

Sustainability-Linked Financing Framework

May 2023

HUMLEGÅRDEN





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Humlegården at a glance

Humlegården Fastigheter AB (publ) ("Humlegården" or the "Company") is an active property company, with long-term owners and a well-positioned property and project portfolio in the expanding Stockholm market.

Humlegården is a member of the Länsförsäkringar Alliance, Sweden's only customer-owned and locally based banking and insurance group. Humlegården owns, operates, and develops mainly office properties in the Stockholm region. The Company has 93 employees and owns 59 properties located in Stockholm city, Gärdet, Hagastaden, Solna strand, Hagalund and Kungsholmen.

Humlegården strives to create sustainable and attractive work and city environments, where people want to live, work and spend time, through active property management and development projects, comprising new production and the development of existing properties. The Company focuses on prime locations with high demands, and areas with direct access to rail transportations.

As of 31 December 2022, the lettable area amounted to 508 000 square meters and the property portfolio was valued to SEK 39 665 billion with a rental income of SEK 1 726 million.

1. Humlegården's ESG approach

Sustainability for Humlegården is about contributing to sustainable development while creating value for customers and other stakeholders as well as long-term profitability. The Company's sustainability strategy is derived from three main principles:

- *Create conditions* that makes it easier for Humlegården and its customers to contribute to a sustainable development
- *Limit the Company's impact* to reduce the use of resources throughout the value chain
- *Drive development* towards new sustainable ways of thinking and innovation together with its partners

1.1. E – environmental responsibility

Humlegården's long-term goal is to be *climate neutral by 2045* and to achieve this goal, the Company has established a climate plan, which is based on three areas:

- *Science Based Targets* – by 2030 reduce scope 1, 2 & 3 greenhouse gas emissions by 50% compared to 2019. Target to be validated by Science Based Targets initiative (SBTi) in line with a 1.5°C scenario
- *Humlegården's Sustainability program* – guidance on how the sustainability work in the Company's projects should be controlled and followed up
- *Circular economy* - carry out all major renovations and new constructions according to circular principles



Further, working with energy efficiency is a part of the everyday work and Humlegården has set an ambitious long-term energy goal in the form of *reducing energy use by 32% by 2030 compared to 2019*. By working on *energy optimisation*, Humlegården can reduce its' energy use and thus, its' climate impact. Also, Humlegården only source *renewable electricity from hydropower* and in 2021 the Company introduced requirements in the leases that tenants with their own electricity contracts must source electricity from renewable sources. Humlegården also aims to add more renewable energy to the energy grid and always investigate the potential for solar cells when conducting major new projects and redevelopments.

In addition, *environmental certifications* help guarantee the building's environmental performance. Humlegården's long-term ambition is to environmentally certify all investment properties. The properties in the portfolio are certified according to *BREEAM In-Use* with the ambition to achieve at least the level of Very Good. The proportion of certified investment properties at end of 2022 amounted to 97% of LOA (premises area).

To reduce the climate footprint even further, Humlegården have decreased the fleet of service vehicles and replaced it with *100% electric vehicles*, which are charged with electricity from *renewable energy sources*. As a part of the Company's client offering, Humlegården are installing *charging stations* in garages in the existing property portfolio. Humlegården has over 208 charging stations installed, which supply over 416 parking spaces with charging capacity.

