



storaenso

THE RENEWABLE MATERIALS COMPANY

Stora Enso Green Bond Report 2022

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Stora Enso in a nutshell

Part of the global bioeconomy, Stora Enso is a leading provider of renewable products in packaging, biomaterials, and wooden construction, and one of the largest private forest owners in the world. Stora Enso has approximately 21,000 employees and Group sales in 2022 of EUR 11.7 billion. Stora Enso shares are listed on Nasdaq Helsinki Oy (STEAV, STERV) and Nasdaq Stockholm AB (STE A, STE R). In addition, the shares are traded in the USA as ADRs (SEOAY).

Our fiber-based materials are renewable, recyclable, and fossil free. Our solutions offer low-carbon alternatives to products based on finite resources. We believe that everything that is made from fossil-based materials today can be made from a tree tomorrow.



We are the renewable
materials company.

Sustainability at Stora Enso

Sustainability is an integral part of our strategy – it is at the core of what we do. We contribute to the transformation of the materials system in three areas where we have the biggest impact and opportunities: climate change, biodiversity, and circularity. Our aim is to provide fully circular products and solutions that help reduce climate impact and support biodiversity restoration, helping our customers to reach their ESG targets.

Sustainable finance at Stora Enso

Stora Enso has the long-term aim to secure funding partners that have sustainability as a fundamental part of their agenda. We aim to influence and develop the financial markets to ensure that sustainability becomes an integral part of decisions and credit evaluation. In addition to green bonds described in this report, Stora Enso has an undrawn EUR 700 million Revolving Credit Facility (RCF) loan signed in 2021, where the pricing mechanism is linked to our science-based climate targets. Stora Enso commits to reducing absolute scope 1 and 2 greenhouse gas (GHG) emissions from its own operations, as well as scope 3 GHG emissions from its value chain, by 50% by 2030 from the 2019 base-year. The targets relating to own operations are aligned with the scenario that limits global warming to 1.5 degrees.

Stora Enso's Sustainable Finance strategy is an integrated part of our overall strategy. Stora Enso aims to have access to sufficient and competitively priced funding at any time to be able to pursue its strategy and achieve its targets.

Stora Enso signed its first sustainability-linked credit facility in 2017 and issued its first green bonds in 2019. With the Green Bond Framework, our ambition is to offer a format to support fixed income investors and to report the direct environmental impacts of the financed investments and business activities.

The Financial Stability Board's (FSB) Task Force on Climate-related Financial Disclosures (TCFD) recommends a framework for disclosing climate-related risks and opportunities that goes beyond current practices. Stora Enso published its first TCFD-aligned reporting in the Report of Board of Directors in 2019. Stora Enso has assessed a business impact scenario for 2030 according to the global transition required to limit the global average temperature increase in line with the Paris agreement of 1.5 degrees (RCP 1.9). The work concluded that the overall transition to a low carbon, circular bioeconomy is well aligned with Stora Enso's strategy. For more information on Stora Enso's reporting according to TCFD recommendations, see [Annual Report 2022](#).

Green bonds at Stora Enso

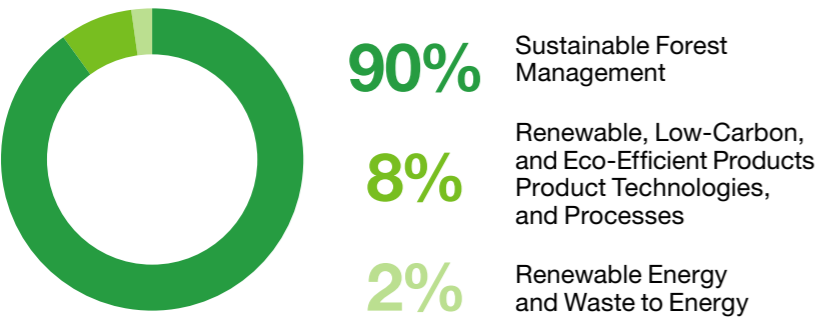
Stora Enso's Green Bond Framework is based on and aligned with the 2017 version of the [Green Bond Principles](#) (GBP) published by the International Capital Markets Association (ICMA). The framework lists the possibilities and limitations of the project categories that Stora Enso has defined as eligible for green funding. Proceeds from Green Bonds are used solely to finance or refinance (going back up to two years) projects and activities defined under the Eligible Categories.

