Four aspects are studied when assessing the Atrium Ljungberg's governance procedures: 1) the policies and goals of relevance to the green bond framework; 2) the selection process used to identify eligible projects under the framework; 3) the management of proceeds; and 4) the reporting on the projects to investors. Based on these aspects, an overall grading is given on governance strength falling into one of three classes: Fair, Good or Excellent. Please note this is not a substitute for a full evaluation of the governance of the issuing institution, and does not cover, e.g., corruption.

The strategy and goals of Atrium Ljungberg are comprehensive, clear and ambitious with clear target both for 2025 and the longer term 2030 and includes considerations of suppliers' environmental impacts. The selection is made by the in-house Green Bond Committee according to a documented process and with veto power to the environmental experts. We find that the management of proceeds is in accordance with the Green Bond Principles. Atrium Ljungberg's sustainability reporting at the company level is according to GRI Core, and also takes EPRA Sustainability Best Practice Recommendation Guidelines into account. They receive a score of B from CDP. They are also to a large extent following the TCFD guidelines including scenario analysis of climate risks. The allocation and impact reporting for the green bonds are comprehensive.



¹⁰ <https://www.iea.org/reports/building-envelopes>

¹¹ Sustainable Edge Sector Brief: Real Estate, https://cicero.oslo.no/file/2/sectorbriefs_realestate_17_12.pdf/download

¹² <https://www.worldgbc.org/how-can-we-make-our-buildings-green>

¹³ https://exponentialroadmap.org/wp-content/uploads/2020/03/ExponentialRoadmap_1.5.1_216x279_08_AW_Download_Singles_Small.pdf



The overall assessment of Atrium Ljungberg's governance structure and processes gives it a rating of **Excellent**.

Strengths

Exclusion of fossil energy systems is a strength of the framework. The Green building criteria are mostly good and complemented by Medium to Dark Green supporting categories like Renewable energy, Energy efficiency, etc. Overall, it is also a strength that the framework builds on the excellent governance structure of Atrium Ljungberg with its ambitious and quantitative sustainability targets well anchored in the whole company.

Weaknesses

We find no material weaknesses in Atrium Ljungberg's Green bond framework.

Pitfalls

In a low carbon 2050 perspective, the energy performance of buildings is expected to be improved, with passive house technology becoming mainstream and the energy performance of existing buildings greatly improved through refurbishments. According to IEA, efficiency of building envelopes needs to improve by 30% by 2025 to keep pace with increased building size and energy demand – in addition to improvements in lighting and appliances and increased renewable heat sources. In the IEA Net Zero Emissions by 2050 Scenario, retrofit rates for buildings to a “zero carbon ready” standard – that will be fully decarbonised by 2050 without any further changes to the building or its equipment – reach about 2.5% a year by 2030 in advanced economies and 2% a year by 2030 in emerging economies. In addition, the scenario includes a milestone that all new buildings constructed from 2030 are zero carbon ready. Building energy codes are the central policy mechanism to meet this goal. However, only 5% of new buildings constructed globally currently meet this standard. The criteria for eligible projects under the Green buildings category are mostly good, but do allow for buildings not yet delivering the solutions needed in a low carbon 2050 perspective (passive house technology and similar). In order to achieve a darker green shading, the green finance framework would need a stronger energy efficiency criteria in eligible green building projects.

To the extent that the buildings rely on district heating, there is an inherent probability that some fossil fuel fractions (e.g., plastic fractions in waste-to-energy plants) will be involved, although Swedish district heat providers generally are good at tracking and reducing fossil fractions.

Rebound effects represent a category of macro impacts. For example, improved energy efficiency of a dwelling and lower energy costs may induce tenants to increase the indoor temperature, partly offsetting the initial anticipated energy and carbon dioxide savings. Atrium Ljungberg's active engagement with tenants probably mitigates the risk of rebound effects to some degree.



Appendix 1: Referenced Documents List

Document Number	Document Name	Description
1	AL Draft Green Bond Framework 211223	Atrium Ljungberg's Green bond framework dated December 2021
2	1403515	Atrium Ljungberg's Annual and Sustainability report 2020
3	investor-report-2020	Atrium Ljungberg's green bond report to investors 2020
4	fastighetsbranschens-uppforandekod-for-leverantorer_code-of-conduct	Swedish Property Federation's Supplier Code of Conduct
5	https://www.al.se/en/recent/pressreleases/2021/atrium-ljungberg-adopts-new-sustainability-goals/	New sustainability goals for Atrium Ljungberg from December 15, 2021



Appendix 2: About CICERO Shades of Green

CICERO Green is a subsidiary of the climate research institute CICERO. CICERO is Norway's foremost institute for interdisciplinary climate research. We deliver new insight that helps solve the climate challenge and strengthen international cooperation. CICERO has garnered attention for its work on the effects of manmade emissions on the climate and has played an active role in the UN's IPCC since 1995. CICERO staff provide quality control and methodological development for CICERO Green.

CICERO Green provides second opinions on institutions' frameworks and guidance for assessing and selecting eligible projects for green bond investments. CICERO Green is internationally recognized as a leading provider of independent reviews of green bonds, since the market's inception in 2008. CICERO Green is independent of the entity issuing the bond, its directors, senior management and advisers, and is remunerated in a way that prevents any conflicts of interests arising as a result of the fee structure. CICERO Green operates independently from the financial sector and other stakeholders to preserve the unbiased nature and high quality of second opinions.

We work with both international and domestic issuers, drawing on the global expertise of the Expert Network on Second Opinions (ENSO). Led by CICERO Green, ENSO contributes expertise to the second opinions, and is comprised of a network of trusted, independent research institutions and reputable experts on climate change and other environmental issues, including the Basque Center for Climate Change (BC3), the Stockholm Environment Institute, the Institute of Energy, Environment and Economy at Tsinghua University, the International Institute for Sustainable Development (IISD) and the School for Environment and Sustainability (SEAS) at the University of Michigan.