1.2. S – social responsibility

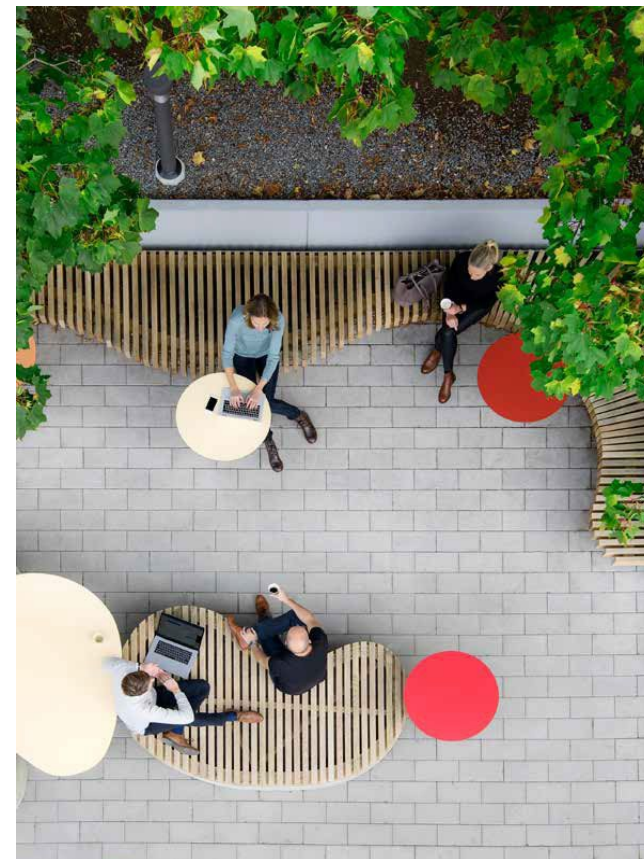
Social sustainability comprises all of those who work in and around the properties, which is why Humlegården has extensive responsibility as a property owner. *Cooperation* is of great importance in having real impact in these matters. Accordingly, the Company conduct dialogue with and participate in joint projects together with other property owners and players to create better living environments. Further, Humlegården has a forum called “*Humlegården Labs*” that was born out of the desire to constantly develop the business and the customer offering, and to find inspiring ways for employees from the entire organization to be able to meet and brainstorm ideas together. With the support of statistics, reports and surveys, the surveys become not only an opinion but also an insight. In addition, Humlegården has participated as a co-founder to *Centrum for AMP* (Affärs- och Medborgarplats *in Sw.*), a model where private actors take a larger responsibility for a location with the purpose to create a safe and attractive environment.

1.3. G – governance & reporting

The foundation of Humlegården’s sustainability work is the commitment to the *UN’s Global Compact*, the *UN’s Sustainable Development Goals (SDGs)* and the Company’s *Code of Conduct*. Other policies forming the foundation for Humlegården’s sustainability work are the *environmental policy*, *purchasing policy* and *company car policy*. In addition, Humlegården has both a *sustainability council* that prepares strategic information and advice to the senior management, and a *whistle blower function*.

During 2021 Humlegården created a new *Sustainability program*. The program should make sure that requirements and expectations from tenants, owners, investors, authorities and other stakeholders are implemented and met in projects. The Sustainability program includes descriptions of central documents for projects, other relevant requirements for the real estate sector and guidance on how the sustainability work in the Company’s projects should be controlled and followed up.

In addition, Humlegården's Annual and Sustainability Report is in accordance with the *Global Reporting Initiative Standards (GRI)* and includes climate reporting according to the *Greenhouse Gas Protocol*. The Company is also working on the implementation of the recommendations from *Task Force on Climate-related Financial Disclosures (TCFD)*.



1.3.1. The United Nations Sustainable Development Goals

Humlegården's sustainability strategy is targeting four areas: *partners, buildings, the local community and employees*, and aims to clarify focus areas, new high ambitions and strive to support Agenda 2030 with regards to the following SDGs:



1.3.2. Significant ESG initiatives & partnerships

Further, in property development and management, such as premise customization for new tenants, a sustainable approach is key. Reuse is an efficient way to lessen waste and Humlegården has begun trials to sell equipment that previously would have been sent to recycling or deposit. To increase awareness and knowledge in the organization, and catalyse the Company's approach to circularity regarding premise customization, Humlegården initiated a research project with IVL, Kinnarps and RISE on the project "*Circularity Metrics in Business KPI:s*". The project developed new *circular indicators* and tested them in real life situations on circular business models and products. The goal is that *by 2030, all renovations and new construction will be carried out according to circular principles*. In addition, Humlegården partakes in several forums such as the *Swedish Property Owners Association's sustainability council* and sits on the *board of Global Compact Network Sweden*.

1.3.4. EU Taxonomy

Humlegården has high ambitions in all areas of sustainability and aims to fully support the EU Taxonomy and help provide greater clarity and confidence to investors. As a first step, Humlegården's assessment suggest that its economic activities are eligible pursuant to sections *7.1 Construction of new buildings, 7.2. Renovation of existing buildings & 7.7. Acquisition and ownership of buildings*. These activities contribute to the climate change mitigation objective (the first environmental objective). For more information on the EU Taxonomy, please see Humlegården's Annual Report.