The relevant use of proceeds is outlined for each Eligible Category and is comprised of individual projects or a portfolio of projects that has been selected based on Stora Enso's policies and governance structure. Where appropriate, the use of proceeds may be used to finance operating expenditures (for example forest management or R&D) and will be tracked on a project or portfolio basis. Only projects or investments controlled and managed by Stora Enso, or within one of Stora Enso group controlled subsidiaries, are deemed eligible.

In total Stora Enso has issued seven green bonds or bilateral loans in 2019–2022, with total nominal amount of about

1,500 EUR million

Allocated green bond categories as of 31 Dec 2022



Green Bond Categories

To be eligible for Green Bond proceeds, the projects must fall within one of the following Eligible Categories.



1. Sustainable forest management

Forests are the foundation of our business. Sustainable forest and plantation management secures the long-term availability of wood and pulp, while ensuring the preservation of ecosystems and biodiversity. We ensure that our forests grow more than they are harvested and that every part of the harvested tree is used optimally.



3. Energy efficiency

By using materials efficiently and replacing non-renewable materials, Stora Enso operates at the heart of the bioeconomy. The environmental work at our mills, including water and energy management and resource efficiency, is supported by third-party-certified environmental management systems. A fundamental part of our work is a central energy and water efficiency investment fund.



5. Sustainable water management

Production at Stora Enso's board, pulp and paper units requires large amounts of water. The units withdraw process and cooling water almost entirely from surface waters. Only around 4% of water is consumed in production processes while almost 96% is recycled back into the environment.



2. Renewable, low-carbon, and eco-efficient products, product technologies, and processes

Our low-carbon materials are renewable and recyclable and come from sustainably managed forests and plantations. They form the building blocks for a range of innovative solutions in packaging, biomaterials, and wooden construction that can replace and substitute fossil-based materials.



4. Renewable energy and waste to energy

Stora Enso's production generates residuals and by-products such as black liquor, bark, and different kinds of sludge. These materials together with harvesting residues and recovered wood all constitute important biomass sources which can be used to produce energy. Stora Enso's sites generate and distribute energy to local district heating systems and industrial partners largely based on residuals from harvesting operations and production processes.



6. Waste management and pollution control


Stora Enso works to reuse and recycle materials, to minimise waste and to maximise the value of material streams by creating circular material flows in its value chain. At the same time, Stora Enso aims to reduce its own process waste to landfill to as close to zero as legally, technically and commercially possible.

Outstanding green bonds and bilateral loans

	Nominal Amount		Issued	Maturity	Coupon
	Amount (million)	at 31 Dec 2022 (EUR million)			
1.	SEK 1,250	112	2019	February 2024	STIB0R +1.45%
2.	SEK 1,750	157	2019	February 2024	1.875%
3.*	SEK 1,000	90	2019	May 2026	private
4.	SEK 1,550	139	2020	April 2025	STIBOR +2.2%
5.	SEK 1,550	139	2020	April 2025	2.375%
6.	EUR 500	500	2020	December 2030	0.625%

*bilateral loan

Allocated proceeds and impact reporting

Eligible category	Eligible project	Description	Green Bond and allocated proceeds	Environmental impact metric (KPI)	Performance 2022
 Sustainable Forest Management	Acquisition of Swedish certified forestland	Acquisition of Swedish forest holdings in 2019 in connection with the restructuring of Bergvik Skog.	Bonds 1–5: 100% Bond 6: 60%	% of the lands owned or leased that are in wood production and harvesting covered by forest certification schemes. ¹	The acquired forest assets are 100% certified ² and amount to 1.39 million hectares, including 1.14 million hectares of productive forest land with standing stock of 150.5 million m ³ forest.
	Sustainable forest management projects in Sweden (OPEX)	Stora Enso forests in Sweden Sustainable forest management activities funded are: <ul style="list-style-type: none">• Regeneration of forests and plantations managed and harvested by Stora Enso• Wood harvesting of FSC or PEFC-certified forests (e.g. labor costs)• Seedlings (e.g. production and procurement of pine, spruce, birch used in forest regeneration)• Silvicultural operations (e.g.soil preparation, planting,pre-commercial thinning)• Fertilisation (e.g. labor costs)• Infrastructure to facilitate sustainable forest management• Restoration of native forests and conservation of biodiversity.	Bond 6: 10%	Positive climate impact through forests' carbon sequestration based on estimated net forest growth for Stora Enso forests in Sweden.	As an average of 2020–2022, Stora Enso's forests in Sweden sequestered an estimated 1.7 million tonnes of CO ₂ annually. ³