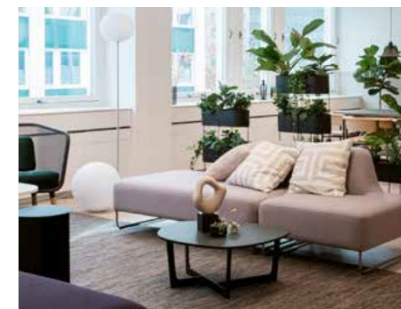
1.3.3. ESG targets

2030

- By 2030, reduce scope 1, 2 & 3 greenhouse gas emissions by 50% compared to 2019 (to be validated by SBTi in line with a 1.5°C scenario)
- By 2030, reduce energy use by 32% compared to 2019
- By 2030, carry out all major renovations and new constructions according to circular principles

2045

- By 2045 to become climate neutral



The Sustainability-Linked Financing Framework

This Sustainability-Linked Financing Framework is aligned with the five components of the *Sustainability-Linked Bond Principles 2020* (SLBP)¹ and *Sustainability-Linked Loan Principles 2022* (SLLP)²: Selection of Key Performance Indicators (Section 1), Calibration of Sustainability Performance Targets (Section 2), Characteristics of the Finance Instruments (Section 3), Reporting (Section 4) and Verification (Section 5).

The Framework is applicable for capital market/non-bank financing such as *Sustainability-Linked bonds, commercial papers etc.*, and bank financing such as *Sustainability-Linked term loans, revolving credit facilities etc. (collectively referred to as "Finance Instruments")*.

Swedbank has acted as advisor to Humlegården in the establishment of this Framework. Further, the Framework is reviewed by an impartial firm, which has provided a second opinion to confirm its alignment with the applicable principles and verifies that the Sustainability Performance Targets outlined in this Framework are *ambitious* in the context of Humlegården's broader sustainability and business strategy. The Framework and second opinion from S&P are available on Humlegården's website; <https://humlegarden.se/>. For more information about commitment to ongoing reporting please read the reporting section in this Framework.



¹ SLBP published in June 2020 are voluntary process guidelines for issuing Sustainability-Linked bonds (SLBs) established by International Capital Markets Association (ICMA). In June 2022, ICMA released a KPI registry which includes high-level recommendations and examples for the selection of key performance indicators for SLBs

² SLLP published in March 2022 are voluntary process guidelines for Sustainability-Linked loans established by Loan Market Association (LMA)

1. Selection of Key Performance Indicators (“KPIs”)

Humlegården has selected the following KPIs, which are *relevant, core, and material* to Humlegården’s business and measure the *sustainability improvements* by Humlegården.

KPIs	1. Reduction of scope 1, 2 & 3 greenhouse gas (GHG) emissions	2. Reduction of energy use	3. Circular economy – increase share of major renovations & construction projects carried out according to circular principles
Description	Reduction of Scope 1, 2 & 3 GHG emissions measured as Kg CO2e/sqm. The KPI covers Scope 3 emissions from construction projects and properties under management which covers roughly 89% of Humlegården’s estimated total greenhouse gas emissions in the past year. In addition, Humlegården is in the process of gather data on tenant emissions from electricity use. Thus, Humlegården commits to include tenant emissions from electricity use in Scope 3 emissions and recalculate the baseline and historical data to allow comparison between different years on a like-for-like basis. The recalculation of baseline and historical data will be externally verified and disclosed to investors in Humlegården’s first Sustainability-Linked Financing Progress Report. Further, definitions of Scope 1 and 2 and 3 emissions are in accordance with the Greenhouse Gas Protocol. Note, the total footprint covered by each scope is indicative and subject to change, in particular as activity specific emissions data replaces generic data. Humlegården aims to be transparent in its reporting if the replacement to specific data affects the overall emission intensity.	Reduction of energy use measured as kWh/sqm	Increase share of renovations & construction projects carried out according to circular principles measured as share of total project volume. Applicable for projects >3 SEKm with earliest start date Jan 1 st 2023 and end-date during the year of evaluation. The definition of the circular principles is based on a number of activities carried out in line with Humlegården’s circular construction process & reuse-process, please see appendix for more info. The following criteria need to be met: • All mandatory activities in the above two processes are fulfilled • A certain amount of points needs to be reached (each activity is linked to specific points)

Materiality to business	In Sweden, building and real estate accounts for 21% of CO2 emissions which means that transforming the industry to being more sustainable is crucial to tackle the climate crisis and to reach the Paris agreement and agenda 2030. Also, Humlegården's materiality assessments have shown this to be a highly important issue among stakeholders. Construction projects and properties under management constitutes the majority of the Humlegården's climate footprint, that is, emissions from the construction phase as well as consumed energy from properties under management. In addition, Sustainability Accounting Standards Board ("SASB") identifies energy management as a significant industry issue to mitigate the environmental impacts of operations. Thus, in line with Humlegården's long-term ambitions to become climate neutral by 2045 as well as stakeholder expectations and regulatory development, Humlegården has set ambitious targets which goes beyond a business-as-usual scenario								Through adopting circular strategies such as narrowing, slowing and closing material loops, Humlegården aims towards minimizing material use & waste and reducing climate impact. While incorporating more circular principles into daily operations Humlegården also takes an important step towards maximizing and preserving material value over time, reducing dependencies on new material and goods and addressing the risks of resource scarcity and volatile supply chains. Lastly, it is also imperative for Humlegården to be compliant with relevant policy initiatives such as the EU taxonomy directive that highlights the transition to circular economy as one of the environmental objectives and declares that any business should substantially contribute to the transition to a circular economy.	
Baseline & historical data	Kg CO2e/sqm	2019	2020	2021	kWh/sqm	2019	2020	2021	The baseline year is 2022 and the baseline KPI is 0%. The first year that this KPI will be measured and evaluated is 2023. Please see appendix for more info.	
	Scope 1-3	17.2	10.0	14.6	Energy use	100	91	95		

2. Calibration of Sustainability Performance targets (“SPTs”)

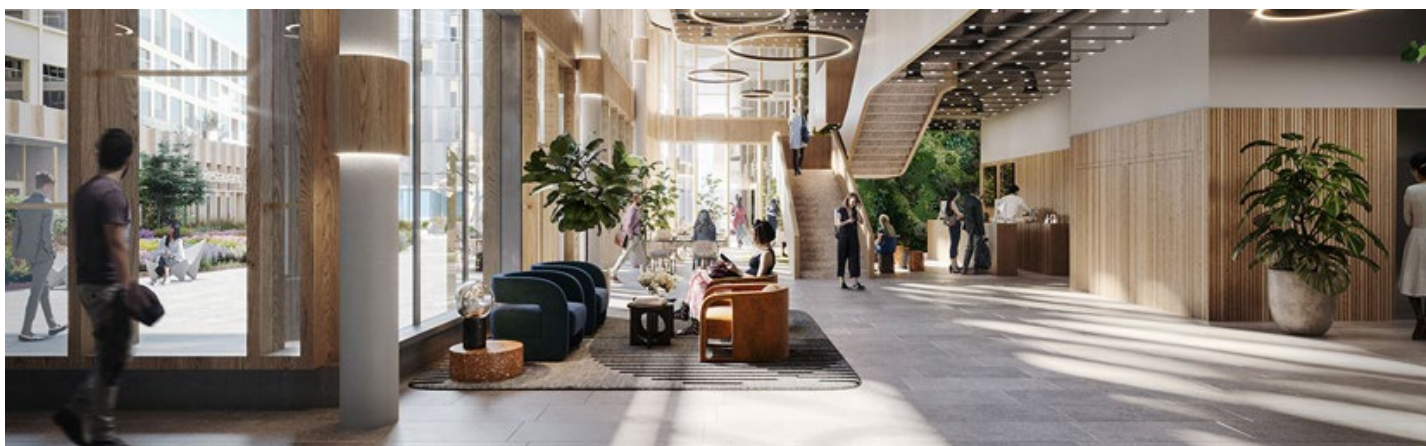
SPT 1a: By 2026, reduce Scope 1, 2 & 3 greenhouse gas emissions (kgCO₂e/sqm) by 25% compared to 2019 base year

SPT 1b: By 2030, reduce Scope 1, 2 & 3 greenhouse gas emissions (kgCO₂e/sqm) by 50% compared to 2019 base year

Strategy to achieve SPT 1a and b: To meet these targets Humlegården aims to focus its efforts on reducing the climate footprint from construction and property management activities. This includes reducing negative contributions from construction materials, transport, waste and energy use as well as adopting circular principles, using low impact construction techniques and design and refurbish buildings to become more resource efficient in line with best available science. Premises are designed with a circular model in order to be able to be dismantled and adapted to the changing needs of the tenant to a greater extent, which should result in less demolition waste when rebuilding. Premises are inventoried before remodelling to document building products that can be reused in the project or other projects. In addition, Humlegården strives to actively work with the tenants to ensure that buildings are utilized in an energy efficient manner, have proximity to public transportation as well as good recycling and waste management solutions. Purchase of renewable energy guarantees of origin and/or offsets will be very limited.

Level of ambition & benchmark: During fall 2022, Humlegården received validated targets by the Science Based Targets initiative (“SBTi”) in line with the 1.5C scenario. By benchmarking its ambition against the ambition stated in the Paris Agreement, Humlegården has aligned its targets with the latest climate science as well as the expectations on climate action from different stakeholder groups. These targets will further enable Humlegården to reach its’ long-term goal to become climate neutral by 2045.