¹ Biodiversity is an integral part of forest certifications including protection of valuable ecosystems. The reporting is complemented by selected biodiversity indicators on the Group's website.
² Certification by Forest Stewardship Council (FSC) and Programme for the Endorsement of Forest Certification (PEFC). Stora Enso Communications' FSC® trademark license number is FSC-N001919.
³ Including the above and below-ground biomass of trees. Currently excluding soil carbon. For more information, see [Sustainable forestry and biodiversity](#).





Stora Enso launched a biodiversity programme for own forests in Sweden

In 2022, Stora Enso launched a comprehensive [biodiversity programme](#) and related targets for its land holdings in Sweden. The programme, which covers the Group's forest land in Sweden, has five focus areas, each with specific actions and measurable targets for 2030.

Stora Enso is one of the country's largest private forest owners. Safeguarding biodiversity has been an integral part of Stora Enso's forest management for decades. The new programme aims to strengthen this work further. Combined with the ongoing biodiversity work, the new biodiversity programme with more than 30 actions will lead to increased nature values and strengthened biodiversity across Stora Enso's land holdings in Sweden.

Read more:
➤ [Sustainable forestry and biodiversity](#)

Case

Eligible category	Eligible project	Description	Green Bond and allocated proceeds	Environmental impact metric (KPI)	Performance 2022
 <p>Renewable, Low-Carbon, and Eco-Efficient Products, Product Technologies, and Processes</p>	Gruvön Cross Laminated Timber (CLT) site investment	EUR 45 million investment in a new CLT unit at the Gruvön site in Sweden was completed and production started in 2019.	Bond 6: 9%	Annual CLT production capacity (m ³), also considered as a proxy for positive climate impact through carbon storage and substitution of carbon-intensive construction materials ⁴	CLT production capacity at the Gruvön site was 80,000 m ³ in 2022, ramping up towards the full capacity of 100,000 m ³ /year.
	Ždírec Cross Laminated Timber (CLT) site investment	EUR 79 million investment in a new production line for CLT at Stora Enso's Ždírec site in the Czech Republic. Production started in the third quarter of 2022.	Bond 6: 16%	Annual CLT production capacity, (m ³), also considered as a proxy for positive climate impact through carbon storage and substitution of carbon-intensive construction materials ⁴	The estimated annual production capacity will be approximately 120,000 m ³ after ramp-up.
 <p>Renewable Energy and Waste to Energy</p>	Steam turbine investment at the Maxau site⁵	EUR 25 million investment to boost green energy generation at Stora Enso's Maxau paper site in Germany. The project installed a new steam turbine with a closed-loop cooling system and additional biomass storage. The investment improves energy efficiency and enables the use of a higher biomass share and, consequently, reduces fossil CO ₂ emissions.	Bond 6: 5%	Reduction of fossil CO ₂ emissions (tonnes)	The reduction of fossil CO ₂ emissions as a consequence of the investment is estimated to be approximately 50,000 tonnes annually.

⁴ One cubic metre (m³) of CLT stores an equivalent of CO₂-eq. The production unit specific calculations of avoided CO₂ emissions and carbon storage is additionally informed by third-party verified Environmental Product Declarations available at our [website](#).

⁵ As announced in September 2022, Stora Enso has signed an agreement to dispose of the Maxau paper production site. The proceeds for the site will be re-allocated and reported in the next Green Bond Report.

Case



Stora Enso launched a building solution for low carbon construction

To meet the demand for sustainable and innovative construction solutions, Stora Enso launched [Sylva™](#) by Stora Enso in 2022. Sylva is Stora Enso's range of engineered and prefabricated products such as cross-laminated timber (CLT), laminated veneer lumber (LVL) and glued laminated timber (GLT). The solution enables faster construction, reduced costs, more efficient use of raw material and fewer emissions than concrete or steel.