Year	Baseline & targets
2019 (baseline)	17.2 kg CO ₂ e/sqm
2026 (SPT 1a)	25%
2030 (SPT 1b)	50%



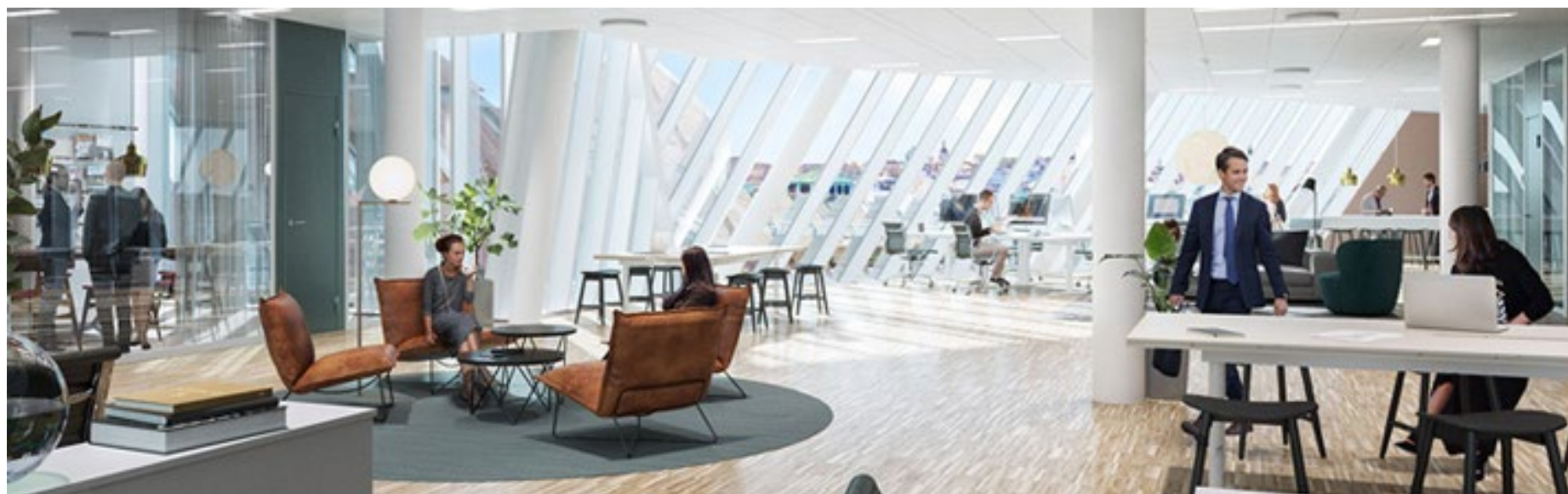
SPT 2a: By 2026, reduce energy use by 20% (kWh/sqm) compared to 2019 base year

SPT 2b: By 2030, reduce energy use by 32% (kWh/sqm) compared to 2019 base year

Strategy to achieve SPT 2a and b: To meet these targets Humlegården is investing in energy efficiency in existing buildings as well as aiming for zero energy new buildings and actively working with tenants to ensure that buildings are utilized in an energy efficient manner through contracts.

Level of ambition & benchmark: These targets require Humlegården to implement several energy efficiency initiatives such as implementing new techniques and facilities for example geothermal plant, optimizing energy usage by focusing on demand management and machine learning and educating personnel in optimizing the energy management of the properties. Thus, these targets go beyond a business-as-usual scenario. Humlegården believes that a commitment to aligning its business model with the most ambitious (1.5C) Paris Agreement scenario, and setting targets accordingly demonstrates a high degree of ambition. In comparison with several relevant peers, Humlegården has a more ambitious goal for energy efficiency with a higher ambition to reduce energy consumption per sqm on average by 2030.

Year	Baseline & targets
2019 (baseline)	100 kWh/sqm
2026 (SPT 2a)	20%
2030 (SPT 2b)	32%



SPT 3a: BY 2026, carry out 25% of all major renovations and construction projects according to circular principles

SPT 3b: By 2030, carry out all major renovations and construction projects according to circular principles

Strategy to achieve SPT 3a and b: To meet these targets Humlegården is adopting circular strategies into daily operations. This means that renovations and construction projects with earliest start date Jan 1st, 2023, and larger than or equal to SEK 3m (which typically corresponds to 70-90% of all projects during one year) will be carried out according to circular principles. In addition, as part of an internal evaluation, Humlegården will measure the circularity and climate output of the projects through a set of indicators that are linked to 9 circular economy sub-goals. This means that Humlegården validates that implementing circularity principles in the projects lead to the desired impact. Humlegården will constantly iterate, evaluate and optimise how the impact is measured according to future policies, legislations, business innovations and new best practices. Planned activities to reach the 2030 goal is to implement Humlegården's two processes for more circular construction/renovation and reuse, in projects. This means that circularity and reuse should be considered at all project stages – from discussions with customers to planning and design to construction and property management. In order to enable implementation, Humlegården will initially (and continuously) focus on educational efforts both internally and externally.

Level of ambition & benchmark: The level of ambition is high since there is yet no standardized way of measuring circularity in building and real estate, nor has any industry practice been developed. By forming a set of indicators that both evaluate circularity activities/principles and their impact/effect, Humlegården will be a frontrunner in the industry and aims towards inspiring other industry partners to take part in the journey and ultimately create the much-needed industry praxis. Humlegården will educate partners, put new demands on suppliers and nudge their clients into choosing more sustainable and circular office adaptations. In addition, the processes have been developed together with external parties and experts in circular economy. They are based on available research and case studies and are in line with current best practice - for references see section reference list in appendix. They have also been developed from Humlegården's research project conducted in 2019 together with RISE Research Institute and IVL Swedish Environment Institute, partly financed by Vinnova. Note that no direct benchmark is available; however, the methodology will be made publicly available and could therefore be adopted by other actors over time. Please see appendix for more details.

Year	Baseline & targets
2022 (baseline)	0%
2026 (SPT 3a)	25%
2030 (SPT 3b)	100%

3. Characteristics of the Finance Instruments

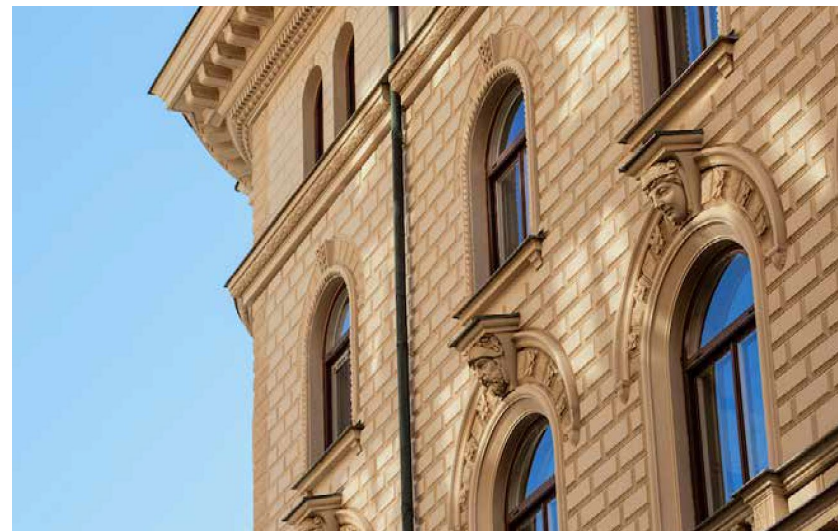
The structural characteristics of the Finance Instruments issued under this Framework will be specified in its corresponding security documentation including but not limited to the KPIs, SPTs, calculation methodology along with the date in which the relevant SPTs are to be achieved (the "Target Observation Date").

Depending on Humlegården's performance in relation to the applicable SPTs per the Target Observation Date, the structural characteristics of a Finance Instrument will change ("Trigger Event"). The Trigger Event may result in a *premium redemption option or step-up/step-down option* of the Finance Instruments. The size of the increase in the redemption price or step-up and/or step-down option will be specified in the security documentation for each respective Finance Instrument issued under this Framework.

Various situations could lead to recalculation of the baselines, the KPIs, the SPTs and their respective reported values. Such situations could be, but are not limited to, changes to the corporate structure (including acquisitions and divestments), regulatory changes as well as changes to the methodology for calculation of any KPI to reflect changes in market practice or relevant market standards (e.g. GHG Protocol). All such changes will be reported in accordance with section "4. Reporting" and verified by a qualified external reviewer.