Wood products can help transform the construction sector from a source of greenhouse gas emissions to a carbon sink. Every cubic meter of wood used as a substitute for non-renewable building materials reduces CO₂ emissions by an average of 1.5 tonnes. This carbon stays stored in wooden buildings for generations.

Read more:

› Wood products

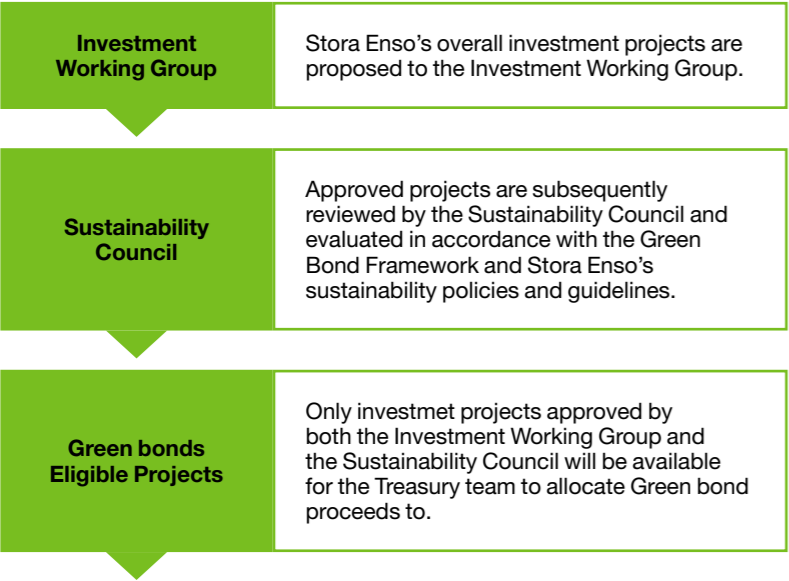
Governance

We have defined a set of Green Bond specific steps, which have been integrated into the existing governance model of Stora Enso.

Stora Enso’s strategic investment projects are approved on group-level following the mandate by the CEO and Board of Directors. Each division will also be granted an annual allocation intended for smaller annual replacement and development needs in relation to investments. All large projects are reviewed by the Investment Working Group comprising group and division representatives and headed by the CFO.

Group investment guidelines stipulate the process, governance, risk management, and monitoring procedures for strategic projects. Post completion audits are carried out for all significant investments. Risks are mitigated through detailed pre-feasibility and feasibility studies which are prepared for each large investment. Green Bonds are administered by the Treasury team supported by experts from across the company to ensure alignment to the framework. Approvals for Green Bonds use of proceeds for investment are additionally approved by our Sustainability Council. The Sustainability Council consists of members from all divisions and the Sourcing and Logistics function, and is chaired by the Executive Vice President, Sustainability.

Outline of the Green Bond selection process



In recent years, Stora Enso has been through a comprehensive transformation process. We have proactively repositioned our business from largely a pulp and paper company to a global renewable materials company. Sustainability trends underpin our opportunity for long-term and profitable growth.

Our goal is to offer 100% regenerative solutions by 2050. This means providing renewable and fully circular products and solutions that help reduce climate impact and support biodiversity restoration. We have also set science-based targets for 2030 for the three areas where we have the biggest impact and opportunities: climate change, biodiversity, and circularity.

To achieve such ambitious targets, co-operation with our entire value chain and the finance community is the only way forward.

Annette Stube
Executive Vice President, Sustainability



The goal of our Sustainable Finance strategy is to have access to sufficient and competitively priced funding at any time to be able to pursue our strategy and achieve our targets.

I’m very pleased with the investor demand for our green bonds as well as the results of the funded projects. Green bonds have been crucial to finance our strategy, especially with the Group’s forest assets. With our investors’ support, we have advanced our renewable solutions offering as well as our sustainable forest management, promoted biodiversity and reduced our fossil CO₂ emissions.

Green funding supports our business and helps our customers in transformation towards a biobased circular economy.

Seppo Parvi
Chief Financial Officer (CFO), Deputy CEO,
Country Manager Finland