Any future Finance Instrument with the same KPI as any previously issued Finance Instrument must utilise an SPT of equal or greater ambition. Furthermore, at the issuance of such Finance Instrument, all outstanding Finance Instruments will have their equivalent SPT adjusted to Sustainability-Linked Financing Framework reflect the greater ambition. This is referred to as the "most ambitious target" clause, and it is done for three reasons:

- To enable the increase of ambition over time and allow Humlegården to adapt to new circumstances
- To avoid the coexistence of Finance Instruments with SPTs reflecting different levels of ambition
- To facilitate reporting, i.e. avoid the need to validate one KPI against multiple SPTs



4. Reporting

To be fully transparent towards investors, banks and other stakeholders, Humlegården will commit to reporting on an *annual basis* until no Finance Instruments are outstanding.

Capital market/non-bank financing

For capital market/non-bank financing such as *Sustainability-Linked bonds, commercial papers etc.*, the *Sustainability-Linked Financing Progress Report* will form the basis for evaluating the impact on the respective Finance Instrument's structural characteristics as outlined in Section 3 as well as in the respective security documentation. The Sustainability-Linked Financing Progress Report will be published on Humlegården's *website* and cover some of the following areas:

- The performance of the KPIs and SPTs as per the relevant reporting period including the calculation methodology and baselines, where relevant
- Information about recalculations, if any, of the baselines (if applicable)
- A verification report relative to the KPIs outlining the performance against the SPTs and the related impact, and timing of such impact, on the security characteristics
- Any other information deemed being relevant to the investors and/or lenders in Humlegården's Finance Instruments

Bank financing

For bank financing such as *Sustainability-Linked term loans, revolving credit facilities etc.* Humlegården may opt to report non-publicly to lenders or other relevant counterparts with up-to-date information sufficient to allow them to monitor the performance of the SPTs and to determine that the SPTs remain ambitious and relevant to Humlegården's business.

5. Verification

To confirm the transparency, robustness, and ambitiousness of Humlegården's Framework, it is verified by an approved *external second opinion provider*. The Framework and second opinion from CICERO are available on Humlegården's website; <https://humlegarden.se/>.

For capital market/non-bank financing as well bank financing Humlegården will obtain an *external and independent verification* of the KPIs performance relative to the applicable SPTs on an *annual basis*. Failure to provide the annual verification by the dates defined in the security specific documentation will result in an automatic adjustment in the financial characteristics, also as outlined in the security specific documentation.



Appendix

KPI 3 – circular principles

Overview

The purpose of KPI 3 is to increase the share of projects that are built according to Humlegården's circular principles. The principles describe a step-by-step approach that when implemented in renovations and construction projects leads to long term sustainable and circular buildings and premises that in turn enables progress in Humlegården's 9 circular economy sub-goals;

1. Reduced material use
2. Reduced climate impact
3. Reduced waste
4. Buildings are used longer
5. Buildings are used more
6. Buildings can be dismantled
7. No toxic materials
8. Materials are chosen based on data
9. Increased digital traceability

At the end of each year, Humlegården measures the share of projects (renovations and construction projects) that have gone through Humlegården's circular principles. The circular principles describe Humlegården's circular construction process & reuse-process which include several steps that are linked to a set of activities. Each activity is linked to specific point(s). Activities are either mandatory or optional but a project is required to go through the mandatory activities and reach a certain amount of points in order to be qualified as circular. Which activities that are mandatory/optional could be altered with time. For an overview of the processes, see table 1 and 2 below.

Table 1. The process for more circular building

Process step	Overview
Plan for circularity	At an early stage, the project plans, prepares and sets a strategy for implementing the circular principles by stating goals and requirements for all involved parties. Alignment on the objectives for the project is crucial for successful implementation of the principles.
Circular design	Circular design strategies such as adaptability, flexibility and reuse are considered in the project to increase both lifetime and utility of the building/premise.
Circular product choices	Products are evaluated and chosen based on sustainability and circularity data such as lifetime-, modularity-, reusability-, recyclability- etc. data.
Circular building	Circular design strategies are realized in the building phase and reuse and material efficiency is prioritized. Products are installed so that they can be dismantled in the future.
Reduce waste	Guidelines for how to reduce waste is followed, statistics and data is documented.
Increase utility	The project has a strategy for how to achieve a high utility of the premises/building.
Documentation, maintenance and planning	The project enables long term sustainable maintenance of the premise/building through careful documentation and planning.

Table 2. The reuse process

Process step	Overview
Reuse inventory and quality assurance	At an early stage, both an inventory of the existing material and studies to ensure no toxic materials are present are conducted to establish the possibilities of reuse and recirculation of materials.
Action plan for reuse	The action plan decides on how the existing material should be handled based on Humlegården's reuse hierarchy.
Dismantling and modular/selective demolition	Gentle dismantling is performed to realize reuse of products and materials.
Logistics, storage, resale	Logistics, storage possibilities and channels for potential resale are in place to manage the reuse of materials and products.
Installation	Products are installed in such a way that future dismantling is possible, in order to reuse materials and products again and again.

Measuring impact

As part of an internal evaluation to ensure that the circular principles yield the desired effects, Humlegården measures a set of indicators that are linked to each of Humlegården's 9 circular economy sub-goals. The internal indicators are in line with EU taxonomy directives and Level(s), as well as with circular economy recommendations from both the World Green Building Council and National Green Building Councils. They are also, to a large extent, aligned with Circular Buildings Toolkit by The Ellen MacArthur Foundation, and Arup. In addition, the indicators are based on a comprehensive evaluation of circularity parameters within building, for a list of all references, see the below section reference list. Important to add is that the scope of these indicators is not fixed. Humlegården will constantly iterate, evaluate and optimise how their impact is measured according to future policies, legislations, business innovations and new best practices. Since circular metrics are new and there are yet no standardized ways of measuring circularity, the indicators could change.

Table 3. Example of indicators

Goal 2030	Sub-goals	Indicators	Formula
All major renovation and new construction are built according to circular principles	Reduced material use	Quantity/share renewable/total material	[kg renewable material/kg total material]
		Quantity/share reused/total material	[kg reused material/kg total material]
		Quantity/share recycled/total material	[kg recycled material/kg total material]
		Quantity/share new material/total material	[kg new material/kg total material]
		Material use per sqm per year	[kg new material/m ² /year]
		Reused floor & roof area/total area	[(Reused floor area+ reused roof area)/(total floor area + total roof area)]
	Reduced climate impact	Climate impact per sqm	[CO ₂ eq/total m ² built area]
		Climate impact per sqm per year	[CO ₂ eq/m ² /year]
		Cost for climate impact per sqm per year	[Sek/m ² /year]
		Avoided CO ₂ emissions from material due to reuse	[CO ₂ eq (savings)/m ² /year]
	Reduced waste	Waste per sqm renovation/construction	[kg waste material/m ²]
	Buildings are used longer	Design for adaptability	Level(s) indicator 2.3

Historical data – research project

Humlegården conducted a research and innovation project in 2019 with the aim of creating a circular office adaptation and measure the circularity in different ways. The project compared the circularity parameters of different products as well as evaluated an office's circularity over time. The project resulted in a decrease in climate impact of approx. 65% (14 kg CO₂e/sqm) in comparison to Humlegården's standard office adaptations (40 kg CO₂e/sqm). Until 2022, extensive work has been done on developing processes, methods and activities for more circular construction and renovation. To date, several projects have implemented and evaluated Humlegården's circular principles.

Benchmark

The best practice for measuring circularity within building is EU commission tool Level(s). Level(s) provides a comprehensive framework and set of indicators that are aligned with the strategic EU policy objectives in areas such as energy, material use and waste, water, indoor air quality and resilience to climate change. The indicators that relate to circularity are included in Humlegården's indicators for measuring the effect of circular principles. Other ways of measuring circularity within building are presented in The Circular Buildings Toolkit, developed by The Ellen MacArthur Foundation and Arup in 2022. The toolkit includes examples of circular principles, methods and metrics and is based on the EU-taxonomy and Level(s) as well as aligned with circular economy recommendations from both the World Green Building Council and National Green Building Councils. The principles and methods as well as several of the metrics, are aligned with Humlegården's circularity principles.

Another tool that can be used for designing more circular buildings is CIX, created by Ettelva Arkitekter, Bengt Dahlgren, Riksbyggen and Göteborgs stad in 2020. Also this tool is aligned with several of Humlegården's indicators. In addition, there are circularity metrics on product level such as the C-metric and ME-metric, both developed by RISE, that have been used to evaluate products within building. Other circularity metrics, not specific to building industry, are for example The Material Circularity Indicator (MCI) and Circulytics, both created by The Ellen MacArthur Foundation as well as The CTI Tool created by The World Business Council for Sustainable Development (WBCSD) and Circular IQ. See the below reference list to find all sources that have inspired Humlegården's circular principles.

Reference list

Policies

- EU Commission. 2022. EU taxonomy: https://finance.ec.europa.eu/regulation-and-supervision/implementing-and-delegated-acts/taxonomy-regulation_en (2022-09-16)
- Boverket. 2022. <https://www.boverket.se/sv/> (2022-10-01)

Tools to measure circularity within building

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